

*Field Workers'
Reference Guide
for the
1st 1000 MCDP*

**A National Programme for Families
To Prevent Child Stunting**



Field Workers' Reference Guide for



A National Programme for Families To Prevent Child Stunting

Developed by:

- National Food and Nutrition Commission
- Ministry of Agriculture and Livestock
- Ministry of Community Development, Mother and Child Health
- Ministry of Education, Science, Vocational Training, and Early Education
- Ministry of Health
- Ministry of Local Government and Housing
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Field Workers' Reference Guide for 1st 1000 Most Critical Days:
A National Programme for Families to Prevent Child Stunting,

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Foreword

The Government of the Republic of Zambia, through the National Food and Nutrition Commission (NFNC) and partners aims at providing optimal nutrition status to the Zambian population. The current nutrition status is at an unacceptable level as nearly one in every two children is stunted at two years of age. This increases their risk of dying from infectious diseases, reduces school performance, lowers their future income earning capacity, and collectively reduces the Gross Domestic Product (GDP) of the Zambian economy. Stunting in young children is generally the result of poor household food security, poor infant and young child feeding and other care practices, and infectious diseases caused by inadequate water, sanitation and hygiene practices.

The effects of these poor nutrition and health practices are more pronounced and may be permanent when they occur in early childhood from conception to 24 months of age - a period of 1000 days that is commonly referred to as the “Most Critical Days” of life for a child. This is a time period when growth and development begins and rapidly progresses. To allow children to grow to their full potential requires adequate nutrition and the prevention of infection for the mother throughout pregnancy and during their first two years.

The effects and benefits of good nutrition in early childhood filter into adulthood in terms of increased productivity and

economic development. Hence, it becomes important that interventions that offer the best benefits in support of adequate nutrition during this critical “window of opportunity”, be fully implemented. On the negative side, evidence shows that some consequences of poor nutrition during this 1st 1000 Most Critical Days period including stunting if not addressed cause permanent damage affecting the children throughout their lifespan .

To address the poor nutrition status of pregnant women and young children in the country, high impact interventions, important during the 1st 1000 MCDs need to be effectively implemented at national scale. This scale up requires support of an adequate, skilled, and knowledgeable human force that understands the goals of the 1st 1000 MCDs programme which spells out the needed multi-sector approach by key stakeholders to improving nutrition. This multi-sector approach is the foundation for the 1st 1000 MCDs programme and to reduce malnutrition in Zambia.

The Field Workers’ Reference Guide (FWRG) for the 1st 1000 MCDs provides Field Workers in multiple sectors with useful information regarding the interventions that can prevent malnutrition; especially stunting in infants and young children. Field Workers are community service providers (in food security, nutrition, health, social protection, community development, and water, sanitation and hygiene) who are closest to the community. They are expected to enhance awareness on the importance of adequate nutrition and disease prevention during the 1st 1000 MCDs and help guide community members to obtain

develop and implement useful and appropriate practices. Field Workers' effective role is one key to national development.

The FWRG is developed from a variety of guidelines, manuals and reference materials often used by various sectors in Zambia. The FWRG brings these together and adapts them to create one document that provides easy access by Field Workers to a wide set of information and "how to" guidance. The FWRG offers multifaceted information that can help Field Workers to increase their knowledge related to nutrition, preventive health, food security, and community development. The FWRG should help Field Workers across sectors to more actively participate in promoting the health of women and children and families to ensure healthy pregnancies, good birth outcomes, and adequate growth, health and care of young children. The FWRG also promotes cross sector participation and collaboration among Field Workers from all sectors as they work towards preventing stunting in the 1st 1000 MCDs.

The FWRG was developed by NFNC in collaboration with key ministries. These include the Ministry of Agriculture and Livestock (MAL), Ministry of Community Development, Mother and Child Health (MCDMCH), Ministry of Health (MOH), Ministry of Local Government and Housing (MLGH) and Ministry of Education, Science, Vocational Training, and Early Education (MESVTEE) and other partners who have special interests in child survival and development especially during the 1st 1000 MCDs. This collaboration

was based on full consensus on the need for a guide that would provide Field Workers with information needed to effectively support the 1st 1000 MCDs.

The development of the FWRG for the 1st 1000 Most Critical Days took almost a full 1000 day period to complete and the collaboration and hard work is commendable. However, the test of this publication rests in how Field Workers from all of our Ministries, those from NGOs and others use it to strengthen collaboration at community level.

We hope and expect the FWRG will help ensure that key interventions are fully implemented and that all Zambian families learn and adopt the practices outlined in the FWRG that can improve the nutrition and health status of the mother and children during their 1st 1000 MCDs.

As leaders of the Ministries with cadres of community level Field Workers we enthusiastically endorse the distribution and use of the Field Workers' Reference Guide to 1st 1000 Most Critical Days. We expect this publication to be a tool that is carried every day by our Field Workers, and that they use it to collaborate with their colleagues from other Ministries and with Community Leaders and families. We encourage them to use this FWRG to promote and guide efforts that prevent child stunting and improve nutrition and health in communities throughout the country.



Musonda Mofu
Acting Executive Director
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Quick Start

How to Use the Field Workers' Reference Guide (FWRG) to Prevent Child Stunting during the 1st 1000 Most Critical Days

This Field Workers' Reference Guide (FWRG) can be used for sector work and for greater cross sector participation by Field Workers from several Ministries when helping families learn about and participate in important preventive health services, improve nutrition and household food security, social assistance and community development. Strengthening such activities will help families protect their children's futures during the 1st 1000 Most Critical Days. This FWRG will help Field Workers from every sector to actively promote the many services and good practices that prevent child stunting.

This FWRG includes information on services from several sectors and good practices for families during the period beginning with pregnancy and continuing through the first two years of a child's life. The FWRG promotes and provides information needed to better allow Field Workers to come together and collaborate on activities that contribute to preventing child stunting throughout this critical period.

The FWRG has three major sections. Part A is important to read because it explains the background of the National 1st 1000 MCDs Program. It also explains) why the FWRG was developed for all Field Workers, how it can be used to

help prevent child stunting, and the key nutrition messages that should be given to all families.

Part B provides information on improving food security, nutrition, health services, and the key practices that are important during pregnancy and a child's first two years of life in order to prevent stunting. Part B has summary information on most of the services and practices that can help reduce stunting during the 1st 1000 MCDs. These include the most important services and practices during the period of pregnancy, a child's first six months, and the period from 6 to 24 months of age. Throughout Part B, there are easy to follow notes pointing to references and additional, more detailed information that the user can quickly find on each subject in Part C.

The small size and sturdy construction of the FWRG allows all Field Workers to keep the book with them at all times. As the frontline workers in the national programme to prevent child stunting you are encouraged to talk with your colleagues about the information from each sector and use the FWRG to develop cross sector activities which can assure all children do not suffer malnutrition and grow and develop normally during the 1st 1000 MCDs.

Abbreviations

1st 1000 MDCs	First 1000 Most Critical Days
ACP	African Caribbean Pacific Countries
ACC	Area Coordinating Committee (Social Welfare)
AFASS	Acceptable, Feasible, Affordable, Sustainable, and Safe
AIDS	Acquired Immune Deficiency Syndrome
ALI	Alternative Livelihood Interventions
ART	Anti-Retroviral Therapy
BAZ	Breastfeeding Association of Zambia
BCG	Bacille Calmette-Guérin vaccine (for tuberculosis) given at birth
BCC	Behaviour Change Communication
BFHI	Baby Friendly Hospital Initiative
BMI	Body Mass Index
CATS	Community Approaches to Total Sanitation (total use of latrines)
CBGM&P	Community-Based Growth Monitoring and Promotion
CBO	Community Based Organization
CHAZ	Churches' Health Association of Zambia
CHWks	Child Health Weeks
CLTS	Community-Led Total Sanitation
CSO	Central Statistical Office
CWAC	Community Welfare Assistance Committee
CDD	Control of Diarrhoeal Disease
DFID	Department for International Development (British)

DMMU	Disaster Management and Mitigation Unit
DHS	Demographic and Health Survey
DPT	Combined vaccine: Diphtheria, Pertussis, Tetanus
DTwPHibHep	Combined vaccine: Diphtheria and Tetanus toxoid with whole cell Pertussis, Hib and HepB Vaccine
DSWO	District Social Welfare Officer
DSWHQ	Department of Social Welfare Headquarters
DWAC	District Welfare Assistance Committee
EBF	Exclusive Breastfeeding
EFA	Education For All
ENA	Essential Nutrition Actions
EPI	Expanded Programme for Immunisation
EPRP	Emergency Preparedness and Response Plan
EU	European Union
FA	Folic Acid
FAO	Food and Agricultural Organization
FBO	Faith Based Organisation
Fe	Iron
FISP	Farmer Input Support Programme
FNDP	Fifth National Development Plan
FSP	Food Security Package
FWs	Field Workers
AEO	Agricultural Extension Officer
FA	Fisheries Assistant
VA	Veterinary Assistant
TA	Tsetse (fly) Assistant
CDA	Community Development Assistant

CHA	Community Health Assistant
CHW	Community Health Worker
EHT	Environmental Health Technician
SDA	Social Development Assistant
FWRG	Field Workers' Reference Guide
GAIN	Global Alliance for Improved Nutrition
GM&P	Growth Monitoring and Promotion
GRZ	Government of the Republic of Zambia
HHs	Households
HIV	Human Immunodeficiency Virus
IBFAN	International Baby Food Action Network
IDA	Iron Anaemia Deficiency
IDD	Iodine Deficiency Disorders
IDP	Internally Displaced Persons
IEC	Information, Education, Communication
IFPRI	International Food Policy Research Institute
IGA	Income Generating Activities
IMAM	Integrated Management of Acute Malnutrition
ITNs	Insecticide Treated Nets (bed nets)
IYCF	Infant and Young Child Feeding
LBW	Low Birth Weight
MAL	Ministry of Agriculture and Livestock
M&E	Monitoring and Evaluation
MCDs	Most Critical Days
MCDMCH	Ministry of Community Development, Mother and Child Health
MCH	Maternal and Child Health
MCTI	Ministry of Commerce, Trade and Industry
MDGs	Millennium Development Goals

MNP	Micronutrient Powder (for in-home fortification)
MMR	Measles Mumps and Rubella (vaccine)
MLGH	Ministry of Local Government and Housing
MLYS	Ministry of Labour, Youth and Sport
MOESVTEE	Ministry of Education, Science, Vocational Training and Early Education
MOH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
NAC	National HIV/AIDS/STI/TB Council
NAIS	National Agriculture Information Services
NCDs	Non-Communicable Diseases
NDP	National Development Plan
NEPAD	New Partnership for African Development
NFA	National Fortification Alliance
NFNC	National Food and Nutrition Commission
NFNP	National Food and Nutrition Policy
NFNSP	National Food and Nutrition Strategic Plan
NGO	Non-Governmental Organization
NHSP	National Health Strategic Plan
NTT	Tetanus Toxoid (vaccine) given during pregnancy to protect new-borns
NWSH	Nutrition, Water, Sanitation and Hygiene
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
OVC	Orphans and Vulnerable Children
PANI	Pan-African Nutrition Initiative

PEM	Protein Energy Malnutrition
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission (of HIV)
PWAS	Public Welfare Assistance Scheme
REWS	Regional Early Warning System
RUTF	Ready to Use Therapeutic Food
SAM	Severe Acute Malnutrition
SCN	(United Nations) Standing Committee on Nutrition
SCT	Social Cash Transfer Scheme
SNDP	Sixth National Development Plan
SADC	Southern African Development Community
SAG	Sector Advisory Group
SUN	Scaling Up Nutrition
TT	Tetanus Toxoid (vaccine)
UA	Urban Agriculture
UN	United Nations
UNAIDS	United Nations AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
VA	Vitamin A
VAS	Vitamin A Supplementation
VMD	Vitamin and Mineral Deficiency
WFP	World Food Programme
WHO	World Health Organization

WVI	World Vision International
ZAMCOM	Zambia Institute of Mass Communication
ZamNIS	Zambia Nutrition Information System
ZDHS	Zambia Demographic Health Survey
ZVAC	Zambia Vulnerability Assessment Committee

FWRG Glossary

The definitions were adapted from: United Nations Children’s Fund (UNICEF) 2012 “Nutrition Glossary: A Resource for Communicators,” Division of Communications and other sources.

1st 1000 MCDs – The period from conception through 2 years of life [pregnancy (270 days) + first year (365 days) + second year (365 days)] when there is critical growth and development in a child and many health and nutrition interventions are most beneficial.

Acute malnutrition – Also known as ‘wasting’, is a condition characterized by a rapid deterioration in nutritional status over a short period of time. In children, acute malnutrition can be measured using the weight-for-height nutritional index or mid-upper arm circumference.

Anaemia – A condition that arises due to reduced haemoglobin levels or red blood cells that impair the ability to supply oxygen to the body’s tissues. Anaemia is caused by inadequate intake and/or poor absorption of iron, folate, vitamin B₁₂ and other nutrients. It is also caused by infectious diseases such as malaria, hookworm infestation and schistosomiasis; and genetic diseases. Women and children are high risk populations. Clinical signs include fatigue, pallor (paleness), breathlessness and headaches.

Artificial feeding – The feeding of infants with only a breast

milk substitute.

Breast milk substitute (BMS) – Any food marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose.

Colostrum – The first thick, yellow milk secreted by the breasts in the first few days after childbirth. Colostrum has many benefits: it contains antibodies and other protective proteins that protect against infections and help regulate a baby's developing immune system; it contains growth factors, which help the infant's intestine to mature and function; it is rich in Vitamin A, Vitamin K and other nutrients; and it helps to prevent or reduce jaundice, which can be common among babies.

Community services – Interventions targeted at individuals and households that are incapacitated or vulnerable but viable (e.g. those with a piece of land and labour to be able to engage in farming activities).

Community based management of acute malnutrition (CMAM) – This approach aims to maximize coverage and access of the population to treatment of severe acute malnutrition by providing timely detection and treatment of acute malnutrition through community outreach and outpatient services, with inpatient care reserved for more critical cases.

Complementary feeding (CF) – Giving the baby other foods and fluids in addition to breast milk or breast milk substitutes from the age of 6 months. The foods should be

appropriate, adequate and safe.

Conservation farming – The use of non-conventional farming methods that focus on: (1) the retention of residues, (2) restricting tillage of the land to the area where the seed is to be sown, (3) completion of land preparation in the dry season, (4) establishment of precise and permanent planting basins, (5) precision use of inputs, (6) early and continuous weeding, and (7) rotations. These practices aim to improve soil structure and water retention and reduce the need for chemical fertilizers while at the same time increasing crop yield.

Continued breastfeeding – Breastfeeding of children from 6 to 24 months or beyond in addition to providing other foods. It follows exclusive breastfeeding which is done from birth to 6 months.

Correctional services – The receipt and provision of care and rehabilitation of a juvenile in conflict with the law as ordered by the court.

Cretinism – A severe mental and physical disability that occurs in the offspring of women who have severe iodine deficiency, which occurs during the first trimester of pregnancy.

Early initiation of breastfeeding – Breastfeeding within one hour of birth.

Exclusive breastfeeding – Is feeding of children from birth

to 6 months with breast milk alone. During this period an infant receives only breast milk and no other liquids or solids, not even water, unless medically indicated.

Field worker (FW) – A person assigned by either government or a non-governmental organisation to provide service at community level. Field workers in Zambia include Agricultural Extension Officers, Fisheries Assistants, Veterinary Assistants, Tsetse fly Assistants, Community Development Assistants, Community Health Assistants, Community Health Workers, Environmental Health Technicians, Social Development Assistants, and others.

Food security – Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for active and healthy life.

Growth monitoring and promotion (GMP) – Individual level assessment where the growth of infants and young children is monitored over time in order to identify and address growth faltering and growth failure and the services and practices needed to ensure adequate growth are promoted and often demonstrated.

Healthy diet – A diet is considered healthy when it contains different foods that provide calories and essential nutrients in amounts that promote the optimal function of the body.

Home fortification – Addition of small, pre-packaged amounts of micronutrient powders to any semi-solid or

solid food that is ready for consumption. This innovation is generally aimed at improving the micronutrient quality intake of nutritionally vulnerable groups, especially children 6-24 months of age.

Home gardens – These are gardens involving farming that combines production of different crops, vegetables and livestock. They are developed to supply nutritious food, generate income from sale of garden produce, support important farm development activities (providing seed, animal draft power, etc.) and provide a healthy, comfortable and beautiful environment.

Infant and young child feeding (IYCF) – Term used to describe the feeding of infants (less than 12 months old) and young children (12–23 months old). IYCF programmes focus on the protection, promotion and support of exclusive breastfeeding for the first six months, on timely introduction of complementary feeding and on continued breastfeeding for two years or beyond. Issues of policy and legislation around the regulation of the marketing of infant formula and other breast milk substitutes are also addressed by these programmes. IYCF is a component of Maternal, Infant and Young Child Nutrition (MIYCN).

Infant formula – A breast milk substitute formulated industrially in accordance with applicable Codex Alimentarius standards. The Codex Alimentarius Commission protects the health of consumers and ensures fair practices in the international food trade.

Iodine deficiency disorders – A range of abnormalities which result from iodine deficiency. In their most severe form, iodine deficiency disorders (IDD) include cretinism, stillbirth and miscarriage, and increase infant mortality. Even mild deficiency can cause a significant loss of learning ability – about 13.5 intelligence quotient points at population level – as well as other symptoms such as goitre, an abnormal enlargement of the thyroid gland. It is especially damaging during the early stages of pregnancy and in early childhood.

Lactation amenorrhoea – The period after giving birth when a woman has not restarted menstruation, in which breastfeeding plays a role. Whereas non-lactating women may ovulate by six weeks postpartum, women who exclusively or predominantly breastfeed usually do not ovulate until at least 6 months after delivery. Breastfeeding for the first 6 months with no signs of menstruation reduces the likelihood of pregnancy to less than 2%. Exclusive breastfeeding with those conditions reduces the likelihood even further to 0.5%.

Low birth weight – A birth weight of less than 2,500 grams.

Malnutrition – A broad term commonly used as an alternative to ‘undernutrition’, but which technically also refers to overnutrition. People are malnourished if their diet does not provide adequate nutrients for growth and maintenance or if they are unable to fully utilize the food they eat due to illness (undernutrition). They are also malnourished if they consume too many calories (overnutrition).

Maternal, Infant and Young Child Nutrition (MIYCN) – Term used to describe feeding of both the mother and the child to improve pregnancy outcome and growth of infant and young children during the 1st 1000 days.

Micronutrient malnutrition – Suboptimal nutritional status caused by a lack of intake, absorption or utilization of one or more vitamins or minerals. Excessive intake of some micronutrients may also result in adverse effects.

Micronutrient supplementation – Provision of additional micronutrients via a tablet, capsule, syrup or powder.

Micronutrients – Essential vitamins and minerals required by the body in various amounts throughout the life cycle.

Mid-Upper Arm Circumference (MUAC) - Enables health workers to quickly determine if a patient is acutely malnourished. The measure is circumference of a patient's arm at the midpoint between his or her shoulder and elbow. MUAC < 115 mm indicates that the child is severely malnourished; MUAC < 125 mm indicates that the child is moderately malnourished.

Nutritional status – The growth or micronutrient status of an individual.

Severe acute malnutrition (SAM) – A result of recent (short-term) deficiency of protein, energy, and minerals and vitamins leading to severe loss of body fats and muscle tissues. Severe Acute Malnutrition (SAM) presents with wasting (low weight-for-height) and/or the presence of

oedema (i.e. retention of water in body tissues). Defined for children aged 6–60 months, as a weight-for-height below 3 standard deviations from the median weight-for-height for the standard reference population or a mid-upper arm circumference of less than MUAC < 115 mm indicates that the child is severely malnourished; MUAC < 125 mm indicates that the child is moderately malnourished.

Small livestock – Animals which are considered not difficult to raise and provide animal-source food that can enhance food security and good nutrition in the home (rabbits, chickens, ducks, pigeons, guinea fowls, quails, sheep and goats).

Social protection – Social protection is the processing of enabling communities to improve their wellbeing and security by increasing the immediate consumption of the poor and providing them with longer-term benefits by increasing their productivity and enabling them to invest in their human capital and thus escape from the intergenerational poverty trap. Some current efforts in Zambia include the Food Security Pack, Farmer Input Support Programme, home grown school feeding programme, Public Welfare Assistance Scheme, secondary school and tertiary bursary schemes and Social Cash Transfer scheme.

Staple food – The basic or main part of the meal, e.g. in Zambia the most common staple food is nshima and vegetables.

Stunting (chronic malnutrition) – A form of growth failure

which develops over a long period of time. Inadequate nutrition over long periods of time (including poor maternal nutrition and poor infant and young child feeding practices) and/or repeated infections can lead to stunting. In children, chronic malnutrition or stunting can be measured using the height-for-age nutritional index. Children who are stunted are below 2 standard deviations from median height-for-age of a reference population.

The Code – The International Code of Marketing of Breast Milk Substitutes (ICMBMS) was adopted by the World Health Assembly (WHA) in 1981, and regularly updated through subsequent WHA resolutions.

Undernutrition – An insufficient intake and/or inadequate absorption of energy, protein or micronutrients that in turn leads to nutritional deficiency.

Window of opportunity – In the context of the FWRG “window of opportunity” entails the period from before pregnancy through to two years of life. When there is damage to physical growth and brain development during this period it can have permanent and serious lifelong consequences. This window of opportunity is synonymous to 1st 1000 Most Critical Days.

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A handwritten signature in black ink, appearing to read 'M Mofu', with a horizontal line underneath.

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PART A

*Introduction, Background and
Organisation of the FWRG*

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A.1 Introduction to the FWRG to Prevent Stunting in Children during the 1st 1000 Most Critical Days

Improving nutrition plays a key role across all of the Millennium Development Goals (MDGs) and is essential to achieving six of the eight global and national goals. These six include eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equity and empowering women, reducing child mortality rate, reducing maternal mortality, and combating HIV and AIDS, malaria and tuberculosis.

Around the world, leaders are recognizing that good nutrition is necessary not only for human health and growth, but for optimum productivity. Taking this into account, Zambia has repositioned nutrition improvement toward the centre of national development. During the critical period beginning at the onset of pregnancy through the first 24 months of a child's life – a period of 1000 days – adequate nutrition is particularly important. Nutrition during this period provides the foundation for each child's future as a healthy, productive individual and citizen.

If nutrition is not adequate for the woman during pregnancy and during a child's first two years of life, the child may fail to grow normally and become stunted (chronically malnourished). A child who is stunted before 2 years of age faces lifelong threats to his/her growth, health, and development. Unless this condition is addressed within

this critical period, the situation may be irreversible.

Children who are stunted at two years of age have their potential for learning, productivity and good health compromised permanently. Health, nutrition, food security, sanitation, hygiene, and other factors have gained even greater emphasis in intervention and promotion efforts in order to prevent child stunting during this 1st 1000 Most Critical Days period.

In Zambia, significant efforts have been made to combat malnutrition in children during the past decades. Some of the efforts include: Infant and Young Child Feeding Programme, Micronutrient Control Programme, and Integrated Management of Acute Malnutrition. However, the need for a cross sector effort to reduce malnutrition in all its forms is now fully recognized by the Zambian Government.

Progress in improving nutrition at national level depends on collaboration by the Government ministries, civil society, private sector companies, and other partners.

The National Food and Nutrition Commission contributes through coordinating development of national food and nutrition policy and strategies and in design of multi-sector national nutrition programmes. One new, multi-sector effort that began in 2012 is the national 1st 1000 MCDs Programme to Prevent Child Stunting.

Significant reduction in the levels of stunting among young

children will only be achieved if efforts include broad participation across ministries and enhanced collaboration, particularly at community level among Field Workers. The 1st 1000 MCDs Programme fully recognizes current and new roles for Field Workers from each Ministry.

Greater participation, effort, and cooperation among Field Workers from different ministries can enhance and broaden existing interventions. Their active work on the 1st 1000 MCDs Programme can further improve food and nutrition security and health related knowledge and practices of communities, families, individual mothers, and other caregivers. The national 1st 1000 MCDs Programme promotes and strengthens several key services and practices that contribute to preventing of child stunting.

This guide, FWRG to 1st 1000 MCDs, will help improve and better integrate community level sector work in mother and child health, nutrition, community development, food security, social assistance, hygiene and sanitation, and other areas. This guide can also provide each Field Worker with information and guidance on how to better collaborate across sectors on activities that will improve nutrition.

The objective of this FWRG is to further guide each Field Worker from each sector on how to contribute to strengthening national efforts that promote and encourage families to assure good nutrition and health services to every woman during pregnancy and to each child during their first two years of life. The FWRG has information that

can assist all Field Workers to help families protect their children from stunting during the 1st 1000 Most Critical Days.

This guide is intended for everyday use by Field Workers. The information is relevant to helping families and mothers protect the health, development, growth, and welfare of children. This FWRG recognizes that every Field Worker can help prevent child stunting.

If Field Workers are fully successful in their own sector work and also join with colleagues from other sectors to promote practices and activities covered in this FWRG, the persistently high levels of stunting among Zambian children under the age of two years will reduce. When Field Workers successfully guide families toward practices and services needed to protect nutrition, they help assure normal growth, health and development during pregnancy and during a child's first two years of life. This prevents stunting and permanent damage to the child's health, learning ability, and lifelong productivity.

The FWRG has a convenient size, construction and content organization that makes it easy to carry and use daily for all types of Field Workers. The guide is organized in three parts (part A, B, and C) and a set of annexes.

Part A which you are currently reading contains introductory information including abbreviations and a glossary. Part A also tells how the FWRG is organized and how Field Workers can easily find information on more

than 230 topics.

Part A, describes how to use this FWRG as a resource for sector work and how Field Workers from different sectors can use this guide to take more active roles in helping families access and use a wide variety of government services and interventions. Field Workers can use the FWRG to better inform families about the wide range of services and good practices that are provided and promoted by Government and NGOs. These should help families to better protect the health, nutrition, and growth of pregnant women and children throughout the 1st 1000 MDCs.

Key documents briefly summarized in Part A include the National Food and Nutrition Strategic Plan and the National First 1000 Most Critical Days Programme.

Part B of the FWRG has information on the services and practices that can be used to help protect the development, health and growth of children during the 1st 1000 MCDs.

Part B also describes the 1st 1000 MCD period, important practices, related multi-sector interventions, and services that can protect the unborn child and prevent child stunting. The first section of Part B is “pre-pregnancy.” This is followed by sections on important services and practices during “pregnancy,” “birth,” the “0-6 months,” and “6-24 months.”

The section of Part B on Pre-pregnancy provides information on how to prepare for a healthy pregnancy and what

affects the early development of the foetus. Important services and practices to protect the women and ensure they are ready for health pregnancies relate to nutrition, food security, healthy, social assistance programmes, and sanitation among other topics.

The Part B section on Pregnancy includes the practices and services that protect both the life and wellbeing of the pregnant women and the healthy development of her foetus.

The Part B section on period from Birth to Six months describes how a range of Government services and promoted practices should protect the health of the mother and child during the first six months after birth.

The Part B section on the period from 6 to 24 months includes interventions, services, and practices that help the family protect the child's growth and development for the remainder of the 1st 1000 MCDs period.

Part B also has a section on services, interventions and practices that cut across the 1st 1000 MCDs period. These include social protection, communication, hygiene, and sanitation. These services are the primary responsibility of different ministries. However, greater collaboration among Field Workers can strengthen and reinforce communication of important information with families and communities.

Part B includes information on what is generally known and promoted by Field Workers from five different ministries organized under each key period during the 1st 1000

MCDs. The information is provided in order to help all Field Workers find answers to almost every question on the 1st 1000 MDCs period. It will also assist women and families who are preparing to have a child and those with children under 2 years.

The FWRG makes sharing information across sectors easy and useful. The information included is generally basic and includes what Field Workers should know about their own sector. Field Workers can also learn about the services and practices promoted by other sectors that can help families prepare for 1st 1000 MCDs.

Field Workers' information and services important during the 1st 1000 MCDs include areas such as food production, nutrition, health services, sanitation, social assistance, and other services. Any Field Worker using the FWRG should be able to provide better answers to questions from families. Notes are provided throughout Part B that refer to pages in Part C where there is more detailed information on services, practices, and family skills.

Part C of the FWRG It is organized by sectors and topics and is the longest section because it includes more detailed information on the interventions, services, and practices important during the 1st 1000 MCDs that were noted in Part B.

The information in Part C was adapted mainly from training guides, brochures, and similar publications produced by the respective government ministries. Some information

was adapted from guidelines of UN organizations, materials from bilaterally funded projects, and from other sources.

The main sections of part C include the following general areas:

Part C Section 1: Introduction and How to Use Part C

Part C Section 2: Agriculture and Household Food Security Supporting the 1st 1000 MCDs

Part C Section 3: Health Care and Promotion Supporting the 1st 1000 MCDs

Part C Section 4: Good Nutrition Practices to Support Successful 1st 1000 MCDs

Part C Section 5: Infant and Young Child Feeding Counselling Cards

Part C Section 6: Growth Monitoring and Promotion

Part C Section 7: Recipes for Nutritious Meals for Women and Families during the 1st 1000 MCDs

Part C Section 8: Water, Sanitation and Hygiene Supporting the 1st 1000 MCDs

Part C Section 9: Birth Registration, Adoption and Maternity Protection

Part C Section 10: Community Development and Social Welfare Services and the 1st 1000 MCDs

Part C Section 11: The Anti-Gender Based Violence Act and Protecting Children from Gender Based Violence

Part C Section 12: Household Budgeting to Promote Growth in the 1st 1000 MCDs

Part C Section 13: Facts for Life

Throughout Part C, references are provided for the materials used. Where available there is information on how to find the publications that were used as sources.

Part C of the FWRG should help all sectors' Field Workers to more actively participate in the National 1st 1000 MCDs Programme. By providing a guide to Field Workers in each sector, they have more information at hand on services and practices that families can use to help protect pregnant women and children during the 1st 1000 MCDs.

Annexes:

Annex 1: Essential Nutrition Action Messages in support of preventing stunting during the 1st 1000 MCDs.

Annex 2: A set of useful maps.

Annex 3: Information on how to obtain copies of the

publication.

To complement the FWRG information, the NFNC has developed its website to include an electronic list of publications used in the FWRG and where they can be obtained on the web or as print copies.

A.2 For Field Workers: How to Use the Field Workers' Reference Guide

There are many ways Field Workers can use this FWRG in their sector work and to help families improve health and prevent child stunting during the 1st 1000 MCDs. To become familiar with the overall guide, how it is organized, and its many topics the following steps are suggested for all those receiving a copy:

- *Be familiar with the contents of the guide.*
- *Try to go beyond reading the sections that only relate to the services of your Ministry. Think about all the interventions and practices that contribute to protecting a pregnant women and each young child during the 1st 1000 MCDs. Think about ways to help promote and encourage families to bring the 1st 1000 MCDs into their homes and everyday lives. Use the FWRG to help families learn and do what is needed for a successful 1st 1000 MCDs.*
- *Keep the book close by when doing community level work. Be on the lookout for families who are in the 1st 1000 MCDs.*
- *Whenever a family is in the 1st 1000 MCDs (someone*

in the community is pregnant, someone has a child 0-24 months of age) find out what period they are in and check how they are doing (pre-pregnancy, pregnancy, around birth, 0-6 months, 6-24 months, and across the 1000 MCDs)

- *Refer to FWRG Part B to see all the interventions, services and practices that are important for them and take action. Use Part C to find detailed information on most of the relevant services and practices.*
- *Refer families or individuals to appropriate health facilities or government offices whenever they have a difficult problem that you cannot handle at community level or where additional expertise is required. When you refer someone to a facility or another person - Make a follow-up.*
- *Where there are questions about any information in the FWRG, or something is not clear, check with your supervisors or colleagues in other sectors to obtain the latest information.*

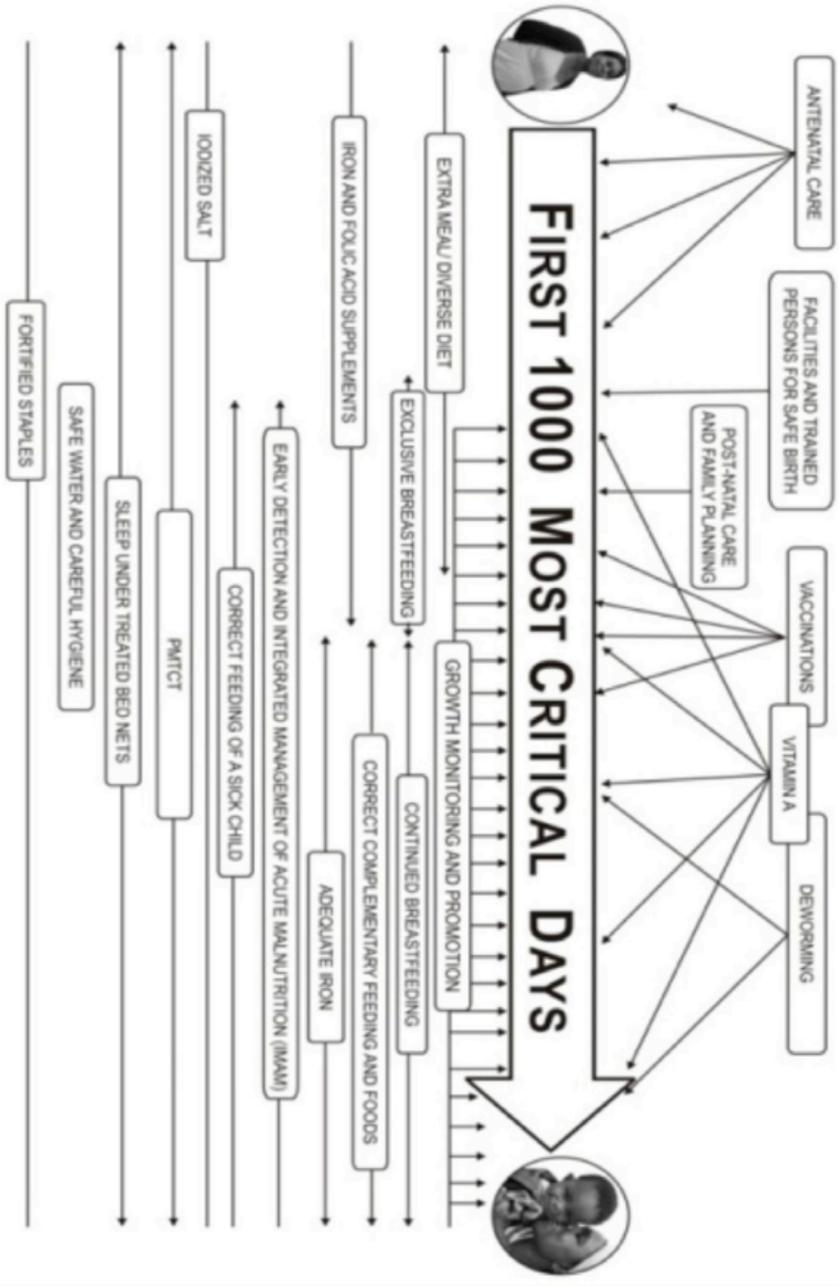
Additional uses for the FWRG. This guide can help in planning and carrying out community level extension and training activities for families. It should help identify areas for new and greater collaboration with colleagues from other sectors on community level activities that support the 1st 1000 MCDs.

The important topics relevant to promoting healthy and normal child growth include all of the interventions services and practices covered in the FWRG. Field Workers

from many other sectors can join with health workers to pass on information and skills during Growth Monitoring and Promotion (MOP) sessions organized at community and neighbourhood levels.

The most important areas of Government services and home practices intervention are shown in the chart that follows.

SERVICES AND PRACTICES THAT HELP PREVENT STUNTING



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A.3 Summary of the Zambia National Food and Nutrition Strategic Plan (2011-2015) (NFNSP)

The National Food and Nutrition Strategic Plan (NFNSP) for Zambia (2011-2015) was completed in 2012 and includes 11 key strategic directions to improve food and nutrition. The plan gives priority to the multi-sector programme called 1st 1000 Most Critical Days and aims to prevent stunting in Zambian children less than two years of age. The 2011 NFNSP covers the period 2011-2015 and aims to strengthen existing intervention programmes, removes bottlenecks, addresses weaknesses and gaps, and calls for strengthening and scaling up effective and improved models to improve nutrition for families.

A.3.1 NFNSP Policy Base

The 2011 NFNSP was based on the National Food and Nutrition Policy of 2006, and on local and international research on food and nutrition. The strategy aligns with the global “Scaling Up Nutrition” (SUN) movement of effective, low cost food and nutrition interventions. The NFNSP was developed in consultation with government ministries, local and international non-governmental organizations (NGOs), the United Nations organizations, and other key partners. The national commitment to food and nutrition policies, strategies and programmes had long and strong precedence reflected in the NFNC Act of Parliament (1967), and the National Food and Nutrition

Policy (2006). The Sixth National Development Plan (2011-2015) had an explicit food and nutrition component and nutrition improvement is part of Zambia Vision 2030.

A.3.2 NFNSP Collaboration

The NFNSP took into consideration that Zambia was a priority Scale Up Nutrition (SUN) movement country with a Nutrition Cooperating Partners' Group (NCPG) committed to supporting its implementation. This included support to capacity development of the National Food and Nutrition Commission (NFNC) as the leading national advocate for an effective multi-sector nutrition response. The NCPG includes DFID, Irish AID, UNICEF, USAID, WFP and World Bank. Drafting the NFNSP therefore included bilateral and multi-group consultations with five ministries including:

- *Ministry of Health*
- *Ministry of Agriculture and Livestock*
- *Ministry of Community Development, Mother and Child Health*
- *Ministry of Local Government and Housing*
- *Ministry of Education, Science, Vocational Training and Early Education*

A series of multi-sector/multi-stakeholder technical meetings built consensus around the 11 strategic directions in the NFNSP. The strategy noted the primary responsibility and leadership of line ministries with mandates in agriculture, health, education, community development, water supply, sanitation and hygiene and social services. It also noted the importance of stronger organizational

linkages, and collaboration for implementing interventions. The NFNSP offered a more guided and synergistic approach to current food and nutrition plans and programmes.

The 2011 plan called for decentralized participation and major responsibility from provinces and communities. It sought national and international support for advocacy and resource generation. The strategy outlined integrated communication support for the social and individual changes needed to achieve objectives.

The NFNSP outlined issues of poverty, acute and chronic malnutrition including child stunting that threaten achieving Millennium Development Goals (MDG). This threat affects MDG 1 (eradicate extreme poverty and hunger), MDG 4 (reduce child mortality), and MDG 5 (improve maternal health). It raises food security issues including programmes to increase availability of products for a diverse and healthy diet.

National data provide evidence of and illustrate national problems of child stunting, high prevalence of LBW, underweight children < 5 years of age, child wasting, emerging obesity, maternal nutrition, and micronutrient deficiencies.

The NFNSP sought the mainstreaming of high impact nutrition interventions to help alleviate poverty and called for greater leadership, operational commitment, cross sector collaboration, and higher resource commitment from Government and international partners. It recognized that

technical skills in food and nutrition at various levels needed improvement through both pre-service and in-service training and supportive supervision. More consistent and strategic use of multiple communication channels and credible sources was needed to reach communities, families and individuals and have a positive impact on the various nutrition interventions, and objectives.

Nutrition monitoring and evaluation is an important part of nutrition service development and depends on information from national Demographic and Health Surveys (DHS), multiple indicator cluster surveys (MICS), nutrition indicators in the Health Management Information System (HMIS), and other national and sub national studies. Monitoring and evaluation of nutrition was seen to need improvement and better linkage to decision-making at all levels.

A.3.3 NFNSP Strategic Directions

The eight operational strategic directions of the NFNSP 2011-2015 included the following:

1. Prevention of stunting in children less than two years of age: First 1000 Most Critical Days (1st 1000 MCDs).
2. Increasing micronutrient and macronutrient availability, accessibility and utilization by improving food and nutrition security.
3. Early identification, treatment, and follow-up of acute malnutrition.

4. Nutrition education and nutritious feeding through schools.
5. Increasing linkages between nutrition and infection control through hygiene, sanitation, and safe water.
6. Food and nutrition to mitigate HIV and AIDS.
7. Improving food and nutrition to prevent and control non-communicable diseases.
8. Food and nutrition preparedness and response to emergencies.

Three supportive strategic directions included:

9. Strengthening governance, capacity building, and partnerships in support of food and nutrition interventions at all levels.
10. Monitoring and evaluating the food and nutrition situation, interventions and research to support their improvement and expansion.
11. Expanding and developing communication and advocacy support for food and nutrition interventions at various levels.

The NFNSP outlined and justified each strategic direction, listed key strategies, activities, outputs, and outcomes, provided a basic monitoring framework, outlined strategic communication and advocacy support and described existing and required resources. Annexes provided a logical framework for implementation of each strategic direction. The details of only the first Strategic Direction of the NFNSP are provided in this resource guide. The full NFNSP

(2011-2015) is available and can be downloaded from the website of the National Food and Nutrition Commission at www.nfnc.org.zm

A.3.3.1 Summary of NFNSP (2011-2015) First Strategic Direction: Prevention of Stunting in Children Under Two Years of Age: 1st 1,000 Most Critical Days

The first of the 11 strategic directions in the NFNSP is given special priority in order to achieve substantial progress in preventing stunting in young children. This is because stunting of young children has a negative impact on health and learning. This brings substantial additional costs to the education sector, results in poorer health for the stunted child throughout life that adds burden to the health sector, and results in lower productivity for the stunted individual.

The NFNSP priority on stunting prevention includes interventions focusing primarily on the period of the 1st 1000 MCDs. The interventions needed to protect and assure healthy foetal growth and safe birth relate to assuring adequate maternal nutrition, good antenatal care, a safe birth, and early initiation of breastfeeding.

The interventions and family practices that need to be effective to protect the child's growth and development for the first two years include not only basic health services, but also assurance of adequate foods needed to support quality breastfeeding and complementary feeding.

Preventing stunting also requires access to and use of services that prevent infections and continual monitoring and family guidance concerning the child's growth.

The development, implementation, and monitoring responsibilities of the intervention package required to prevent stunting during the 1st 1000 MCDs cut across the roles and responsibilities of multiple sectors and require active participation of the family and community, NGOs, civil society, and the private sector. Reducing stunting prevalence demands a coordinated and committed response from the organizational groups and effective promotion of sustained interest and actions by families and communities.

Different tasks need to be planned, coordinated, and carried out at different organizational and social levels from national to that of province, district, community, and the family. In this regard, the NFNSP priority on stunting prevention draws upon the national commitment to decentralization and on good governance.

The potential for success is increased by the fact that most of the interventions needed to prevent stunting among children in Zambia are already being developed and implemented. Many of these have been developed technically by the Ministry of Health and others including the Ministry of Agriculture and Ministry of Community Development and Maternal and Child Health. Much of the required coordination has been provided by the National Food and Nutrition Commission (NFNC).

As called for by the NFNSP (2011-2015) stunting among children less than two years of age was to be reduced from 45% to 30% nationally by 2015 (Sixth National Development Plan target)

A.3.3.2 Stunting Prevention Activities to be Undertaken According to the NFNSP

- Mapping of national and sub-national stakeholders and interventions relevant to prevention of stunting in children under two years of age with special emphasis on effectiveness and potential for scale up if currently at project level.
- Development of a 1st 1000 MCDs promotional programme
- Dissemination and promotion of knowledge at all levels to the family and mothers of the set of behaviours and services that complement each other in preventing stunting and helping a child reach two years of age with proper growth and development.
- Promotion of nutritionally adequate meals and a diverse diet for pregnant women as well as supplements of iron and folic acid.
- Development of an Information Education and Communication (IEC) package to promote compliance to iron and folic acid supplements by pregnant women as a means of better assuring good foetal development for a healthy birth and early child development and health.
- Scale up of Baby Friendly Hospital Initiatives

- Strengthening and expanding services related to growth monitoring and promotion activities until the child reaches at least 24 months of age.
- Promotion and assurance of appropriate training and counselling needed for optimal infant and young child feeding practices in the general population and in the context of HIV at facility, community, and household levels.
- Promotion of optimal feeding practices for children 6-24 months according to specific age nutrient requirement.
- Assurance that children 0-5 months who do not breastfeed, and children 6-24 months receive vitamin A supplements to promote health, survival, and development.
- Assurance of the promotion of use of treated bed nets during pregnancy and for the first 24 months of life including presumptive treatment of malaria.

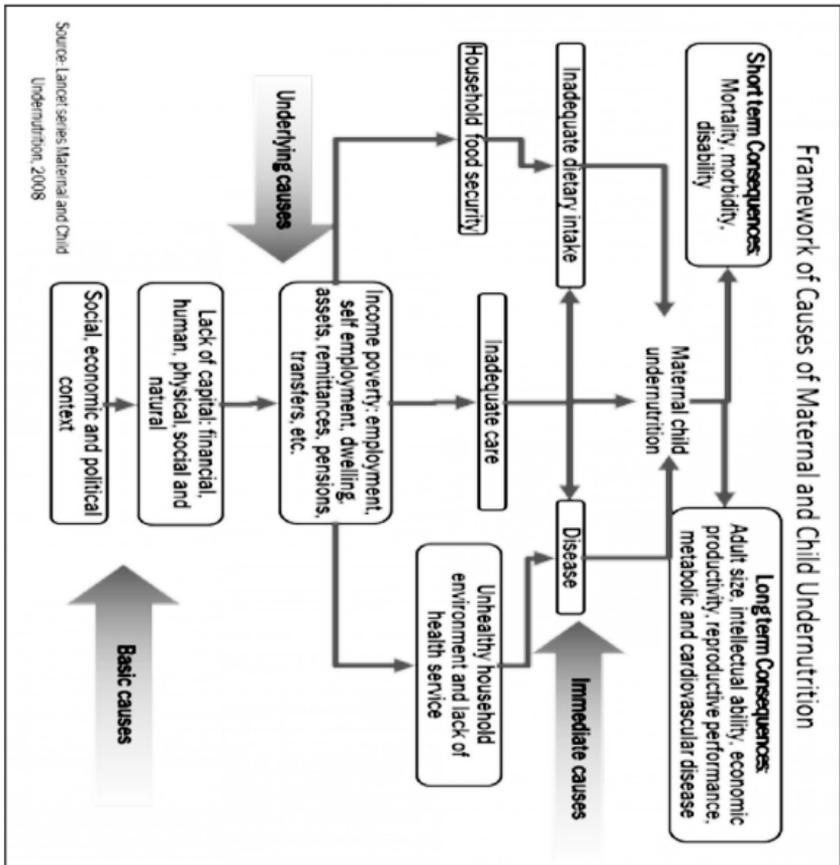
A.3.3.3 NFNSP Communication and Advocacy Support

The NFNSP communication objective supporting the Prevention of Stunting in Children under Two Years of Age – 1st 1000 MCDs aimed at increasing knowledge and awareness among Zambian mothers and other stakeholders on the prevention of stunting in children less than two years of age. The communication messages promote families adopting positive behaviours that will reverse the trend and enhance national development.

A.4 The 1st 1000 Most Critical Days Programme

In 2012, based on Strategic Direction 1 of the NFNSP, a three year national 1st 1000 MCDs Programme was developed to be implemented over the period 2013-2015. This national programme was facilitated by the NFNC that worked with the five key line Government Ministries, NGOs, Universities and various international partners incorporating technical and financial support from UK DFID. Initial resources for the 1st 1000 MCDs Programme were sought from UK DFID, UNICEF, Irish AID, USAID and other international and bilateral organizations, NGOs, and from the Zambian Government.

The national multi-sector effort to reduce stunting among children under two years of age recognizes that there are many interrelated causes to undernutrition of women and children (see chart below). Effective solutions to high rates of child stunting requires a complex, multi-sector effort that strengthens and scales up various priority interventions in different sectors. For each of these intervention areas global and national evidence has shown that that they can be cost effective, improve child and maternal health and nutrition, and contribute to the prevention of childhood stunting.



A.4.1 1st 1000 Days Programme Strategic Area 1: Policy and Coordination for Robust Stewardship, Harmonization and Coordination of the Programme

New opportunities for linkages between sectors and players, and adherence to evidence based approaches, require collaboration, cooperation and coordination. To minimise duplication and encourage harmonised

approaches to reduce stunting, the NFNC is coordinating the overall programme and the sector ministries are providing leadership for this complex, multi-sector programme.

A.4.2 1st 1000 Days Programme Strategic Area 2: Priority Interventions across Sectors to Reduce Stunting

The NFNC and stakeholders have agreed on the priority interventions to be strengthened and scaled up for greatest impact on reducing child stunting.

A.4.3 1st 1000 Days Programme Strategic Area 3: Institutional, Organizational and Human Resource Capacity Building

The 1st 1000 MCDs Programme recognises the need for and will support:

- *Significant training and capacity building.*
- *Increased and improved collaboration among sectors and organisations.*
- *Better monitoring.*
- *Enhanced support from NGOs.*
- *Use of all forms of formal and non-formal media.*
- *Greater community participation.*

A.4.4 1st 1000 Days Programme Strategic Area 4: Communications and Advocacy

Communication and advocacy are key supporting elements in the 1st 1000 MCDs. A nationwide campaign using different messages, channels, and activities will be used at various levels to reach different audiences and promote the importance of the 1st 1000 MCDs.

Advocacy and communication will seek to generate greater government leadership and operational commitment, better cross sector collaboration and participation, and greater levels of resource commitment from both the Government and development partners.

The Programme's communication strategy, which included development of this FWRG, aims to provide needed support for interventions. Messages will focus on food security and nutrition and the importance of maternal and child nutrition and protection from infection such as diarrhoeal disease and malaria to prevent stunting.

A.4.5 1st 1000 Days Programme

Strategic Area 5: Monitoring, Evaluation and Research

Programme monitoring and evaluation are vitally important to track progress, identify problems, and see how the programme can be adjusted as need arises. A robust and comprehensive monitoring and evaluation system will be developed to capture nutrition information from all stakeholders across the sectors.

*Field Workers' Reference Guide for the
1st 1000 Most Critical Days*

PART B

*Interventions, Services and Family
Practices to Prevent Child Stunting*

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For Field Workers: How to Use Part B of the FWRG

Preventing stunting in children under two years of age begins by ensuring good health and nutrition even before pregnancy and continues through pregnancy, 0 to 6 months of a new child's life, and then through the period from 6 to 24 months of age. Part B of the FWRG has subsections on each of these important periods before and during the 1st 1000 MCDs. There is also a section on interventions that are equally important throughout this period.

Many of the key interventions that link to the responsibilities and services of one or more Ministries and their Field Workers are briefly outlined in this section (see chart on following page).

Every Field Worker from each Ministry who works at community level should know as much information as possible related to the interventions that can help in protecting, advising, and guiding families and women throughout this period and link with their sector's services and work. Every Field Worker should also know as much as possible about the interventions provided and promoted by other ministries through community level Field Workers.

FWRG Part B can help Field Workers from each Ministry learn about the work of their colleagues across sectors. Using the FWRG, every Field Worker should be better equipped to collaborate and provide basic information to families. Using the FWRG, each Field Worker should also

be able to better inform on all the services and practices that can protect the health and nutrition of women and their children throughout the 1st 1000 MCDs.

At the end of each topic in Part B, there are notations that say “Read More in Part C Page(s) xxx.” These “Read More” references are provided to allow the reader to quickly find additional information that may answer the questions of families and women about many important services and useful practices during the 1st 1000 MCDs.

Most of the more detailed information is abstracted and adapted from documents developed by Zambian Government Ministries, United Nations organizations such as UNICEF, FAO and WHO and by various NGOs.

B.1 Pre-Pregnancy – Preparing for the 1st 1000 MCDs



B. 1.1 Before Pregnancy: Health, Nutrition and Family Planning

Every woman's health needs special care by herself, her family, and those who serve families, particularly during special periods in her life including before pregnancy. Health and nutrition before a woman is pregnant is very important because this sets the foundation for good health for her time of pregnancy.

Women and their husbands should also know that nutrition before and during pregnancy will affect the development of the foetus. A woman's nutritional status when she becomes pregnant also can affect the safety of her birth. It affects the health of her child and the child's potential to grow and develop normally during the first two years and throughout life.

Each woman who expects to be pregnant should learn about her nutrition and try to seek counselling from health workers and others in the community and at health facilities. This will help her gain information she needs for a healthy and safe pregnancy. She also will learn that she may need tetanus vaccinations to protect her child from this disease that can strike right after birth.

During the period before pregnancy, knowledgeable Field Workers and experienced family members can all help a woman learn about many important health and nutrition issues and related subjects including:

- *How to have good nutrition for herself to prepare for and during pregnancy*
- *How to assure good nutrition for the new child after birth*
- *How to prevent disease*
- *The importance of vaccinations*
- *The dangers of abortion*
- *Family planning*
- *The dangers of alcohol and drug abuse*

B.1.2 Food and Nutrition before Pregnancy

During the period before a woman becomes pregnant she should prepare herself carefully. Whenever possible, her husband and family should help her to be well nourished before and during pregnancy. In order to do this, her household needs to be “food secure” both in terms of having enough food and a healthy diversity in the kinds of food that are grown or purchased for the home.

Activities that can help ensure food and nutrition security for a household

- Household gardening
- Small livestock production
- Integrated agriculture
- Growing a diversity of crops
- Income generating activities
- Conservation agriculture

Families should be encouraged to begin or carry on with activities that create and sustain household food and nutrition security.

Having access to healthy foods is important, but not enough to ensure good nutritional status. A woman needs to eat a variety of foods in adequate amounts every day to be sure that her body has the nutrients needed to ensure healthy foetal development when she becomes pregnant.

Being well nourished before a woman becomes pregnant will help ensure a healthy pregnancy and normal development of the child during pregnancy and the first years of life. For a pregnant woman, a healthy weight, not too light and too heavy, depends on a healthy diet and activity. Agricultural and livestock extension workers, health workers and others can use this FWRG and other information to advise women and their families on what to grow, what to buy, how to best preserve foods and prepare meals, and what to eat in preparation for a healthy pregnancy.

She needs to take in important nutrients that are found in different foods by regularly eating a variety of each food type (carbohydrates, legumes, fruits and vegetables, animal-source foods, and fats and oils).

Read More in Part C Page(s) 590-591

Animal products and legumes are important because they provide both protein and key micronutrients including zinc and iron that are required for a healthy pregnancy and good growth of a developing child. Green vegetables are important because they provide minerals and vitamins including B vitamins and folic acid that help prevent birth

defects during the early weeks and months of pregnancy.

Read More in Part C Page(s) 235

B.1.3 Health Services during the Pre-Pregnancy Period

Health facilities provide the following services that women should use before becoming pregnant:

- *Nutrition counselling*
- *Tetanus toxoid vaccinations*
- *Youth friendly services – youth sexual and reproductive health*
- *Treatment of diseases like HIV/STIs, malaria, worm infections*
- *Family planning services*

Read More in Part C Page(s) 184-194, 206, 207-217, 223-228, 563-566

B.1.4 Health Education before Pregnancy

Health workers in the community and at health facilities can help women and their husbands learn about various services and practices and how to deal with problems that are especially important for those planning for a pregnancy. In addition to information on good nutrition, important topics women need to learn about include:

- *How to prevent and, if necessary deal with disease: (HIV/STIs, malaria, worm infections)*

- *What vaccinations and health services are important for the pregnant women*
 - *Guidance and problems on drug and alcohol abuse*
 - *Dangers of abortion*
 - *The importance of using iodized salt to protect against poor foetal brain development during early pregnancy*
- Read More in Part C Page(s) 184-194, 206-223, 226-234, 320-322***

B.1.5 Diabetes, Caffeine, Smoking, and Alcohol

Any woman with diabetes (Type I or Type II) has higher risks during pregnancy. Women need to be careful about their weight in general and particularly if they are likely to become pregnant. Overweight and obesity can cause Type II Diabetes. Any woman who is diabetic needs to be particularly careful during pregnancy. She should be sure to seek and take the advice of health care professionals, attend all antenatal visits, eat according to her recommended diet, and comply with her medications schedules.

Eating healthy during pregnancy includes avoiding unhealthy substances that may harm a baby during its development in the womb and during breastfeeding. These include alcohol, smoking and caffeine. A pregnant woman should try not to drink alcohol, should not smoke and try not to drink too much tea, cocoa, cola type drinks, or coffee.

Read More in Part C Page(s) 321-234

B.1.6 Personal Hygiene and Home Sanitation

Good personal and household hygiene practices and household sanitation are extremely important to prevent infections and sickness throughout the 1st 1000 MCDs.

The family thinking of having a new baby needs to practice careful food and sanitation practices and personal hygiene. A woman needs to keep her body clean and healthy before conception to protect her health.

A clean and safe home environment is needed to protect a woman from infection during pregnancy and to ensure her home is a healthy place to receive and protect a newly born baby.

Even in a clean home, insects can bring serious infections. All food needs to be covered to avoid contamination from flies. To protect from malaria, every family should already have or should obtain and correctly install and use insecticide treated bed nets (ITN) for the pregnant women and the newly born child.

Read More in Part C Page(s) 428-455

B.1.7 Family Planning

Family planning is the cornerstone that a family can use to ensure that only the desired number of children is born, that there is a healthy time period between births, and that the mother and each child are healthy. Family

planning also helps to prevent unwanted pregnancies.

Each family should plan how many children they will have and how much time they want to leave between the births of each child. Spacing children at least two years apart both helps a mother recover from previous pregnancies and prevents complications during future pregnancy and child birth. Child spacing also allows a mother and family to

spend more time in caring for and feeding baby during the first two years that are part of the 1st 1000 MCDs.

Family Planning Methods

The types of family planning methods include:

- Contraceptive pills,
- Condoms (male and female);
- Injectable contraceptives (depot Provera, noristerat);
- Implanted contraceptives (jadelle);
- Intra-uterine contraceptive device (IUCD);
- Lactational amenorrhea (LAM);
- Natural family planning;
- Sterilization (male and female).

Read More in Part C Pages 223-228

B.1.8 Male Support before and during Pregnancy

Men need to support wives and partners before pregnancy and throughout the 1st 1000 MCDs. Times have changed from by-gone days when men seldom became involved in maternal matters and had little to do with family planning or in helping a woman during pregnancy and early child

rearing. Now men can and should play important and often critical roles in protecting the woman and their young child during the 1st 1000 MCDs. Planning for a birth is enjoyable when done together by a mother and father.

Field Workers need to encourage and help men to become involved in the nutrition, health, and care of their wives during the period before and during pregnancy and throughout the period when their new child is under two years of age.

Men should be encouraged to escort their wives to the health centre for antenatal and postnatal care and family planning sessions. The help of men is especially important to ensure that before and during the 1st 1000 MCDs when rapid growth and development is taking place. Women not only receive both enough food but also a healthy variety of foods.

Men's help is especially important during the periods of pregnancy, while the mother is breastfeeding and during the first two years of the new baby's life. During this period the father, mother and caregivers need to work closely together to prevent child stunting and its permanent negative effects.

Pregnant women need assistance from their partners so that they do not work too long, too hard or perform heavy chores. Men should be sure that pregnant women should not lift heavy items because this can harm them and/or the developing baby. Men need to allow and encourage their

pregnant wives to take some rest during each day whether they are doing housework or working outside.

Men should know the “Essential Nutrition Messages” (see Annex 1) and attend health education sessions with their wives or partners. Providing this support should be a shared responsibility of her partner, her family, and her community. In addition, both women and men should seek and obtain screening for HIV/AIDS.

B.2 Pregnancy —270 of the 1st 1000 MCDs

The beginning of pregnancy marks the beginning of the 1st 1000 MCDs. Pregnancy is normally 270 days and is an extremely special nine month period.



The development and growth of a new life depends on the nutrition and health of the pregnant woman. Essential as well are how she uses available health services, how she takes care of herself, and how much support she receives

from her family and community during this period.

All pregnant women should eat a variety of foods that contain carbohydrates, legumes, fruits, and vegetables, as well as foods from animal sources and fats and oils. They should have extra food each day in order to meet the increased demand of pregnancy.

Her health and nutrition during pregnancy affects her child not only during the first 1000 Most Critical Days, but also throughout life.

Read More in Part C Page(s) 231, 592

B.2.1 Health Care during Pregnancy

B.2.1.1 Important Health Services for Pregnant Women

To better ensure good health for the pregnant woman and normally development of her child, women are offered special services at health facilities before, during, and after pregnancy. When a woman seeks and uses these health services she will receive good advice and learn how to care for herself and her child. Every Field Worker in every sector should promote these services to every pregnant woman, each new mother, and her family.

Many of the services described and key facts provided in this FWRG help all Field Workers promote the importance of every pregnant woman visiting health facilities and using

antenatal services. Information in this section of the FWRG can also help Field Workers to advise pregnant women and their families on the importance of good nutrition and how to best ensure food and nutrition security during this critical period of the 1st 1000 MCDs.

The common health services offered to women during pregnancy include:

- *Health education including advice on proper nutrition during pregnancy*
- *Essential obstetric care,*
- *Focused Antenatal Care (FANC)*
- *Screening for sexually transmitted diseases and HIV (STI/HIV),*
- *Prevention of mother to child transmission of HIV (PMTCT),*
- *Post abortion care,*
- *Postnatal care*
- *Family planning.*

At the health facility, a pregnant woman and her family will also learn if there are any danger signs that call for timely action.

A pregnant woman requires the support of her family, community, health care workers, and other Field Workers as well. Each pregnant woman and her partner should be encouraged by all Field Workers to attend antenatal care and to deliver their baby at a health facility

***Read More in Part C Page(s)..204-206, 207-223,
218-220, 228-230, 223-228***

B.2.1.2 Focused Antenatal Care

FANC recognizes that every antenatal visit is a unique opportunity for early identification and treatment of the mother and may help prevent problems at birth or problems of the new-born child. FANC is the care given to pregnant women from conception up to the beginning of labour. This service is provided at health centres by trained health personnel.

Focused Antenatal Care

The emphasis in FANC is on the “quality” of each antenatal visit as opposed to the number of these visits. The FANC antenatal care visit focuses on the individual and each pregnant woman’s unique circumstances and problems. The FANC approach was adapted in Zambia based on guidelines from the World Health Organization. Training of health care workers began in mid-2012 around the country.

In Zambia, Focused Antenatal Care (FANC) offers improved services and care for pregnant women. Each pregnant woman who seeks out and receives FANC is practicing a key element of the 1st 1000 MCDs.

Optimally, four (4) visits are recommended for a pregnant woman with a normal pregnancy without complications. However, FANC emphasizes the quality of visits and not the quantity.

Health facility services during FANC include:

- *Registration of the pregnant woman*
- *Group health promotion*
- *Taking of health history*
- *Physical examination with blood and urine tests including HIV*
- *Giving of medication and vitamins*
- *Individual counselling*

Read More in Part C Page(s) 204-206

B.2.1.3 Screening for STIs

Sexually transmitted infections (STIs) are diseases acquired and passed on through sexual intercourse. STIs include HIV, chancroids, gonorrhoea, herpes, syphilis, and some warts. These diseases can be spread through vaginal, oral, and anal sex. STIs also can be transmitted to a baby from an infected pregnant mother. STIs seriously affect women through complications such as infertility, spontaneous abortion, and cervical cancer. STI testing and treatment are important during pregnancy because if not attended to, STIs can affect the health of the women.

Read More in Part C Page(s) 204-223

B.2.1.4 Post Abortion Care

Abortion is the termination of pregnancy before seven months of pregnancy. Abortion can be either spontaneous or induced. Abortion and poor post abortion care can be dangerous especially outside the medical facility, and

may result in infection, disability, and death.

Tetanus Vaccinations for Pregnant Women

Every woman needs to receive five doses of Tetanus Toxoid given according to schedule developed by the World Health Organization (WHO) and approved by the Ministry of Health. This will protect her from tetanus throughout her life.

Therefore, it is important that women know about and seek proper post abortion care and practices. This includes hygiene, nutrition, rest, and family planning advice. A woman who has had

an abortion should be examined at a health facility and given appropriate medical treatment.

Read More in Part C Page(s) 228-230

B.2.1.5 Tetanus Vaccinations during Pregnancy

Tetanus Toxoid (TT) vaccinations during pregnancy are important to protect the unborn baby against neonatal tetanus during the first two weeks after birth. Without this protection, the new-born is at risk of being infected with this incurable disease.

All Field Workers need to encourage every pregnant woman to receive all necessary TT vaccinations. Only women who have had at least five TT injections are adequately protected.

Read More in Part C Page(s) 206

B.2.1.6 Malaria and Deworming

During pregnancy deworming and provision of anti-malaria pills help to avoid iron deficiency anaemia.

Malaria can be fatal to both the pregnant woman and her unborn child. Pregnant women need to receive anti-malarial medicine from the health clinic and take it.. Women should follow the recommended dosage of malaria prevention medicine which includes taking three tablets three times during the last five months of pregnancy.

They should sleep under an insecticide treated bed net to help prevent malaria.

Field Workers should encourage each pregnant woman to obtain a deworming tablet from the health facility and take the tablet once after the fourth month of pregnancy. This practice, along with taking iron and folic acid supplements regularly will help her to prevent iron deficiency anaemia during pregnancy.

Read More in Part C Page(s) 184-194, 322

B.2.1.7 Iron and Folic Acid Supplements before and during Pregnancy

Iron deficiency anaemia (IDA) impacts the lives of millions of women and children. IDA contributes to:

- Fatigue and decreased work capacity
- Increased maternal mortality
- Obstetrical complications

- Low-birth-weight children
- Perinatal mortality
- Poor cognitive development in young children
- Poor cognitive performance in children and adults

The woman's high requirement for iron during pregnancy is difficult to meet with most diets. Therefore, pregnant women should routinely obtain and take iron supplements. These are provided by health facilities throughout Zambia. Taken daily, these supplements can help to control iron deficiency anaemia during pregnancy. The folic acid, if taken before and around the time of conception, significantly reduces the incidence of severe birth defects that can occur early during pregnancy.

Read More in Part C Page(s) 322-326

B.2.2 Promotion of Breastfeeding

Women who learn about breastfeeding during pregnancy are much more likely to optimally breastfeed their infants. Pregnant women need to know about the benefits of breastfeeding early. This will help them to prepare for and manage exclusive feeding of their infant and continue breastfeeding up to 2 years or beyond.

Field Workers should discuss and remind pregnant women that they have entered the 1st 1000 MCDs period. They should be encouraged to learn about and be ready to breastfeed exclusively beginning immediately after the baby is born. Exclusive breastfeeding is almost always the best choice for their babies and one of the most important

keys to successful 1st 1000 MCDs.

Pregnant women who are having babies for the first time need to be given information early about:

- *Breastfeeding techniques*
- *Problems they may face when breastfeeding*
- *How they can solve any breastfeeding problems that may occur*

Even those mothers who have breastfed before should receive encouragement from Field Workers. They should also be referred to and counselled by health workers to ensure that any problem they may have faced during the previous breastfeeding period has been well discussed and solved.

The Ministry of Health (MOH) and the National Food and Nutrition Commission (NFNC) have developed clear guides on the information and skills regarding breastfeeding. These guides outline the advantages and disadvantages of breastfeeding, how to initiate breastfeeding, exclusive breastfeeding, feeding on demand, common breastfeeding problems, and supporting continued breastfeeding. Some of the most important messages and information in these guides is also found in Part C.

Read More in Part C Page(s) 269-272, 224

B.2.3 Community Services for Pregnant Women

Community Health Workers (CHWs) should provide each

pregnant woman in the community they serve with relevant health education and information. All CHWs and other Field Workers should encourage every pregnant woman and her husband to attend FANC at the health facilities.

Read More in Part C Page(s) 204-206, 224, 269-271

B.2.4 Hygiene, Rest and Work Cautions to be Encouraged among Pregnant Women

Field Workers should encourage pregnant women to practice careful personal hygiene including hand washing with soap at all critical times (after visiting the toilet, before preparing meals, before and after eating and after handling children's faecal matter). They should only drink safe and clean water.

Pregnant women need periods of rest during working times throughout the day. They should sleep six to eight hours at night. They require help with chores that include lifting heavy objects and with intensive manual activities on the farm or in towns and cities.

Read More in Part C Page(s) 430-455

B.2.5 Avoiding and Treating Infections during Pregnancy

Water borne diseases are common and can cause serious problems including diarrhoea for a pregnant woman. Women should be careful to only drink clean water.

Drinking water should be drawn from clean sources, treated in the home when necessary, and stored safely to avoid contamination.

Pregnancy is a vulnerable period for every woman and she is prone to all types of infections. These may include candida, STI, HIV and malaria, diarrhoea and acute respiratory infections. Each pregnant woman should be advised to take great care and her family should support her in avoiding infections.

If any infection does occur, it should be treated quickly and effectively. The pregnant woman who thinks she may have become infected should report to the nearest health facility. If she becomes too sick to do this, someone from the family needs to help her to go to the health facility.

One reason common infections such as diarrhoea are especially important to avoid during pregnancy is because they may cause a woman to become undernourished and thereby increase chances of a low-birth-weight baby.

Read More in Part C Page(s) 428-455

B.2.6 Promoting and Ensuring Good Nutrition during Pregnancy

Community level Field Workers should promote and help assure that women have a healthy amount and variety of food during pregnancy. Pregnant women who have good nutrition are more likely to give birth to a healthy baby. They are more likely to successfully breastfeed their babies

and to have babies and young children who grow and develop well during their first two years.

As earlier stated, during pregnancy and during breastfeeding a woman needs extra nutrients for herself and for the growing baby. If the types and amounts of nutrients she receives are not adequate, the result may be poor health for the mother and poor growth and development of the foetus, and later, of the baby.

Inadequate food intake by the mother increases the chance of low-birth-weight babies and of a woman dying during birth. Therefore, every pregnant woman and especially her husband and those in her family should do all they can to ensure that she eats a good variety of good foods to meet the nutrients needs of herself and the developing child. This includes extra food in addition to the normal meals each day. All Field Workers should encourage these practices and provide advice from the perspective of their sectors that can help.

This extra food needs to have all the key ingredients for health including a good balance of carbohydrates, legumes, protein from animal-source foods, and fats and oils.

Read More in Part C Page(s) 235-242, 330, 591-592

B.2.6.1. Micronutrients

Micronutrients are important during pregnancy. Key advice to families on vitamin and minerals and the importance of supplements are explained below:

Vitamin A

- *Vitamin A deficiency (VAD) increases the risk of illness and death among children under five.*
- *Pregnant and lactating women must be encouraged to consume a diet that contains Vitamin A rich foods.*
- *Pregnant women should not be given or take Vitamin A supplements.*

Iron

- *Iron deficiency anaemia is common and can be a serious health problem for both pregnant women and young children during the 1st 1000 MCDs.*
- *During pregnancy and the period from 6 to 24 months of age are periods when growth is very rapid and large amounts of iron are needed.*

The Danger of Iron Deficiency Anaemia during Pregnancy

Iron deficiency anaemia is a condition that most often is caused by insufficient intake or absorption of iron from food. In addition to rapid growth, iron poor diets, worm infections, and infectious diseases such as schistosomiasis/bilharzia and malaria worsen the condition.

During pregnancy, a woman requires much more iron because of increased production of red blood cells needed to support pregnancy and the growing foetus.

Anaemia among pregnant women is dangerous because the condition, when severe, is linked with increased maternal deaths from blood loss. Iron deficiency anaemia also contributes to low birth weight babies (below 2.5 kgs) and pre-term babies. Pre-term babies are likely to be small and have lower amounts of iron and other nutrients at birth..

- *The amount of iron that pregnant women and young children receive through their diets is rarely adequate to prevent iron deficiency anaemia - even when their diets are good and include iron rich foods*
- *Pregnant women need to be encouraged to eat an adequate diet that has foods that provide good amounts of iron. This includes, in particular, red meat and fish. However, even with a diet rich in readily absorbable iron, pregnant women (as well as infants and young children) are provided with iron tablets/capsules from the health services to supplement their diet. Iron and Folic Acid supplements are often necessary to avoid iron deficiency anaemia during pregnancy.*
- *Field Workers must ensure that they promote consumption of a mixed diet that provides for as many of the nutrients required as possible, including iron. They should also educate communities and families going through their 1st 1000 MCDs on the importance of obtaining and taking iron supplements during pregnancy. There is useful information about dietary iron and iron supplements and why they are necessary in Part C.*

***Read More in Part C Page(s) 194-195, 317-322,
324-326***

Iodine deficiency

- *Iodine is important for growth and development, especially of the foetal brain. Inadequate iodine, in a woman during her early months of pregnancy may result in lower than normal brain development.*
- *Lack of iodine can also result in goitre at any age. Field Workers need to encourage communities and families to buy only salt labelled 'iodized salt'.*
- *All persons, especially pregnant women, need to cook with and consume only iodized salt.*

How the Danger of Iodine Deficiency in Zambia is solved by Iodized Salt

Soils in many areas of Zambia lack iodine therefore crops that grow on the soils and animals that feed on these crops also lack iodine. People, including pregnant women, in such an environment, tend to obtain insufficient iodine from either plants or animal sources.

To avert the problem of iodine deficiency in its population, Zambia law requires that mandatory that all salt sold for human consumption has iodine added.

Read More in Part C Page(s) 320-321

B.2.7 Home Food Production to Support 1st 1000 MCDs

During pregnancy, a woman needs to eat a mixed diet in order to have a healthy and bouncy baby. She requires plenty of proteins and vitamins to boost her immune system, as well as foods rich in iron to help prevent anaemia both during and after pregnancy.

Field Workers, and especially Agriculture Extension Officers, should promote and advise households that the diets of

pregnant and breastfeeding women are adequate and diverse during the 1st 1000 MCDs. They can advise families to protect their young children and pregnant women by:

- Producing a variety of healthy foods,
- Storing and preserving such foods for use throughout the year

or

- Purchasing a variety of nutritious foods from local markets.

Mothers also need to know how to best prepare and use a variety of foods in order to ensure that important nutrients are not lost.

Details on different sources and types of food and nutrients important for pregnant women and other family members are provided in Part C.

Read More in Part C Page(s) 13, 170

B.2.7.1 Small Scale Household Food Production

Household or communal gardens should be a source of food crops that provide essential vitamins and minerals needed for good health for the entire family. Gardens should provide fresh healthy vegetables that complement other types of food in the daily diet for pregnant and breastfeeding women. Other than being a source of food, smaller gardens can often serve as an income generating activity for the household.

Many types of home gardens can be set up including some that can be started in almost any area including small places near houses and in urban environments. In urban areas and towns, home gardens may include gardens with raised and sunken beds, micro-gardens, sack (vertical) gardens, and other types. Specific and technical details on setting up different types of home gardens, how to make compost and use manure, and how to select the best crops to grow are provided in Part C.

Read More in Part C Page(s) 32-49

Farmers with some land should be encouraged to consider growing a variety of vegetables in both cultivation fields and backyard gardens. These may include rape, spinach, cabbage, lumanda, pumpkin leaves, cowpea, cassava leaves, bean leaves, sweet potato leaves, amaranthus, and catwhiskers. Other varieties that help provide a healthy diet for pregnant women include different types of legumes such as beans, soya beans, sesame, cowpeas and fruits such as citrus, banana, guava, mangoes, avocados, and granadillas.

Read More in Part C Page(s) 13, 170

A healthy diet including protein from animals, if prepared and eaten regularly during pregnancy, can greatly contribute to the growth and development of a healthy child during the 1st 1000 MCDs. Small livestock (rabbits, chickens, ducks, pigeons, guinea fowls, and goats), fish breeding/raising, and bee keeping should be encouraged. Small livestock are not too difficult to raise and provide animal-source food that can enhance food security and

good nutrition in the home and serve as an income source.

Field Workers from the Ministry of Agriculture and Livestock and from other ministries should encourage and show farmers how to obtain the needed inputs, how to grow and properly store garden crops, and how to obtain, breed, and rear small livestock for food.

Part C includes information on agricultural production, and other aspects of assuring good nutrition for the pregnant women and her whole family.

Read More in Part C Page(s) 50, 107

B.2.7.2 Urban Agriculture

Urban Agriculture activities improve access to fresh food by the poor and have low expenses. Produce grown in urban gardens can be used at home to improve nutrition of the family and for a woman during pregnancy and breastfeeding. The family can also sell part of the produce to generate extra income that can be spent on other nutritious foods or other necessities.

Urban agriculture is simply the growing of crops – usually vegetables – but sometimes staples and small livestock in towns and cities. Urban agriculture allows the family or a woman to make the best use of space in densely populated areas. In the smallest available areas and sometimes on balconies and rooftops, innovations such as the use of sacks and other containers containing soil are used instead of soil beds. Chickens and small livestock may be raised

in almost all types of urban areas (backyards, slum areas, swamps).

Read More in Part C Page(s) 164-170

B.2.7.3 Fermented Foods and Sprouts

Fermented and sprouted cereals and beans are foods that are easy to produce or grow in small spaces, often indoors, and are recommended as part of the diet of pregnant women and others. Most fermented foods are easier to digest and they help solve digestive problems especially diarrhoea, candida (thrush) and weight gain. Fermented foods do not spoil quickly because harmful bacteria does multiply in them as easily as in fresh foods.

Sprouts are seeds of cereals and legumes that are germinating. Compared to many other non-animal foods, sprouts have higher levels of vitamins, minerals and proteins and they are dense in terms of nutritional value per weight. The enzymes in many sprouts help in digestion. Sprouts are easy to prepare and that saves fuel. Growing sprouts is an inexpensive, easy method of quickly raising a healthy fresh food that can and should be eaten throughout pregnancy.

B.2.8 Income Generating Activities (IGAs)

Activities that women engage in to support their families and get extra income can also be used to provide additional foods and a more diverse diet during the 1st 1000 MCDs. Some income generating activities common

in various parts of Zambia include mushroom production, bee keeping, making crafts, gardening, small livestock, and fish production.

Read More in Part C Page(s) 32, 138

B.2.9 Home Food Processing, Preservation and Storage

Food processing includes actions to prepare a crop into a form that can be stored and/or to make food more palatable. Field Workers from all ministries and NGOs should encourage and support families to process and preserve food to improve their household food security.

Food processing is an integral part of home food security. This food security cycle includes food production, storage, preparation, and consumption at household level. How a family manages the food security cycle including food processing is highly important to the nutrition of a pregnant woman. Food processing can help her to preserve and store certain foods that she might require during pregnancy, when she is breastfeeding, and when she is preparing complementary foods for her young child.

Among the common forms of household level food processing and preservation are sun drying, boiling, smoking, grilling, baking, and cooking. Some forms of processing can also make foods safer, more palatable, and more digestible. Food processing can be part of income generating activities that can support the pregnant woman and her family.

Household level food production and processing activities that are low cost and may earn extra income for the household may include the following:

- *Sale of processed farm produce e. g vegetables and fruits*
- *Livestock products: eggs, poultry, fish, goats, milk, sheep, and pork.*
- *Peanut butter making*
- *Jam making*
- *Juice making*

Such activities should be encouraged by Field Workers among families going through the 1st 1000 MCDs period. The technical details and other information is provided in Part C. Household level food production and processing can be introduced with the help of Field Workers from the Ministry of Agriculture and Livestock at Growth Monitoring and Promotion activities and other events at community level. To help support these activities by all Field Workers.

Read More in Part C Page(s) 138, 162

B.2.9.1 Home Level Fruit and Vegetable Processing and Preservation

Fruits and vegetables can be processed and preserved for a considerable period in the home. The preserved products can be used to improve household diets during times when fresh produce and fruits are not available. This can help better assure adequate nutrition during pregnancy and healthy complementary foods.

In Zambia, different types of fruits and vegetables are available for harvest or at low cost from the market at different times of the year. There are other highly nutritious foods that are easily processed and stored that can be gathered from the wild (e.g. masuku and mushrooms) or cultivated (e.g. oranges and pumpkin leaves).

Preservation of different produce requires various ingredients and quantities of raw food to yield different products. The processing steps for most types of fruits and vegetables are similar.

Field Workers should explore various preservation and processing technologies so that they can advise families on how to better assure different types of nutritious meals throughout the year. This will help assure health nutrition for women and children during the 1st 1000 MCDs. Detailed instructions for food preservation and processing using different methods are provided in Part C.

Read More in Part C Page(s) 138-144

B.2.10 Farmer Input Support Programmes (FISP)

The Farmer Input Support Programmes in Zambia can help assure food and good nutrition for families during the 1st 1000 MCDs. The FISP operated by the Ministry of Agriculture and Livestock offers farm families a subsidised pack of agricultural inputs. These inputs should include two bags of urea, two bags of D Compound Fertilizer and 10 kg of Maize seed.

The Government subsidy for FISP is 50% of the purchase price with the farmer paying 50%.

The FISP aims to empower small scale farmers in rural, urban, and peri-urban areas to produce sufficient food to attain household food security. The programme also aims to boost the national Gross Domestic Product (GDP).

Vulnerable families who cannot afford a FISP pack often go to the Ministry of Community Development, Mother and Child Health to be considered for FSP. The Ministry of Agriculture and Livestock also collaborates closely with the Ministry of Community Development, Mother and Child Health on the Food Security Pack (FSP) programme by providing extension services.

Read more in Part C pages 499-507

B.2.11 Agriculture Extension Services Relevant to Pregnant Women (Nutrition Education)

During the period of pregnancy and at other times, nutrition education should be offered to support women and their families. Families need education on the interaction of foods, the importance of a diverse diet, and why pregnant women need to eat an extra nutritious meal and take iron/folate supplements.

Ministry of Agriculture and Livestock Extension Officers can help train pregnant women and fathers on how to grow and otherwise make available the foods needed to

support healthy eating during pregnancy and lactation. They can also help families learn about what foods will be needed and how to prepare foods for complementary feeding. A large amount of relevant detailed information is found in Part C.

Among the topics that can and should be included in nutrition extension by Ministry of Agriculture and Livestock Extension Officers and other Field Workers are the importance, benefits and sources of micronutrients (vitamins A, B, C, D, E, K, D folic acid and zinc, selenium, iron, and iodine).

***Read More in Part C pages 13, 170,
194-195, 317-322, 138-162***

B.2.12 Lead Farmers, Contact Farmers, Women's Groups, Cooperative Groups

Lead Farmers, Contact Farmers, Women's Groups, and Cooperative Groups are each among the groups that the Ministry of Agriculture and Livestock helps to equip and train so that they then mobilise others to adopt new and improved practices.

Agriculture Extension Officers and other Field Workers should promote and emphasise production that allows the family to have a diversified diet. Crop diversification appropriate for different ecological areas and circumstances and its benefits should be taught. Farmers, both men and women, should be taught how to make their own gardens of nutritious foods that helps their families and communities reach and sustain food security. Small

livestock and fish production should also be promoted among these groups.

Training of Lead Farmers and other groups is important to build their leadership skills to better prepare them to work with and guide on income generating activities that empower families. These groups also need to work closely with Community Development Officers to bring families and communities new knowledge and skills relevant to improving the health and nutrition of every woman throughout the 1st 1000 MCDs.

Read More in Part C pages 32-49

B.2.13 Important Social Welfare Programmes for 1st 1000 MCDs

Before pregnancy and during pregnancy, women need to prepare themselves to ensure that their households are food secure so that they are able to meet food needs throughout this special period. However, in situations where the woman or the family is vulnerable and cannot afford to grow or purchase food commodities, there are community development and social assistance programmes where they can seek assistance.

These social assistance programmes include the Food Security Pack (FSP), Social Cash Transfers (SCT), and Public Welfare Assistance Scheme (PWAS), among others. Details on these programmes are provided in the cross sector section in Part C

Read More Part C page(s) 502-511

B.3 Preventing Child Stunting from Birth to 6 months (180 days)



B.3.1 Safe Birth

Safe birth is a critical event in the 1st 1000 MCDs. Women who deliver at home are at high risk of complications and may not be able to get to the health facility if there is an emergency. During delivery women may bleed a lot or baby may fail to come out easily and therefore may need a trained midwife and necessary supplies and equipment to assist with delivery and prevent permanent injury or death.

To have safe births, pregnant women and their families should ensure that they visit a health facility for antenatal care. At the antenatal clinic they will be examined to ensure that the baby is growing well and the mother is

healthy. The pregnant woman may also need to receive PMTCT services to protect their child from contracting HIV if she is HIV positive. Field Workers should encourage all pregnant women make their antenatal visit and to deliver from the health facility.

B.3.2 Birth Registration

Field Workers from every sector should advise parents and caretakers to register their children soon after delivery and always within the period of 12 months. Birth registration done quickly after a birth avoids loss or misplacement of birth records. After delivery, all mothers should ensure that they receive birth records from the health facility at discharge. This birth record needs to be presented to the Local Authority/Council for issuance of a Birth Certificate. In the absence of a birth record, an affidavit form can be used with attached copies of the child's "under-five card" and the National Registration Cards of both the father and mother.

Read More in Part C Page(s) 542-543, 455-458

B.3.3 Promoting and Supporting Breastfeeding

B.3.3.1 Initiation of Breastfeeding (Starting Breastfeeding Early)

Immediately after child is born - within the first hour

when the new-born child is alert and responsive -- the mother should be helped to start breastfeeding. Starting breastfeeding early allows the baby to obtain the first yellow milk (colostrum) that protects the baby. Colostrum helps the baby to avoid sickness and to grow well because it is rich in protective substances (immunoglobulin) that will fight infections such as jaundice, diarrhoea, coughs and colds. Starting breastfeeding within an hour of birth also provides warmth to the baby and allows the mother and the baby to start to closely bond and form a loving relationship.

Early breastfeeding also is important in signalling the mother's body to contract her uterus to its pre-pregnancy original size. Late starting of breastfeeding may result in breastfeeding difficulties and discourage women to continue breastfeeding. Therefore, all Field Workers should encourage mothers to put their babies on the breast soon after birth.

Read More in Part C Page(s) 331

B.3.3.2 Mother and Her New-born Staying Together (Rooming-in)

In hospitals before 1990, most mothers were separated from their babies after giving birth and babies were kept in nurseries. In some instances this delayed initiation of breastfeeding, delayed the coming in of breast milk, and did not promote bonding between the mother and the baby.

It is now universally agreed that after birth, the mother and the baby must be left to stay together in the same room (rooming-in) 24 hours a day. They must be allowed to be in contact with each other skin-to-skin to promote bonding and allow early starting of breastfeeding and breastfeeding on demand.

Field Workers should make mothers aware of the importance of rooming in and encourage mothers to demand to be left with their babies after birth while at the health facility and continue being with their babies after leaving the hospital/ health facility.

Read More in Part C Page(s) 270

B.3.3.3 Prelacteal Feeds

Prelacteal feeds are artificial foods or liquids given to newly born infants before the start of breastfeeding. These are not recommended unless prescribed by a medical practitioner. Prelacteal feeds may have the damaging impact of replacing colostrum as the baby's

first nourishment. The baby given feeds or liquids other than breast milk is more likely to develop diarrhoea. In addition, a baby who has even a few prelacteal feeds, will have difficulties breastfeeding and is more likely to stop early.

B.3.3.4 Exclusive Breastfeeding (EB)

All Field Workers should remind mothers and families of the importance of exclusive breastfeeding (EB). This is the recommended method of feeding infants from birth to 6 months of age. Exclusive breastfeeding means giving a baby only breast milk for the first six months with no other liquids or solids, not even water. Breast milk alone can provide all the necessary nutrients, including all the water that the baby needs during this period. Feeding other than exclusive breastfeeding should only be done if medically indicated. Field Workers should advise mothers not to give water, traditional medicines, glucose, gripe water, other milks, porridge or any other liquids or foods unless told to do so by health personnel.

Breast milk also provides vitamin A that helps prevent many common infections and help to ensure good physical and mental growth and development. Breastfed children tend to learn more readily than infants who are fed on other milk products. In addition, exclusive breastfeeding, may act as a form of family planning (lactation amenorrhoea) if done correctly.

***Read More in Part C Page(s) 277, 281-282,
332-336, 594-598***

B.3.3.5 Breastfeeding on Demand

Breastfeeding on demand means breastfeeding a baby whenever it wants or whenever the mother has the urge to breastfeed. Mothers should be encouraged to feed their babies on demand. Feeding on demand encourages the baby and mother to breastfeed whenever they want without a set number of times they should breastfeed and or setting a time for how long the baby should breastfeed. It is important to breastfeed exclusively at least 8 times in 24 hours. Some of the advantages of early and demand feeding are that a mothers breastmilk starts coming in sooner; there is bonding of mother and baby; baby gains weight fast, and the baby is adequately breastfed.

Read More in Part C Page(s) 271

B.3.3.6. Expressing Breast Milk

There are certain times when a mother cannot stay with her young infant. This may occur when the mother or the baby is sick and needs special care or the mother may need to leave the baby for some time to attend to farm or home chores or to work. During such instances, a mother can express milk (squeezing milk from the breast into a container) to give or leave for the baby. Expressing breast milk supports exclusive breastfeeding and avoids opting for other milks.

Read More in Part C --Page(s) 263-269, 341-343

B.3.3.7 Positioning and Attachment of the Baby to the Breast

Immediately after a mother gives birth, she most often needs to be helped to put the baby to her breast. A health professional or trained Field Worker needs to ensure that the mother is putting the baby to the breast in the right way and that all mothers who may need help, receive this if necessary from a health facility staff.

Read More in Part C Page(s) 250-256

B.3.3.8 Common Breastfeeding Difficulties

Breastfeeding mothers should also be informed about possible breastfeeding problems and difficulties that they may face as they practice breastfeeding. Most of these problems may be prevented by using correct breastfeeding practices such as demand feeding and correct positioning and attachment. The most common breast problems that they may encounter are engorgement, cracked or sore nipples, and mastitis. A mother may also be faced with the baby refusing the milk. She may think that she does not have enough milk if the baby cries a lot.

If breastfeeding problems are not addressed early enough, the mother may fail to successfully breastfeed. Field Workers need to help a mother with breast problems or breastfeeding difficulties and when necessary refer them to a breastfeeding counsellor or health facility

Read More in Part C Page(s) 257-263, 337-339

B.3.3.9 The Baby Friendly Health Facility Initiative (BFHFI)

The BFHFI contributes to prevention of stunting during the 1st 1000 MCDs by improving breastfeeding practices. The BFHFI aims at ensuring that all maternity services fully practice all the “Ten Steps to Successful Breastfeeding.” These make initial early breastfeeding easy for mothers in the hospital environment and also help mothers to successful breastfeed when they return home to their community. The tenth step encourages the formation of breastfeeding groups in communities to allow mothers to continue receiving breastfeeding help. All Field Workers should make families aware of both breastfeeding support initiatives at the health facility and in their communities.

Read More in Part C Page(s) 269-272

B.3.3.10 Forming and Linking Mother to a Community Breastfeeding Support Group

Breastfeeding support groups are groups where mothers, fathers and other family members meet to support mothers in breastfeeding their babies. When mothers reach home after being discharged from a hospital or if they give birth at home, they should be linked to a community breastfeeding support group wherever one is available. This will help mothers have information to help them to continue breastfeeding and to support other breastfeeding mothers. Most breastfeeding support groups are closer to the mother’s home than the health facility and in many cases may include friends.

Where breastfeeding support groups do not exist, Field Workers should encourage communities to set up one or more such groups. Field Workers should also take part in Community Maternal, Infant and Young Child Feeding (CMIYCF) training whenever possible to gain skills on how to support mothers to breastfeed their babies successfully.

Read More in Part C Page(s) 272

B.3.3.11 Pacifiers

The word “pacifier”, as used in the FWRG, refers to the artificially made nipple (teat) which is sometimes given to infants to suckle as a substitute for their mother’s breast nipple. All Field Workers should actively discourage mothers from giving pacifiers (also called dummies, or soothers). These pacifiers carry germs and are not needed even for non-breastfeeding babies.

Read More in Part C Page(s) 272

B.3.4 Good Nutrition for the Breastfeeding Mother

B.3.4.1 Breastfeeding Mothers Should Have Extra Food and Diverse Diet

Overall, a woman should be well nourished. After giving birth she needs to replenish the extra nutrients she used during pregnancy and add to her nutrient reserves in order to keep her healthy and to successfully nourish her infant

through exclusive breastfeeding. Breastfeeding mothers should have extra food and a diverse diet.

During the first six months of her new baby's life when exclusive breastfeeding is practiced, the baby receives all needed nutrients from the mother.

During breastfeeding a mother needs to increase the amount of food she eats. She should normally have three main meals plus two extra small meals, or snacks. Even if her family feels that they do not have a lot of food, the breastfeeding mother should be helped to eat a variety of foods every day - especially local foods.

Read More in Part C Page(s) 241, 330

B.3.4.2 Avoiding Micronutrient Deficiency during Exclusive Breastfeeding

Every breastfeeding mother should eat a variety of foods that includes staple foods, legumes, fruit and vegetable, animal-source foods, fats and oils. Iron rich foods should be eaten to avoid anaemia. She also should frequently eat foods rich in vitamins A, D, E, K and B. "Some of the foods that are useful in assuring a healthy diet for a breastfeeding mother include nshima; fish; meat; beans; green leafy vegetables such as pumpkin leaves, sweet potato leaves, and cassava leaves; milk and other local foods. Caterpillars, grasshoppers and termites are also good sources of protein.

Before pregnancy and throughout the 1st 1000 MCDs

women should be careful to avoid iodine deficiency that harms babies and themselves. Iodine deficiency is harmful for the development of the baby not only during pregnancy but also during the first six months of life. Iodine deficiency contributes to poor brain development and stunting in the child. Mothers need sufficient iodine for themselves and the baby through breast milk. Only iodized salt should be consumed. Seafood is another source of iodine.

***Read More in Part C Page(s) 194-195, 317-322,
324-326***

B.3.5 Immunisations

During the period from birth to -6 months, several immunisations are needed help to protect the Infant from serious illnesses. Child immunisations begin at just after birth and different vaccines are administered throughout the first year of life. The vaccines that protect the child against some diseases are combined into a single injection and others are not. Some vaccines require only one dose while others require multiple doses to bring optimal immunity.

The first vaccinations, BCG vaccination (against tuberculosis) and the first dose of oral polio vaccine should be received near the time of birth. This is another reason why parents need to bring any child born to a health facility as soon as possible after birth.

Attention is needed from parents, caregivers, families, community leaders and Field Workers from all sectors to help make sure all required vaccinations are received as

early as appropriate. Full protection against these diseases is only achieved when the child has had all of the required vaccinations.

When the child is six months of age he or she should have had three additional doses of oral polio vaccination, and three doses of the combined DPT vaccination. DPT vaccine protects against diphtheria, pertussis (whooping cough), and tetanus). Measles vaccination is given at nine months.

Field Workers from all sectors should know the child immunisation schedule for Zambia and check up with families on immunisations during the 1st 1000 MCDs. All Field Workers can help to encourage families to protect their infants by taking them to the local health facility to complete all necessary child immunisations as close to the proper schedule as possible.

See Part C for the whole schedule for child immunisations in Zambia Pages 180-184, 557-558 (Please note that this schedule will change as new vaccines are included).

B.3.6 Maternity Protection for Working Mothers

Maternity protection aims at protecting all working women both in the formal and informal sectors by allowing them to recover from birth and practice optimal care and feeding practices including exclusive breastfeeding and appropriate complementary feeding. The importance of maternity protection for working women is recognized

in the Innocenti Declarations of 1999 and 2005. The International Labour Organization (ILO) Convention No 183, on Maternity Protection in 2000 specifies what should be provided to women workers.

Zambia maternity leave laws (Employment Act CAP 268 and Statutory Instruments number 56 and 57) state that a woman in the formal sector should receive three months paid maternity leave provided she has 24 months of continuous service. These laws also provide for the vulnerable who have no collective agreement or are not unionized (informal sector) to have 120 days paid maternity leave. While not a law, Zambia's conditions of service for public service workers state that men are entitled to three days paternity leave.

Read More in Part C Page(s) 558-566

B.3.7 HIV and Infant Feeding

B.3.7.1 Testing Infants of HIV Positive Mothers

For women who are HIV positive, Anti-Retroviral Therapy (ART) services are available. ART should be continued for both the mother and child after birth.

A laboratory test to confirm whether a child is positive can only be done at 18 months of age. This is because a baby exposed to HIV through the mother will have circulating maternal antibodies in their systems up to the age of 18 months. These antibodies can be detected by carrying out

a laboratory rapid antibody test in children less than 18 months of age. If the HIV antibody test at 18 months or older is found to be a positive the child is infected with HIV. If the child tests negative for HIV at 18 months, there is no disease and ART should be stopped.

B.3.7.2 Breastfeeding and HIV Positive Mothers

Those mothers who are HIV positive and who wish not to breastfeed should seek counselling from trained health professionals.

Read More in Part C Page(s) 273-282, 357-362, 564-566, 609-610.

B.3.8 Nutrition Education about Infants 0-6 Months of Age

During the period from birth to 6 months, nutrition education needs to be offered to the mothers and families in order to assist them in remaining healthy and maintaining the health and normal growth of their infant. Many key nutrition and preventive health practices relevant to this and other periods of the 1st 1000 MCDs are found among the “Essential Nutrition Messages” (FWRG Annex 1). These are all messages that all Field Workers should know and help give to new mothers and their families.

Read More in Part C Page(s) 588-610

B.3.8.1 Other Important Nutrition Education Topics for the 0 to 6 Months of Age Period of the 1st 1000 MCDs

Among the many other important topics for both mothers and fathers are:

- Timely introduction of appropriate foods to complement breast milk when the baby reaches six months of age.

***Read More in Part C Page(s) 291-294,
345-349, 594-598***

- How to ensure that complementary foods are adequately nutritious for the child during their period of rapid growth.

Read More in Part C Page(s) 298-311

- Healthy amounts and number of feedings for continued breastfeeding and complementary foods beginning at 6 months.
- Appropriate preparation methods for complementary foods

***Read More in Part C Page(s) 312-313,
347-351, 387-427***

- The Importance, benefits, and sources of micronutrients during the 1st 000 MCD – Vitamins A, B, C, D, E, K and D; Folic Acid (Folate), Zinc, Selenium, Iron, and Iodine.

Read More in Part C Page(s) 317-329

B.3.9 Growth Monitoring and Promotion (GMP)

B.3.9.1 Growth Charts and Their Use

Growth Monitoring in Zambia has traditionally been primarily a government service of the Ministry of Health that measured the weight of a child under five years of age and recorded above their age in months on the under-five child card. This service often took place in health facilities when mothers brought children for vaccination or other visits and during biannual Child Health Weeks.

Growth monitoring most often included little in terms of promotion. The activity was viewed primarily as a means of early identification of a child at risk of or with poor growth, often before their parents and health care workers were otherwise aware of the problem.

Growth charts (under-five card) were generally used to assess the growth of a child from birth through five years of age. They continue to be provided to mothers for each child. The under-five growth chart shows both the recorded growth pattern of the child and standard patterns of expected growth rates for comparison. Regular measurements, correct measurement, accurate plotting of the child's growth curve, and correct interpretation are essential for identifying normal growth patterns and growth problems.

Growth charts not only help health care providers and

parents identify children at risk in terms of nutrition, they are also useful in reinforcing good practices that are the foundation of normal child growth patterns

Read More in Part C Page(s) 364-386

B.3.9.2 Beyond Growth Measurement, Cards and Counselling – Growth Monitoring and Promotion to Prevent Stunting in the 1st 1000 MCDs Programme

Community Based Growth Monitoring and Promotion, as it expands into a regular community and neighbourhood based activity nationwide is a key strategy for the prevention of stunting in the 1st 1000 MCDs Programme.

A major cause of stunting in children is that many families do not have all the information or encouragement they need to fully access and properly use Government services available to help ensure healthy children.

In many cases, as well, families and mothers do not have the knowledge, skills or, in some cases, the resources to ensure adequate nutrition for children during the 1st 1000 MCDs and during pregnancy.

In the 1st 1000 MCDs Programme, Growth Monitoring and Promotion (GMP) needs to be far more than the activity of measuring and recording the weight of a child. GMP needs to become a powerful, multi-sector, community supported, highly participative, preventive intervention for

all families in the period of the 1st 1000 MCDs and beyond.

To be effective in preventing child stunting GMP in Zambia needs to be widespread at community and neighbourhood levels. GMP activities should include regular monthly sessions for all families in the 1st 1000 Days period (pregnant women included). Monthly activities at community level will continue to measure and use growth cards to tracking each child's growth against known standards. These activities will continue to address cases of poor growth and families with children showing risks of malnutrition with counselling and/or health facility referral. But every GMP session should become supported by multiple sectors in addition to health and include activities that often go beyond measurement and recording, counselling and referral.

The broad range of community based GMP activities may additionally involve demonstrations, announcements, educational presentations, and participative discussions. Emphasis should be on the wide range of practices and services that are important during the 1st 1000 MCDs and how families can best successfully progress through this period. These sessions can also promote the 1st 1000 MCDs Programme and community leaders and Field Workers should encourage full participation for the sake of children, families, communities and the nation.

The community objectives of GMP should give a priority to the prevention of stunting among children under two years of age. GMP activities should result in identifying and helping children who are not growing well. The results

should include increased family and community awareness about the resources, skills and practices that are needed for normal child growth; improved caring practices; and how to access and use relevant services.

Communities need to learn what success means during the 1st 1000 MCDS periods and how to achieve healthy growth for their children and to celebrate the health of every child when they reach 1000 days at their second birthday. GMP activities should include the participation of community leaders and Field Workers from multiple sectors to congratulate families on their efforts to protect their children during the 1st 1000 MCDs and especially families as their children reach two years.

Until the 1st 1000 MCDs Programme, Community Health Workers/Health Assistants generally led community based GMP activities. Field Workers from different sectors and a broad group of community members including the families and mothers going through 1st 1000 MCDs also should take keen interest, participate in, and support community based GMP.

Field Workers from different sectors should participate in GMP programs by promoting their sectors' services for families with young children and by leading useful, relevant activities and demonstrations. They should also help by identifying and linking the most vulnerable families to available social welfare services.

Read More in Part C Page(s) 371-372, 374-383

As community based GMP improves in Zambia, community sessions should always accompany growth monitoring with actions that help any child found to be at risk but also activities that reassure parents whose child is growing well.

Families whose children are doing well should not be neglected during GMP. They also need encouragement and these families both can learn more and add to GMP effectiveness by sharing their practices and successful experiences with other families who are in the 1st 1000 MCDs.

B.3.9.3 Collaboration among Field Workers from Different Sectors during Community Based GMP

While health care workers are specifically trained in counselling mothers on maternal nutrition and infant and young child feeding, Field Workers from other sectors also need to participate and collaborate in community based GMP activities.

For example, in many cases, even where food is available, families do not grow, process, preserve, and use the food in the ways that best assure good nutrition of women and children during the 1st 1000 MCDs. There are many areas of knowledge, skills and practices that Field Workers from each sector can assist with – often through participating with Community Health Workers on the “promotion” side of community level Growth Monitoring and Promotion

activities.

In addition to CHWs, Field Workers from social protection, community development, agriculture, and livestock, local government and from other sectors each have information and can offer knowledge and skills that can contribute to families being more effective in ensuring their children's normal growth and good health. They can help families whose children are growing well and those whose children are not growing well.

The FWRG for 1st 1000 MCDs promotes active participation and collaboration among Field Workers from all sectors on community based GMP activities. GMP activities will be more effective through such collaboration and encourage and more learning more learning and sharing with community members. They can cover and discuss many of the topics contained in this FWRG. Effective, collaborative, and more participative GMP will play a major role in making the 1st 1000 MCDs a success for every Zambian family.

Extension Workers from the MAL can participate and help families in areas such as improving the diversity of the daily diet through growing, processing, preserving, preparing and, if necessary, purchasing foods.

Community Development Assistants can sensitise mothers during GMP sessions about the importance of women's groups and the schemes available to them to develop income generating activities.

Social Development Assistants can participate in GMP activities to explain the various support programmes that are available for the vulnerable and to help identify the most vulnerable families.

Environmental Technicians can participate at GMP activities to explain new efforts to protect the environment and what families should and need to do to protect young children from water and faecal borne disease.

Read More in Part C Page(s) 377-379, 386

B.3.10 Preventing Infection of the New Mother and Infant

B.3.10.1 Hygiene

Hygiene is about cleanliness. Acceptable hygiene is - at the minimum - the practices necessary to prevent the spread of disease. Personal hygiene refers to keeping the body clean and is important for everyone, particularly for the new mother and her infant.

Unsafe water and food, dirty surroundings, an unclean household, dirty clothes and dirty bodies each contribute to increased infections among women and children. Infections affect appetite (reducing food intake) and are linked with acute malnutrition, contribute to stunting, and in some cases may result in death.

During the 1st 1000 MCDs, good hygiene and sanitation throughout the household and personal environment are important to preventing infections. Some specific hygiene and sanitation practices are particularly important for children under six months of age.

Maternal and child hygiene is critical but difficult to maintain during the period when children are not yet using a toilet or latrine, have no control of when and where they defecate, and have no sense of what is clean and dirty. A mother and other family members need to ensure safe personal, environmental, and food hygiene practices in order to protect themselves and infant children from disease.

Read More in Part C Page(s) 430-455, 344-345

B.3.10.2 Infant and Young Child Faeces

Faeces from children are equally or more dangerous in terms of causing disease than those of adults. Infants have no control and do not see of the danger of their own excreta. Children under two years of age defecate often, and only slowly gain the ability to control bowel movements. They, cannot take responsibility for keeping themselves clean. For many months, every young child requires others to care for him or her in terms of cleaning them and disposing of their faeces.

The mother and other family members need to be careful in:

- Cleaning the child.
- How they handle and dispose of the young child faeces,
- How they handle, store, and clean the clothes and areas that were exposed.
- How they clean themselves after contamination by contact with a child who is not toilet trained.

A breastfeeding mother should always wash her hands before breastfeeding, after cleaning baby's bottom, after disposing of child faeces and after washing nappies. She also needs to be very careful of the small child's hands that may often become contaminated by his own faeces and may then touch the mother's hands or breasts. Frequent washing is essential and soap should be used always.

Nappies and any cloth used to cover the baby should be rinsed and washed soon after being soiled. Faeces from soiled diapers and any that get on a bed, on the floor or onto the clothes of the baby or anyone else should be removed and the contaminated cloth cleaned. Sanitary pots for babies (chamber pot) should be thoroughly cleaned immediately after use.

In many homes, there are several young children and it is common for a young brother or sister to be asked to clean up the faeces and wash the infant child. In such cases, the hygiene of the other children is also compromised. Therefore, they should be supervised on how they dispose of the faeces, clean any soiled clothes or nappies, and how they clean and wash themselves after doing this type of

chore.

Besides personal hygiene, cleanliness extends to the home, a safe and clean environment, and safe food and water. Without good hygiene, germs can easily be transferred from hands or other body parts to mouth and infections are more likely to occur.

***Read More in Part C Page(s) 438-441, 447-449,
561-563***

B.4 Preventing Child Stunting 6-24 Months of Age (from 450 to 1000 MCDs)

B.4.1 The Major Importance of Ages 6-24 Months

There are 547 days between the time when an infant completes their first 6 months of life and when the child reaches 24 months of age. This 18 month period makes up more than half of the 1st 1000 MCDs. During this period children will begin to sit up, then will crawl, then stand, learn to walk, and begin to talk. During this time period of rapid growth and development they experience greater exposure to health and nutrition risks.

It is important that the health and nutrition of the child is protected during this critical period. The lifelong future of the child is more positive in terms of growth, learning, and productivity if they reach 24 months without being stunted.

From birth up until six months the child should be getting all of its nutrients through exclusive breastfeeding. After six months other foods need to be introduced. By 24 months the child should be able to feed itself and eat many of the same meals as the rest of the family, while continuing to breastfeed. The amounts, variety, and quality of the complementary foods the child 6-24 months receives are important and critical to normal growth and development. Families will need to have access to and know the best foods available locally to prepare health and appreciate complementary foods.

Almost every child becomes ill on a few occasions between 6-24 months and a sick child needs special attention to effectively feed and they need special care.

During this 6-24 month period a child learns quickly and becomes curious. He or she will begin to move quickly enough to get into anything left open. Most children during this age period will put almost anything into their mouths. They become more exposed to germs from the environment and from other persons. They are at greater danger from infections resulting in diarrhoea, pneumonia, worms, and malaria. Field Workers need to assist families and parents in knowing and adopting key practices that prevent these infections among young children.

Accidents can easily happen to the young child causing injuries, ranging from cuts and scrapes to burns, scalds, and fractures. Drinking poisonous liquids occurs frequently with this age group.

Read More in Part C Page(s) 282-283, 598-607

B.4.1.1 Services and Interventions for Children 6-24 months

As the child grows from 6 to 24 months there are many government services and interventions that are important and can protect and help a family to better assure the health and development of their child.

The health services their families need to protect their young, rapidly growing children are available across the country. However, many practices and actions that should be carried out by families and mothers are also key to protecting health, growth, and development and to prevent child stunting before 24 months of age.

The 18 month period from 6 to 24 months of age is exciting and unique. It is also a critical period when poor nutrition and infection each threaten and can also combine to create a stunted child. Children who become stunted struggle harder to learn and throughout life they do not have the levels of health and productivity they should have enjoyed. When stunting occurs a child permanently loses its full potential for growth and development. During this period all Field Workers can help families protect their children.

There are important Mother and Child Health services to be accessed at a health facility for each child who is between the ages of 6-24 months. These include mother and child clinics, GMP, child vaccinations, treatment of injuries and illness, and others. There are complementary services during the biannual Child Health Weeks where additional

preventive health services can be obtained close to home. Field Workers from all sectors should encourage parents and families to ensure that young children receive all these important preventive and treatment health services.

Children 6 to 24 months of age also need their mother's attention. This is more difficult if another child is conceived too quickly. She and her husband should learn about and practice family planning to allow the mother to fully recover from her previous pregnancy and delivery. This will also enable her to have quality time with her husband and their child during the 1st 1000 MCDs.

B.4.1.2 Collaboration among Field Workers to Promote Services

All Field Workers can effectively and productively collaborate across sector lines to assure the useful services of each sector are accessed and used by families during the 1st 1000 MCDs. This will help ensure each child is protected from the major causes of stunting.

Different Field Workers from different sectors should advise families during their 1st 1000 MCDs. Field Workers can provide services in their various areas of operation such as nutrition, health, agriculture, water, sanitation and hygiene, social protection and community development.

Read More in Part C Page(s) 579-587

B.4.2 HIV/AIDS and Children 6 to 24 Months of Age

For more information on HIV care in this age group refer to the special section on HIV/AIDS and the 1st 1000 MCDs.

Read More in Part C Page(s) 281-282, 273-282, 207-223, 357-362, 564-566

B.4.3 Child Vaccinations

It is important that children 6 to 24 months complete all vaccinations when they are nine months of age. As stated in the FWRG Part B section covering the period from birth to 6 months, a child should have had a BCG vaccination, four doses of oral polio, and three doses of combined DPT vaccine (diphtheria, whooping cough/ pertussis, and tetanus) by the time they reach six months of age. If all of these vaccinations have not been completed by six months, parents and caregivers should take the child to the clinic to complete all required doses.

In addition, every child needs to be vaccinated against measles, first at 9 months and a second vaccination when they reach 18 months of age. Each child also needs to receive a Vitamin A supplement every six months starting from 6 months of age.

More attention is needed from parents, caregivers, family, community leaders, and field workers from all sectors to make sure all vaccinations are received as early as appropriate. A child is only fully protected when the full immunisation course is complete.

While immunisations are generally received at a health facility Field Workers from all sectors should help to ensure vaccinations are up to date by checking on the vaccination card for young children among families they work with. They should remind parents and caregivers that completing infant immunizations is a major strategy to successfully prevent child stunting during the 1st 1000 MCDs.

Read More on Part C Page(s) 179-184, 557-558

B.4.4 Child Health Weeks

Child Health Weeks (CHWKs) deliver important child health services through nationwide mass campaigns two times each year. They target children 0-59 months of age to help bring needed services to any child who has not received immunisation through the health centres or has missed out on other key services.

The Child Health Services provided during CHWKs may include those shown in the chart below:

**Zambia Child Health Week Services:
Nationwide Twice Annually – for Children 0-59 months of age**

- Immunisations: (Polio, DPT-HepB-Hib-1, 2, 3, BCG, measles) for all 0 – 59 months old child children irrespective of their immunisation status
- Vitamin A supplementation for children 6-59 months
- Deworming for children over 12 months
- Health education for mother/caregivers (childcare, nutrition, hygiene, importance of GM&P, vaccinations and family planning)
- Screening and treatment of any child found to have an infection.
- Growth Monitoring and Promotion.
- Screening for HIV at 12 months
- Maintaining ART services if the child was exposed
- Provision and treatment of Insecticide Treated Nets

Field Workers from each Ministry can effectively assist and contribute to Child Health Weeks. This can be coordinated with the lead ministries. Child Health Weeks activities include Growth Monitoring and Promotion and health and nutrition education where Field Workers of other sectors could actively participate by communicating topics on related services provided by their respective sector.

For example, MAL Extension Officers can provide demonstrations and talks on home gardening and the importance of nutritious food during the 1st 1000 MCDs. Environmental Technicians can participate in Child Health Week to develop messages and reinforce topics related to sanitation, the danger of worms and the threat of a

poor environment for young children. Social Protection Assistants can assist with presentations and talks about social assistance packages to mothers and caregivers who have taken their children for Child Health Week services.

B.4.5 Growth Monitoring & Promotion (GMP)

B.4.5.1 GMP: Key to Success with 1st 1000 MCDs

As introduced earlier in Part B Section 3.9, Growth Monitoring and the section, Growth Monitoring and Promotion (GMP) is one of the most important activities carried out during the 1st 1000 MCDs. These activities can be highly effective when conducted with active participation of the community and families, and have support from Field Workers from different sectors.

To be effective in preventing stunting in children under two years of age, GMP activities need to give equal emphasis to regular measurement of child growth as well as promotion of growth of the child. Monthly GMP activities at community level provide opportunities for checking up on each child and interacting with parents and caregivers in all interventions of the 1st 1000 MCDs that are applicable to children including those between 6 and 24 months of age

B.4.5.2 Promoting Healthy Child Growth

Promotion of Growth should never be focused only on parents with children who are underweight or have serious problems with obesity. At each GMP session, every mother or family should be complimented when his or her child's growth is found to be in the normal range. Even those whose children show normal growth rates should be asked if they have any problems.

Those who have a child whose growth is not progressing according to normal patterns should be counselled, individually if possible. If necessary they should be referred to health facilities so that the child can be further assessed and receive treatment.

However, in many cases, the root of the problem of the poorly growing child may be household food insecurity or a lack of knowledge of correct practices in selecting, preparing, and feeding nutritious complementary foods. In the cases of the poorest and most vulnerable families the mother may also need more support from the husband and/or other family members or from social assistance systems. In other instances, poor feeding during recovery from illness affects a child in terms of "catch-up growth" and this may lead to chronic malnutrition.

Community based GMP activities provide a time when all of these conditions can be checked, advice can be given and corrective and preventive actions explained and encouraged. GMP activities also provide a time when

community members with young children can help each other.

B.4.5.3 All Field Workers Have Roles in Making GMP Activities More Effective

Field Workers from each Ministry participating in the 1st 1000 MCDs National Programme have important roles to play during GMP. They can provide useful information to very relevant target groups (such as community leaders, chiefs, local development committees or support groups) by participating in planning and implementing GMP activities in the community. Information that can be used by all FWs to support GMP is found in the FWRG in Part B and throughout Part C.

Every Field Worker can help families succeed in preventing child stunting during the 1st 1000 MCDs period. In addition to participating in GMP activities every Field Worker can strengthen and expand their sector activities in ways that can help. Field Workers should keep their eyes open during their normal work so that they identify families with young children who are vulnerable or might have problems that put them at risk of not having enough food or poor growth. They should advise these families accordingly. They can also help assure that the most vulnerable families and known and are encouraged and helped to participate in GMP activities regularly so that there is regular monitoring of their child's weight for age and the caregivers receive regular advice.

Read More in Part C Page(s) 364-386

B.4.6 Preventing and Treating Common Ailments of the 6-24 Month Old Child.

B.4.6.1 Malaria

Malaria is a common illness and cause of death among children 0-24 months in Zambia. Before 24 months of age, children do not have strong immunity and malaria can worsen rapidly causing coma/unconsciousness and often death. Ensuring children sleep under an insecticide treated net is a powerful method of preventing mosquito bites that cause malaria. This practice is important not only for children 6-24 months but for women and children throughout the 1st 1000 MCDs and beyond.

To be safe, a pregnant woman and a mother with her baby should sleep under an ITN every night during the 1st 1000 MCDs. Husbands, families and others who can help, help should make sure that the ITN is properly installed over the places where every pregnant woman and every child under 24 months of age sleeps at night.

Field Workers from every Ministry should support the regular use of ITNs and help where they can be sure that families have these ITNs and that they are hung properly. All Field Workers can and should encourage and promote use of ITN every night among families who have young children.

A child with a fever should be examined immediately

by a trained Health Worker and receive an appropriate treatment. A child suffering and recovering from malaria is highly vulnerable to growth faltering and malnutrition. Children who have malaria or are recovering need extra liquids and food. They should receive this extra food for a period well after symptoms clear up and until they show a healthy normal weight.

Read More in Part C Page(s) 184-193

B.4.6.2 Pneumonia

Pneumonia is a leading cause of deaths in children 0-24 months of age. It causes more deaths of children than HIV/AIDS, malaria, and measles combined.

Coughs, colds, and sore throats are common in children aged 0-24 months. However, coughs also are among the danger signs of more serious illnesses such as pneumonia or tuberculosis. If a child is breathing rapidly or has difficulty in breathing, whether or not the child has a cough, they may have pneumonia and the child should immediately be taken to the health facility to be checked by a qualified health staff.

A child with even a mild acute respiratory infection should be kept extra warm and fed as often as possible. They should have small amounts of nutritious foods and drinks at least five times a day

Prevention of pneumonia is helped by exclusive breastfeeding of children 0-6 months and ensuring all

children are fully immunised by age 12 months.

B.4.6.3 Diarrhoea

Diarrhoea continues to be a major cause of illness and death among children under five years of age. It is more common in the age group between 6 and 24 months. When children have diarrhoea, they lose the fluids, food and body salts that their bodies need to remain healthy, and become dehydrated. Dehydration is dangerous and it can lead to death. When a child gets diarrhoea, it is very important that he or she does not become dehydrated.

Giving water, breast milk, and other fluids to children with diarrhoea helps to prevent dehydration. However, children who are in danger of becoming dehydrated or become dehydrated need a solution of Oral Rehydration Salts (ORS) and water.

ORS solution is effective in replacing the water and salts that are lost through diarrhoea. ORS helps prevent a child with diarrhoea from becoming sicker. A new, improved ORS has become available that helps shorten the time the child will suffer with diarrhoea.

Health workers need to ensure that parents learn how to use and make ORS.

Read More in Part C Page(s) 559-560, 411

B.4.7 Acute Malnutrition – Major Contributor to Child Stunting

B.4.7.1 Early Identification of Acute Malnutrition

Children in the age range 6-24 months are highly vulnerable to growth failure related to poor nutrition, illness or a combination of both. Despite many efforts to prevent hunger in children, there will always be some cases of moderate acute malnutrition (MAM) and severe acute malnutrition (SAM).

Severe acute malnutrition in young children often can be prevented through community awareness about the problem, early identification of children at risk, timely referral to a health facility and providing correct treatment of moderate acute malnutrition in this age group.

B.4.7.2 Integrated Management of Acute Malnutrition (IMAM)

Integrated Management of Acute Malnutrition (IMAM) is the approach recommended and used in Zambia to give the most appropriate care to children suffering from severe acute malnutrition. IMAM includes actions carried out both in health facilities and in the community.

In communities where there is well developed and regular GMP on a monthly basis, cases of acute malnutrition

should be prevented and any that do occur should be identified early. However, not all communities as yet have well organized or regular GMP. Even as GMP expands and gains broader community support and participation there will still be some parents, often among the very poor with children at greatest risk, who do not participate in GMP activities.

Field Workers from all Ministries need to be able to recognize the signs of acute malnutrition in young children. This will help them identify any cases they come across in their community level work. These children should immediately be taken to a health facility to receive proper assessment and help.

Read More in Part C Page(s) 195-200

B.4.7.3 Severe Acute Malnutrition with Complications

Children with SAM with complications such as diarrhoea, vomiting and measles or oedema should be immediately referred to a health facility.

Read More in Part C Page(s) 195-200

B.4.7.4 Severe Acute Malnutrition without Complications

According to the Zambian IMAM protocol, children identified as moderately or severely acutely malnourished but without complications can often be treated in

their communities at home.. If available, Ready to Use Therapeutic Food (RUTF), is given to treat eligible cases. Community Health Workers and other field workers need to always be on the lookout for acutely malnourished children and see that they are immediately taken to the health facility for assessment and to begin IMAM care.

For children suspected to be malnourished based on GMP activities Community Health Workers may also screen children for moderate and severe acute malnutrition by using a special measuring tape to check the Mid-Upper Arm Circumference (MUAC) and by looking for oedema.

Read More in Part C Page(s) 195-200

B.4.8 Continued Breastfeeding to 24 Months of Age

B.4.8.1 Support for Continued Breastfeeding (6-12 months) When Complementary Feeding Begins

Exclusive breastfeeding for six months is one of the most important elements of protecting the growth and development of the child during the 1st 1000 MCDs. When complementary feeding begins after six months, breastfeeding should continue and all Field Workers should promote and encourage all mothers to continue breastfeeding up to 24 months or beyond.

B.4.8.2 Benefits of Breast Milk for the Child 6-24 Months of Age

Breast milk will provide about one half or more of many of the nutrients the child needs between the ages 6 to 12 months. Breast milk will also provide about 40% of the total energy as well as minerals including calcium, riboflavin, and some iron.

During the period from 12 to 24 months, breast milk will continue to provide at least one third of the child's nutritional needs. Breast milk is also a good source of essential fatty acids for the child. The mother should continue to breastfeed frequently and on demand.

Breast milk continues to provide immunity benefits to the child and is a totally clean food. This reduces the chances of the infant and young child being sick. Continued breastfeeding also helps to delay the mother's menses and acts as natural form of family planning

Read More in Part C Page(s) 271-294, 295-297, 345

B.4.9 Healthy Complementary Feeding

B.4.9.1 Good Complementary Feeding to Prevent Stunting

Complementary feeding means giving other foods to the child in addition to breast milk and begins at six months of age. From the age of six months, breast milk alone will

no longer meet all the nutritional needs of the rapidly growing child. From six months parents need to be careful to ensure children receive all the nutrients they need in sufficient quantities to complement breast milk when they begin to receive other foods. However, in Zambia some children become acutely malnourished and many become stunted during this period because they do not get enough energy and other necessary nutrients through complementary foods and feeding practices.

Children need to be given a variety of foods to complement breast milk. The complementary foods should be made from not only staple cereals but also legumes, animal-source foods such as meat and eggs, and vegetables and fruits. This is especially important as the child reaches 9 months and older.

The complementary foods should be prepared in such a way that the small child can eat them. The first complementary foods need to be soft so they can easily be consumed by the six month old baby. Their stomachs are small so they need to be given small amounts several times per day to meet their additional needs. As the baby becomes older and gets used to the foods, they can be made more rich in additional nutrients besides mainly calories.

***Read More in Part C Page(s) 282-284, 292-317,
348-349, 598-607***

B.4.9.2 Cross Sector Promotion of Complementary Feeding

Field Workers from every sector can help promote and

support nutritious complementary feeding. Some Field Workers have knowledge on how to grow, preserve, and/or prepare nutritious complementary foods. Some can pass on recipes for nutritious complementary meals and tips on how to feed the young child. Some can provide advice on hygiene and sanitation to prevent contamination of complementary food. Guidance on all of these topics can be found in this FWRG.

The FWRG Part C includes many recipes for selecting and preparing a good complementary diet for young children at different ages from 6 to 24 months.

***Read More in Part C Page(s) 11-170, 387-427,
428-455, 579-587.***

B.4.9.3 Active Complementary Feeding (Responsive Feeding)

A baby will eat better when the mother is speaking and paying attention to her/him. This approach, called “active feeding,” requires that a mother should feed the baby herself, and to talk to the baby while feeding. As children become older mothers should offer help when they try to feed themselves. Children who are encouraged while they are eating will eat better. If a child is difficult to feed, active feeding and attempting to give the child different foods may help. Field Workers should learn about active feeding and encourage parents and caregivers to put it into practice.

Read More in Part C Page(s) 314, 598-605

B.4.9.4 How to Feed the Child Complementary Foods

Complementary foods should be introduced in small amounts at six months and the amounts increased as the child gets older.

To achieve adequate nutrition for the young child meals should be given more frequently than for older children. Meals need to include foods with adequate energy density given in relatively small amounts. This is necessary because the small child has a small stomach but is growing rapidly. The amounts consumed by each child at one meal may vary according to their health status and activity levels.

Children being introduced to complementary foods should first have light foods. The thickness of food given to each child needs to increase as the child grows older. After 12 months many children can begin eating most foods eaten by other family members if the foods are prepared in small pieces.

Mothers need to practice active feeding and ensure children receive the number of meals appropriate for each age.

***Read More in Part C Page(s) 282-284, 292-317,
348-349, 598-607, 312***

B.4.9.5 Frequency of Feeding for Children 6-24 Months of Age

The number of times a child needs to receive complementary

foods varies according to the age of the child, the quality of food and whether the child is breastfeeding or not. Both meals and snacks should include a variety of foods. Animal-source foods including fish and poultry should be given to the child daily or whenever available. Children who are not breastfeeding need to be given more meals than those who are breastfeeding.

Read More in Part C Page(s) 283, 347-350

B.4.9.6 Use of Vitamin and Mineral Supplements for Children 6-24 Months of Age

Vitamin and mineral supplements for children are important when it is difficult to meet all the nutrient needs for the child 6-24 months of age. This is especially important for iron and Vitamin A. High dose Vitamin A capsules are provided for all children 6-24 months of age during CHWKs and from health facilities.

Iron and other micronutrients can be given to the child -6-24 months of age in the form of vitamin/mineral drops or powder. When recommended by health care staff, vitamin or mineral drops can be given to the infant or young child by the mother or caregiver.

The small packets of powder containing necessary micronutrients were introduced in Zambia in 2013. They are used to provide vitamins and minerals to young children by mixing the powder with semi-solid or solid complementary foods before it is fed to the child.

Field Workers should use their FWRG and other sources to learn about micronutrient needs for young children. This information will help them to provide informed advice to parents and caregivers on vitamin and mineral supplements.

Read More in Part C Page(s) 326-329

B.4.9.7 Feeding during Illness for Children 6-24 Months of Age

Sick children needs special care to meet their nutrient needs not only while they are ill but also until they fully recover and re-build their immune systems.

After six months of age, the ill child should be given fluids in addition to breastfeeding.

When a child is ill, he or she often does not have a good appetite. Parents and caregivers need to be patient and spend more time encouraging the ill child to eat. Special care is needed when preparing food so that meals meet the condition of the child. Most often an ill child prefers soft foods that are appetizing. When possible during illness, children should be given foods that are both healthy and that the child is known to prefer.

For example, a child suffering from diarrhoea can be given soft, mashed foods as well as plenty of liquids. Good foods would include,

Home Made ORS

Home made Oral Rehydrated Salts can be made by adding three tablespoons of sugar and one teaspoon of salt in one liter of boiled and cooled water.

for example, pawpaw, watermelons, pumpkin, vegetable soups, fresh fruit juices, mashed sweet potatoes, rice water, bean soup, carrots, flour water, and homemade Oral Rehydrated Salts (ORS).

Read More in Part C Page(s) 314-317, 406-408, 353, 608-609, 296

B.4.10 Sourcing Foods for Healthy Complementary Meals

B.4.10.1 How to Obtain Healthy Foods for Complementary Feeding

Families can obtain a healthy variety of foods to use in complementary feeding by growing specific crops, developing a garden, planting fruit trees or a small orchard, and raising livestock including smaller animals. Families can purchase appropriate foods from the market. Food from the garden can also be preserved and stored for future use. Families can save money by buying products when they are plentiful and inexpensive and then preserving them for use at times of the year when they are scarce.

B.4.10.2 Types of Crops for Healthy Complementary Foods

The types of crops that are often used in preparing healthy complementary foods include:

- Legumes: groundnuts, soya beans, beans, cowpeas, bambara nuts
- Cereals: maize, sorghum, millet, wheat, rice

- Root tubers: cassava, sweet potatoes, local yams, Irish potatoes
- Vegetables: dark green vegetables (kalembula, lumanda, cassava leaves, pumpkin leaves, rape leaves, etc.), carrots, pumpkins, tomatoes
- Fruits: yellow, orange and red coloured fruits (pawpaw, mangoes, guavas, citrus fruits, etc.)

Read More in Part C Page(s) 108-170

B.4.10.3 Healthy Complementary Foods from Fields and Gardens

Foods appropriate for making nutritious complementary foods are grown in fields and gardens in Zambia. To prepare for the time when a child will need these foods, or to ensure the whole family has a healthy, diverse diet, farmers should consider a greater variety of crops on the farm.

Crop diversification is a system of growing a variety of crops to improve food security in the home and economic status of the family and should result in a more nutritious and varied diet for the household.

Crop diversification has many benefits including allowing for better family nutrition. MAL Extension Officers have a responsibility to encourage families to practice crop diversification on their farms and in home gardens. Crop diversification and gardens should be encouraged where Conservation Agriculture is practiced. This will increase families' access to legumes that both act as a cover crop

and provide a good source of protein for complementary feeding and the overall family diet. Field Workers from all sectors should promote crop diversification.

Read More in Part C Page(s) 108-170

B.4.10.4 Home Gardens (Urban and Rural) Homestead Gardens

Home gardens can contribute to improved food production and nutrition by making food easily accessible and available in the home. Foods from home gardens can be used to prepare complementary foods for children 6-24 months.

Read More in Part C page(s) 32-49, 164-170

B.4.10.5 Orchards

Orchards are a source of fruits which are important in providing vitamins and minerals to the diet of a child. Where possible, Field Workers must promote development of orchards for families to access fruits.

Read More in Part C Page(s) 115, 124,125, 126, 127

B.4.10.6 Small Livestock Production: Particularly Important to Support Healthy Complementary Diets (6-24 Months)

Families should be encouraged to keep small livestock to improve the diets of children. Livestock products such as meat, milk, and eggs are good sources of high quality protein as well as vitamins and minerals needed by children

who are complementary feeding.

Families should be encouraged to raise livestock (poultry, rabbits, goats, pigs, cattle, and sheep). Food from these animals will help all families to prepare high quality complementary meals for children 6-24 months.

When these types of animal-source foods cannot be produced at home, MAL Extension Officers should encourage families to purchase these types of foods in order to ensure healthy complementary meals during the 1st 1000 MCDs.

Read More in Part C Page(s) 50-107

B.4.11 Conservation Agriculture

Conservation farming (CF) is a method of using non-conventional farming methods. Conventional methods waste soil, moisture, the farmers' time and energy, and require expensive inputs. These traditional methods result in food insecurity and poverty especially among small scale farmers. Hence, the need to offer farmers alternative methods like Conservation farming. Conventional Farming methods are easy to follow and beneficial because they minimise the chances of crop failure in drought time, increase their yields, reduce the cost on fertilizers and increase profitability.

Read More in Part C Page(s) 13-213

B.4.12 Recipes for Complementary Foods and Healthy Meals

In Part C of the FWRG there are many healthy recipes for preparing complementary foods eaten by children 6 to 12 months and for children 12 to 24 months of age. These include traditional Zambian recipes that use foods grown and eaten in specific areas of the country.

In general, the preparation of complementary meals for a young child will depend on the age of the child and the type of food. Families should be encouraged to give a variety of locally available foods to children. Complementary foods should be soft and easy for the baby to consume. Preparing a variety of foods for different meals will avoid monotony and encourage the baby to eat.

Different flours can be mixed using the basic recipe to make baby porridges for children aged 6 to 12 months: cereal + tuber + legume + vegetable. Using this type of general recipe consistently, effective feeding practices, and continued breastfeeding should prevent malnutrition. Many different recipes are used in different communities to prepare food for young children. Any recipe that mothers/caregivers intend to use, should take into consideration the quantity and quality (nutrient and energy density) of the prepared meal, the age of the child, and what the child will have throughout the day.

Read More in Part C Page(s) 387-437

B.4.12.1 Processed, Preserved and Stored Foods to Be Used in Complementary Feeding

Families can improve their overall diets and prepare for successful complementary feeding of a young child by processing and preserving the required food stuffs. They can then be used as needed and to avoid shortages. Extension Officers should also encourage and advise women on how to dry foods and use them as complementary foods. Field Workers should also encourage groups of mothers to prepare and preserve larger amounts of foods for family meals that can later be cut into small pieces and used to prepare complementary meals for their babies.

Read More in Part C Page(s) 138-163

Fruits and vegetables are important healthy contributors to complementary feeding diets of children 6-24 months of age. Unfortunately, many fruits and vegetables may be out of season when an infant reaches the age when complementary feeding begins. If families plan ahead they can solve this problem by growing or purchasing these types of food when they are abundant and then process and storing them for future home use. These are also good family practices to avoid shortages and improve the diversity of diets for the whole family throughout the year.

Field Workers should encourage mothers and caregivers to learn how to safely store food for children in the home. Depending on the varieties, various foods can be stored in plastic containers with tight fitting lids, sacks, and polythene materials. In most cases, the container must be

air tight to prevent the food going bad or being attacked by insects or rodents.

Fresh foods that will be consumed within a short time can often be stored in a refrigerator or in a container dipped in cold water. Foods that have been refrigerated or deep-frozen should be thoroughly warmed before being given to a baby.

Read More in Part C Page(s) 138-163

B.4.13 Micronutrients for the Child during 6-24 Months of Age

Micronutrients help with growth and development, and help prevent disease in young children.

B.4.13.1 Vitamin A to Prevent Illness and Blindness in Children

Vitamin A is required in the body for growth and development, protecting the body from infection and supporting normal sight. Vitamin A is mostly found in dark green, yellow, and orange vegetables and fruits and in foods of animal-source especially the offal. Some margarine and vegetable oils are fortified with Vitamin A during processing. Children also obtain vitamin A from breast milk.

However, the meals prepared by most Zambians do not have all the vitamin A that a child may require. The Government provides free Vitamin A supplements for

every child every six months starting from six months after birth.

Parents and caregivers should not miss receiving the Vitamin A supplements for their children, every six months during Child Health Weeks when they are provided. Children can also receive vitamin A supplements from routine under-five clinics. A parent or caregiver also can simply ask at the health facility for their child to be given a Vitamin A supplement.

Field Workers should encourage parents and other caregivers to take their children for vitamin A supplementation and to give their children vitamin A rich foods.

***Read More in Part C Page(s) 194-195, 317-322,
324-326***

B.4.13.2 Assuring Children Receive Enough Iron to Avoid Iron Deficiency Anaemia

Children need the micronutrient iron to carry oxygen around the body, for brain development and immune functions. A child's rapid growth during the first two years of life requires more iron per body weight than at any other time of life except pregnancy. A child lacking iron during the first two years of life may suffer lifelong consequences related to less than optimal development of its brain.

Field Workers need to promote iron rich diets and supplements for young children and women who are often at risk. The new Micronutrient Powders that are mixed at

home with complementary foods should also be promoted.

***Read More in Part C Page(s) 194-195, 317-322,
324-326***

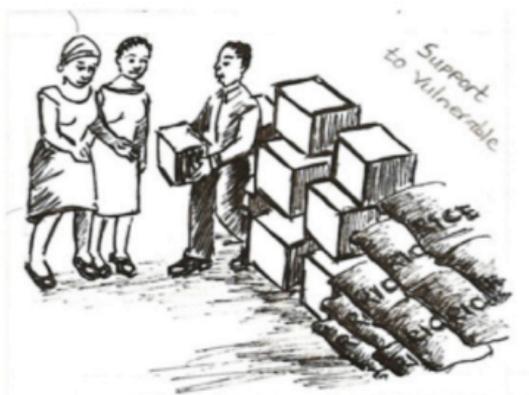
B.4.13.3 Iodine

Iodine is important for health of children and brain development. Children born from iodine deficient mothers may suffer from poor brain functioning and slow learning. If the deficiency is severe they may be very short in stature (cretinism).

In Zambia, because there is not much iodine in the soil there is little iodine in the plant and animal products that make up the normal diet. Because of this and the importance of iodine, the Government requires that all salt imported into the country is fortified with iodine. Families should be sure to use iodized salt and all FWs should make sure that all families know about and use salt with the label “Iodized Salt”.

Read More in Part C Page(s) 320-321

B.5 Interventions to Support the Prevention of Child Stunting throughout the 1st 1000 MCDS



B.5.1 Community Services for Vulnerable Families

The Ministry of Community Development and Maternal and Child Health (MCDMCH) has the mission of contributing to sustainable development and has programmes that provide for social protection and primary health care.

In terms of community development, the MCDMCH primarily targets individuals and households that are incapacitated or vulnerable but viable. A person or family is defined as “vulnerable” if they are disadvantaged because of their status in society and cannot easily obtain the basic needs of life.

A woman who is incapacitated is eligible to receive social

support under social protection programmes. A woman who is vulnerable but viable would also benefit from the programmes under the Ministry.

B.5.1.1 Linking Vulnerable Women to Social Protection Services

When a woman is preparing for a pregnancy and during her pregnancy, her family needs to ensure that the household is food secure. In situations where the family or the woman is vulnerable and cannot afford to grow or purchase adequate food, the Government has several programmes carried out by the MCDMCH that can assist. Three major programmes include the following:

- *Food Security Pack (FSP)*
- *Social Cash Transfer (SCT)*
- *Public Welfare Assistance Scheme (PWAS)*

Field Workers from all Ministries at community level need to know and understand these programmes so they can inform and refer eligible families where to find and receive appropriate assistance. Field Workers need to know what services are available for all those eligible who will soon enter or who are within the period of the 1st 1000 MCDs.

B.5.1.2 Food Security Pack (FSP) Programme

The Food Security Pack Programme contributes to reducing poverty by providing agricultural inputs to vulnerable but

viable farming households. In this context, viable is defined as having a piece of land and labour to be able to engage in farming activities. FSP helps families to be more self-sustaining through improved productivity and household food security. The programme is implemented nationwide covering both rural and urban areas.

To participate in the FSP Programme in urban areas households need to meet the following selection criteria:

- *A piece of land*
- *Labour*
- *Not in gainful employment*

The FSP agriculture inputs per eligible household include seeds of a cereal, a legume, and a tuber as well as fertilizer sufficient to cover at least two limas (0.5 hectares). The programme also provides a variety of seeds for home gardening during wetland farming season. However, due to limited resources the FSP does not always include all the planned inputs. In such cases, the FSP may only include maize seed and some fertilizer.

The programme is executed by the Department of Community Development. District Community Development Officers manage the program and distribute the inputs to the beneficiary families.

The FSP also includes training in conservation farming, crop production, and food processing. This training is provided by the MCDMCH in collaboration with the Ministry of Agriculture and Live Stock (MAL).

Read More in Part C page(s) 499-502

B.5.1.3 Alternative Livelihoods Intervention

Another component of the FSP Programme is the Alternative Livelihoods Intervention (ALI). This provides for non-crop activities such as fish farming and rearing small livestock such as chickens, goats, and pigs. The ALI is implemented through the District Community Development Officers nationwide in areas where crop production does not respond favourably. Women and their households who meet the vulnerability criteria can participate in the FSP and ALI programmes. This should help women to have enough food during a “pre-pregnancy stage and throughout the 1st 1000 MCDs.

Read More in Part C Page(s) 501

B.5.1.4 Social Cash Transfer Scheme (SCT)

The Social Cash Transfer scheme for households affected by HIV/AIDS is a programme under the Social Welfare Department of the MCDMCH. This programme provides beneficiaries with small grants every two months to improve their livelihoods. It is an alternative to the Public Welfare Assistance Scheme (PWAS) that offers assistance in-kind.

The SCT scheme helps households with limited or no self help potential because of the HIV/AIDS pandemic. It targets extremely poor and incapacitated households that need regular and continuous social assistance to survive

and cannot be effectively assisted through more labour intensive programmes such as FSP.

The grants to eligible households are aimed at improving food security and nutrition. Women from poverty stricken households affected by HIV/AIDS can benefit from the grants which should help take care of their food and nutrition needs during this period.

Read More in Part C Page(s) 503-511

B.5.1.5 Public Welfare Assistance Scheme

The Public Welfare Assistance Scheme (PWAS) is designed to help the poorest and most vulnerable in urban and rural areas to meet their basic needs including provision of health, education, food, and shelter. The programme is nationwide and administered through a well coordinated structure that extends from national, level to provincial, district, and community levels. Clients identified at community level meet selection criteria based on the following conditions:

- *Extreme poverty*
- *Aged*
- *Disabled*
- *Chronically ill*
- *Widowed*
- *Orphaned*
- *Female and Child headed households*

The PWAS programme promotes community initiatives

that develop local and externally supported capacities to overcome the problems of extreme poverty and vulnerability.

Community level structures facilitate the disbursement of goods and services to the PWAS families. These include food rations, beddings, clothes, and resources needed for school attendance and health care. Vulnerable women who meet the selection criteria can access food rations under this programme to help ensure good nutrition status in preparing for and during the 1st 1000 MCDs.

Read More in Part C Page(s) 514-523

B.5.1.6 Correctional Services

Young women who find themselves in conflict with the law may be referred for Correctional Services under the Department of Social Welfare. The laws of Zambia outline these correctional services under the Juvenile Act Cap 53 and Probation of Offenders Act Cap 93.

On behalf of the courts, Social Welfare Officers carry out investigations to determine and advise on forms of punishment that are in the best interest of juvenile offenders. For juveniles, these punishments include probation or placement in a correctional facility. A juvenile who is placed on probation undergoes counselling and is supervised by a Social Welfare Officer (Juvenile Inspector) for a period specified by the court. In some cases, a probation order may allow the juvenile to stay at home and report regularly to the Social Welfare Office. Others may be

sent to a juvenile correctional institution for rehabilitation.

Juvenile women who are discharged from a correctional facility must undergo an after-care probation process that helps prepare them for reintegration into the community. Young women who find themselves in conflict with the law may need additional rehabilitation services from the Social Welfare Department. This is important to ensure they lead lawful, healthy, and productive lives during pre-pregnancy and in the 1st 1000 MCDs.

Read More in Part C Page(s) 482-387

B.5.1.7. Drug and Alcohol Abuse

Drug and alcohol abuse are particularly dangerous among young women who may become pregnant, as these substances could harm the pregnant woman, the foetus or the new-born child. Most young women who find themselves in trouble with the law are engaged with vices involving sexual activities, or drug and alcohol abuse. Those involved in drugs are referred to the Drug Enforcement Commission for rehabilitation and counselling from the Social Welfare Department. The Field Workers from all ministries and NGOs need to sensitize the communities on the dangers of drugs and the services provided in order to ensure that young women are protected.

B.5.2 Community Support for Women and Families during the 1st 1000 MCDs

Every community needs to be sensitized on the importance of supporting women especially those that are pregnant to

ensure safe delivery of the baby. The government supports more access of families to safer maternity facilities through small infrastructure development such as mother's shelters at health centres that are used to house pregnant women waiting to deliver. This programme is mainly in the rural areas where there is a lack of such infrastructure.

Field Workers such as Community Development Assistants should sensitize the communities on the Community Self Help Programme under which support is offered to construct various community structures.

Read More in Part C Page(s) 174-179

B.5.2.1 Community Self Help Projects

Community Self Help Projects is a programme that targets families and communities. The Programme aims at facilitating effective service delivery through support to community initiated infrastructural projects such as mother's shelters at clinics, bridges, community halls, etc. Field Workers should learn about such programmes and help sensitize communities on the importance of undertaking self help programmes that help improve their quality of life.

B.5.2.2 Mothers Shelters

In rural areas where healthy facilities are not fully furnished to meet the needs of pregnant women; communities should be encouraged by Field Workers to mobilize themselves and put up mother's shelters that are lacking

at most rural health centres. These shelters are important in ensuring safe deliveries and avoiding maternal deaths caused by delays in taking the pregnant woman to a health centre.

Read More in Part C Page(s) 479-481

B.5.2.3 Social Protection Services

Every child has a right to be born and be looked after by his or her biological parents. Unfortunately, in some cases this is not possible. Even for the child less than 6 months of age there are circumstances that may result in the child needing various social services including protection and adoption. Such circumstances are usually related to maternal death, poverty, the dumping off of a child, child neglect, terminal illnesses, and abuse. Children in such circumstances need the care and protection required to grow up into responsible adults. There are government measures to protect and offer security to children in need of care through formal processes. These include:

- *Maintenance and Child Custody*
- *Foster Care*
- *Adoption*

Read More in Part C Page(s) 566-567

B.5.2.4 Traditional Placement of Children in Need of Care

The “traditional placement” of a child who cannot stay

with his or her parents is known as “extended family” placement. This is commonly practiced and results in relatives of the children in need of care taking up the responsibility of looking after them. Field Workers should be on the lookout for such children to ensure that they are receiving adequate care and protection. If such children do not receive proper care and protection, Field Workers should contact the Department of Social Welfare

Read More in Part C Page(s) 470-478, 566-567

B.5.2.5 Maintenance and Child Custody

In cases where couples separate or divorce, children have to be placed with one of the parents who will continue providing their basic requirements. The Social Welfare Officer has the responsibility to assess the two parents and find out who is most suitable to be the custodian of the child/children. The criteria used include:

- *Child should be placed in a safe environment*
- *Proper home condition with enough space*
- *Beddings, food, clothing for the child/children*
- *Sober mind*
- *Sound economy*

As provided for by the law, the partner who best meets these criteria according to the assessment is granted custodianship of the child/children through the court. When the mother is granted custody of the child/children the father is required to meet the maintenance order as prescribed by the court. Field Workers should learn

more about these services and encourage the community to use these services provided for by the Community Development Department.

Read More in Part C Page(s) 470-478, 566-567

B.5.2.6 Temporary Placement of Children in Need of Care

Foster care is a temporary placement which can be created in a family or institution to provide a safe and healthy environment when the child's parents are unable to do so. The placement is made by a Committal Court order facilitated by a social worker, gazetted as a Juvenile Inspector.

Such care is provided to a person who has not attained the age of nineteen (referred to legally as a child). The foster care order therefore, expires when a fostered child attains the age of 19 or is adopted. The Law on Foster Care is provided for in the Juveniles Act, Chapter 53 of the Laws of Zambia.

The Juvenile Inspector ensures that Foster Care Homes/Institutions meet the minimum

**Affiliation and Maintenance of Children Act,
(Chapter 64: Laws of Zambia)**

The Maintenance Order compels one to pay a prescribed fee for the support and maintenance of the children. The Social Welfare Officer facilitates the Maintenance Order through the courts and arranges visits for the partner who has not been granted the custodianship. A child refers to a person aged 0 to 18.

standards of care as regards to nutrition, hygiene, safe environment, love, and affection. In a situation where a child is identified to be in need of care, the District Social Welfare Officer must be informed so that he /she can facilitate placement of that child in a suitable home or institution.

Read More in Part C Page(s) 470-478, 566-567

B.5.2.7 Permanent Placement of Children in Need of Care

Adoption provides a permanent home and family for a child. The objective of adoption is to provide a child in need of care with a permanent home and parent/child relationship where this did not exist. This has the effect of making an adoptive parent responsible for the adopted child just as if he or she was their biological child.

Adoption is a good alternative to institutional care as this provides the child with a chance to grow up in a family which is known to be the best setting for proper development. Through adoption, an infant/child who has lost a mother or parents or is disadvantaged in life can be offered an opportunity to receive care and support in a normal family environment.

The District Social Welfare Officer must be informed in a situation where individuals wish to adopt a child in need of care, so that they can facilitate the adoption process.

Field Workers from all Ministries need to learn about and help to sensitize communities on placement of children

in need in order to better assure their proper care and support.

Read More in Part C Page(s) 470-478, 566-567

B.5.3 Gender Based Violence (GBV)

Gender based violence refers to violence involving men and women. The woman is usually a victim. GBV occurs in many forms including battering, rape, defilement, incest, sodomy, sexual harassment, and cleansing and forced prostitution.

GBV affects the safety, health, emotional and physical capability of the victim. Children, especially girls, have often been victims of GBV; mostly at the hands of older family members or close relations. Such an experience often results in serious damage to normal child developmental processes. In terms of sexual abuse conditions, GBV may result in HIV/AIDS.

GBV may affect the decision making process in a home including who has access to food and other basic needs. This may have a negative impact in the different stages of pregnancy and child growth. The Anti-Gender Based Violence Act enacted in 2011 helps protect victims and deter GBV offenders. The Act provides for the filing of GBV complaints, protection orders, and shelter for victims and how to deal with these.

Field Workers from all Ministries need to learn about and help to sensitize communities on GBV and the provisions of

the Act to better assure women and girls are encouraged to report any form of violence experienced in their homes.

Read More in Part C Page(s) 523-533, 566

B.5.4 Household Budgeting to Promote Growth in the 1st 1000 MCDs

Money is a major but not the only resource in a home. Most families need money to buy all or some of the healthy foods they need to have healthy diets. However, to obtain nutritional benefits from the money available in the home, it is important to plan how it is going to be spent. Planning can help to make savings that can be used to care for pregnant women and young children especially improving their access to healthy food supply and health care.

Household budgeting is a process of planning how to spend money wisely. This is why a budget is defined as a “plan for money” or a way of keeping control so that how much money is coming in and how much is going out is known. Most people fail to make a budget for themselves or their family. Some say it is their money and they can spend it wisely even without a budget. Too often, they realise how wrong they were when money is finished without buying the essentials such as food.

Read More in Part C Page(s) 533-536

B.5.5 Accidents and Injuries that Harm Small Children

Many accidents and injuries affect children, particularly those under two years of age. These include drowning, burns, falls, broken bones, drinking poisonous chemicals, electrical shock, choking, cuts from sharp objects such as scissors, knives, and razors and suffocation from plastic bags.

Children should grow up in an environment that is safe and free from unnecessary injuries. As much as parents and caregivers protect young children from infections, families and communities should protect them from injuries and accidents. Field Workers from all Ministries should help parents, caregivers and other family members to assure all children are safe.

To prevent accidents and injuries, Field Workers need to be aware of dangers in a child's home environment and encourage parents and caregivers to remove hazards such as potentially dangerous substances and sharp objects. They should also encourage parents and caregivers to supervise children carefully at all times.

Read More in Part C Page(s) 568-576

B.5.6 Participation of Community Groups

Lead Farmers, Contact Farmers, Women Groups, and Cooperative Groups of farmers all need to have the necessary knowledge, and communication skills to

mobilise their members to adopt and practice what is needed for healthy nutrition at home. They also need to strengthen skills related to leadership and Income Generating Activities (IGAs) in order to empower families.

Read More in Part C Page(s) 491-494

B.5.7 Drinking Water Safety

For pregnant women and new mothers and for young children, water borne diseases are a major cause of infection and illness that can lead to poor eating, malnutrition including stunting, and even death. Clean and safe drinking water is important throughout the 1st 1000 MCDs.

Drinking water should be drawn from clean sources, treated in the home when necessary, and stored safely to avoid contamination. Practices that help assure clean drinking water for the pregnant women and her family include:

- *Collect drinking water only from known protected sources*
- *Boil or treat any water that may be unclean water with a chlorine solution (like Jik) before drinking.*
- *Store clean water safely, preferably in covered containers (the containers should have a narrow neck but wide enough to reach inside when cleaning)*
- *Use a different cup to take water from a storage container than the cup used for drinking (two cup system)*
- *Keep the drinking water storage container off the*

floor or ground

- *Keep safe drinking water separate from water for general purposes*

Read More in Part C Page(s) 431-436

B.5.8 Personal, Household, and Environmental Hygiene

Personal, household and environmental hygiene affects success in the 1st 1000 MCDs. Field Workers from each Ministry should be ready to advise and help communities and households to keep their environments clean. Households with pregnant women- or young children need to be encouraged toward proper personal hygiene, food hygiene, household and environmental sanitation including safe and careful disposal of waste. These practices will help protect all the pregnant women, new mothers, infants, and young children from infections that can easily contribute to malnutrition and child stunting during the 1st 1000 MCDs.

Read More in Part C Page(s) 430-455

B.5.8.1 Personal Hygiene

Field Workers need to promote good personal hygiene. This prevents many other illnesses and helps prevent food contamination and the spread of germs that cause diarrhoea. Poor personal hygiene practices may also result in skin, oral and eye infections. A clean body prevents infestations and many common skin diseases. Cleanliness also helps prevent lice that cause discomfort. Daily washing

is important. Nails should be kept short. Teeth should be cleaned in the morning and after every meal. A mother needs to keep her baby clean. Babies easily become dirty with their own faeces and through their environment. They can also transfer germs directly to their mouths or onto their mother's breasts and from the breast to their mouth while breastfeeding.

Read More in Part C Page(s) 446-455

B.5.8.2 Food Hygiene

As noted in an earlier section on preventing infections, food should be prepared with clean hands washed with soap and clean utensils on clean surfaces. Food should be eaten from clean plates using clean serving dishes and clean eating utensils. Frequent washing with soap and clean storage are important to assure clean food preparation surfaces, cooking pots, and eating utensils. Hands need to be clean of both dirt and germs as well. The hands of everyone eating should be washed with soap before the meal.

Spoiled food or food contaminated with germs can result in family members, including pregnant women and young children, suffering from diarrhoea or food poisoning. Food needs to be kept safe through washing, clean preparation, cooking and proper storage.

Read More in Part C Page(s) 446-455, 285-286

B.5.8.3 Environmental and Household Hygiene

Keeping living and working environments clean is important. A dirty environment leads to contamination of the surface frequently walked and played on and contamination of water above and below ground. A dirty environment and poor sanitation creates foul smells and often attracts mosquitoes, flies, and rodents. An unclean environment near the home or in the community creates unsafe areas for children to play, unpleasant sights for everyone, and increases the spreading of diseases.

Two basic elements of household sanitation are safe and adequate disposal of faecal matter and solid waste. This includes construction, maintenance, and use of proper toilet facilities for adults and children. Careful handling of faecal matter and cleaning infants and toddlers is often a problem but must be done correctly and safely to protect children during the 1st 1000 MCDs.

Read More in Part C Page(s) 450-455

B.B.5.9 Solid Waste Management

Solid waste management protects households from accidents and infection during the 1st 1000 MCDS. Solid waste may refer to garbage, refuse, trash, faeces, urine, and sputum. In general, solid waste is mostly discarded everyday items including food wastes, packaging materials, water and beer containers, and used diapers. What is important for every Field Worker to know and advise

others on is that solid waste is not just unsightly but also dangerous.

- *Decomposing waste provides places for flies to eat and breed, and therefore transmit diseases.*
- *Improperly managed and disposed of waste can contaminate sources of drinking water and contributes to a large proportion of food borne illnesses.*
- *Poor waste management often results in bad smells and ugly, trash strewn areas.*
- *Proper and sanitary solid wastes disposal needs special attention at household and community levels.*
- *Refuse Pits:*
 - o *Should be dug away from water supplies, dwellings and play areas.*
 - o *If constructed and used properly can be an effective methods for controlling solid waste at household level.*
 - o *Dig at least one metre deep, enough to fully contain solid waste.*
 - o *Should be sited at least 20 metres away from the house and 30 metres away from any water source.*
 - o *Should be deep enough to be used to discard non-toxic types of waste.*
 - o *Solid waste should be covered with soil to prevent flies and rats getting into the refuse.*
- *Sanitary Landfill:*
 - o *These are large areas that are often dug and*

maintained by a community or government authorities and are another common means of managing solid waste.

- *Composting:*
 - o *Composting is the mixing of different types of organic materials in closed container or pit where they decompose into a harmless mixture useful as a soil conditioner or as fertiliser.*

Read More in Part C Page(s) 438-446

B.5.10 International Code of Marketing of Breast Milk Substitutes (ICMBMS)

Field Workers have a role in protecting breastfeeding by discouraging the use by mothers of other feeding methods that undermine breastfeeding. Some manufacturing companies violate the international code on marketing breastfeeding substitutes. They may include herbal liquid, glucose, bottles, teats and milk formulas. Zambia has endorsed the law that makes it illegal to have these negative practices.

Field Workers should report all companies that wrongly promote use of breast milk substitutes, bottles and teats to health inspectors, local government or any health officer.

Read More in Part C Page(s) 287

Assuring that these products are not marketed is important because use of herbal liquid, glucose, bottles, teats and milk formulas not only often expose the young child to infections

but also interfere with suckling which affects breast milk production. Zambia endorsed the International Code on Marketing of Breast Milk Substitutes to discourage or make illegal such practices. The code covers all BMS including infant formula, any other milks or foods including water teas and cereal foods that are sometimes marketed as suitable for infants below six months of age.

Read More in Part C Page(s) 288-291, 609

*Field Workers' Reference Guide for the
1st 1000 Most Critical Days*

PART C

Detailed Sector Information

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C.1 Introduction

Part C of the 1st 1000 MCDs FWRG includes Agriculture, Health, Nutrition, Community Development, Water and Sanitation sections. Each of these is linked with the services, interventions and practices that were described in Part B.

Part C of the FWRG includes more detailed information for FWs to use to inform and advise families on the 1st 1000 MCDs. Relevant information has been abstracted, adapted and consistently reformatted from several national and internationally developed publications including books, training guidelines, sector policies and strategies, and leaflets.

The topics and publications used as sources for Part C were selected by a multi-sector team. Organizations represented included:

- *National Food and Nutrition Commission*
- *Ministry of Community Development, Mother and Child Health*
- *Ministry of Agriculture and Livestock*
- *Ministry of Health*
- *Ministry of Local Government and Housing*
- *Ministry of Education, Science, Vocational Training and Early Education*
- *Ministry of Gender and Child Development*
- *UNICEF*
- *Communication Support for Health (CSH-USAID)*

The information in Part C of the FWRG is drawn mainly from Field worker community level technical guidelines, training materials and extension publications. Some policy and strategy level documents and intervention programme plans were also used.

Selection of information was also based on what was viewed as having some relevance to the services, activities and practices that alone or combined can help prevent stunting in young children. In addition, more general information was included because it is important for FWs from each sector to learn how other ministries and departments work and how they share common visions and objectives that all support the health and nutrition of women and young children.

All materials included support the objectives of the government, civil society organisations, communities, and of all Zambian families, that every pregnant woman and young child be successful and that stunting is prevented during the 1st 1000 MCDs.

To fit into this single, cross sector FWRG for 1st 1000 MCDs, only relevant parts of source publications were abstracted and adapted.

While some information may be most useful only to those working in each of these sectors, Field workers in other sectors are encouraged to read and learn as much as possible.

Information abstracted from many of these publications was adapted to the situation in Zambia and what was considered relevant for Field workers from different sectors working at community level. A list of the information sources used and where the full versions can be obtained or accessed is provided in Annexes.

C.1.2 How to Use Part C of the FWRG to Prevent Stunting during the 1st 1000 MCDs

However, the FWRG is not intended as a substitute for the full publications developed for Field Workers from each Ministry. Nor should Field workers assume that the information included in this Part C is identical to what is found in the source publications. While the information in Part C does not change any facts, information was edited and formats of the original publications were adapted.

Field workers should use the FWRG as a handy guide that provides summarized versions of the key parts of many other technical publications. The sources of all information in Part B of the FWRG are included.

The NFNC website at www.nfnc.org.zm includes electronic versions of many of the publications used to develop Part B of the FWRG and web links to other materials produced by participating ministries and other organizations. Throughout Part B of the FWRG for 1st 1000 MCDs the reader found many references to various pages in Part C. Each of these references points the reader to pages with

more detailed information on specific topics. For example, the section in Part B on the importance of having a variety of food during pregnancy includes references to the pages in Part C that have detailed information on home gardening and raising small livestock.

C.2 Agriculture and the 1st 1000 MCDs



C.2.1 Vision of the Agriculture and Livestock Sector

Abstracted from the Zambia National Agricultural Policy, MAL, 2004

C.2.1.1 Agriculture Sector Vision

The vision of the Agriculture sector is “to promote development of an efficient competitive and sustainable

agriculture sector which assures food security and increased income”.

The long term vision of the agriculture sector encompasses the following:

- *To utilise natural resources on a sustainable basis for income and employment generation and economic growth.*
- *To achieve food security for the majority of the Zambian population through increased yield and improved post-harvest management and utilization.*
- *To develop a commercial agriculture with most farmers (small and large) producing for the domestic and export markets.*
- *To promote a competitive and efficient agriculture based on regional comparative advantage.*
- *To develop a diversified agriculture linked to well-developed agribusiness industry for value adding and exports.*
- *To facilitate the entry of cooperatives and farmer organizations into highly competitive and commercial agriculture.*
- *To facilitate development of Fisheries and Livestock sub sectors.*

C.2.1.2 Agriculture Cooperatives Development Objectives

The 2004 policy includes the following specific objectives for Agricultural Cooperatives Development:

- *To create a framework for reforming and re-orienting the agricultural cooperative movement in the context of national development.*
- *To facilitate the promotion and formation of genuine, autonomous, viable and sustainable cooperatives and other farmer organizations.*
- *To promote the diversification of cooperative activities.*
- *To create a conducive environment for creation of a cooperative structure.*
- *To provide a framework for efficient resource mobilization to enhance cooperative development.*
- *To promote internal and external linkages with and outside cooperative movement.*
- *To create a conducive environment for equal participation of women and youth in cooperative development.*

C.2.2 Conservation Farming

Abstracted and adapted from a booklet on Conservation Farming, MoAL, NAIS 2010. The full publication is available from NAIS.

From many years in Zambia, farmers have been using conventional farming methods which waste soil, moisture, the farmer's time and energy, and require expensive inputs. Conservation Farming (CF) methods are easy to follow and they work. Farmers who have adjusted to them will reduce their costs on fertilizers, increase their yield, improve nutrition, minimize the chances of crop failure in

drought years, increase their profits and time, and improve the fertility of their land.

C.2.2.1 The Disadvantages of Conventional Tillage (CT) Methods

Conventional tillage methods have proved destructive of the land.

- *Burning of Residues: Burning is a very destructive habit that must be stopped. Residues when left in the field protect soil from sheet erosion, improve infiltration, reduce soil temperatures which can rise to about 50°C in October and protect topsoil from rain splash and capping. Bare soil increases run-off and loss of soil.*
- *Ploughing using Oxen: Oxen in Zambia are smaller than they used to be and are often malnourished after the long dry season. Thence, ploughing may take several days or even weeks especially if the rains are unreliable. This has several disadvantages. The ploughed soil is exposed to storms and up to 50% of fertilizer is washed away. Seeds germinate unevenly because some seeds will be planted too shallow and some too deep.*
- *Ridging up with a hoe: This practice is common in Northern and Eastern provinces of Zambia. Ridging is backbreaking work. Oxidized topsoil is moved backwards and forwards each year creating a hoe*

pan under the ridges. This creates erosion gullies and rainfall water is lost. Nitrogen intake in the crops is also reduced because the trash is buried in ridges and the bacteria take it up at the onset of the rains.

- *Hoe minimum tillage: This is one of the oldest methods used in Zambia for planting crops. Normally, farmers wait for the first rains to dig planting holes or scratch planting lines. Cereals are planted and inter-planted with cowpeas, pumpkins, and okra in the gaps. While this method saves labour, is easy to do, and lets farmers plant quickly with the first rains, it has some disadvantages. The soil in between becomes hard such that from the previous rainfall, run off would have taken with it the fertile top soil and fertilizer and in time the soil will become degraded and unproductive.*
- *Overall digging with a hoe: This involves digging of the whole field with a hoe, normally after the first rains have softened the soil. It is slow, hard, and unnecessary work that exposes the soil to erosion and creates hoe pans. But, it is not widespread in Zambia.*

The effects of conventional farming method show the need for small holder farmers to change their farming methods from conventional because:-

- *Crops grown in soils that have been degraded by conventional farming methods are susceptible to total failure in seasons of poor rainfall.*

- *In seasons of heavy rainfall, panned soils do not drain properly and become water logged. Farmers will fail to keep up with weeding tasks and weeds compete for nutrients.*
- *Conventional farming methods have led to land degradation and deforestation forcing farmers to migrate to other areas in search of virgin land where they can chop down trees and start the destructive process/cycle all over again.*
- *It can take up to 30 years to regenerate abandoned land where the topsoil has been washed away.*
- *Even regrowth of vegetation will be slow because there is no soil for seeds to anchor their roots.*

C.2.2.2 Conservation Farming Key Practices

- *No burning residues*
- *Correctly spaced permanent planting basins (or ridges for region III) established before the rains.*
- *Early planting of all crops*
- *Early weeding*
- *Rotation with a minimum of 30% legumes in the systems.*

C.2.2.3 Basic Conservation Farming Steps for Hoe Farmers

STEP 1: Keep residues

- o Do not burn residues from last harvest. The more the residues left on the land the better. They reduce sheet erosion and capping, allow rain to

soak into the soil and add to organic matter when they are harvested by terminates.

STEP 2: Get prepared early

- o The tools a farmer will need include a terrene rope, strong hoes, 2 x 90 row sticks, 2 pegs to hold the rope, fertilizer cups, and coca cola tins.
- o For hard soils, a strong Chaka hoe is needed for digging. Chaka hoes can be obtained from a Conservation Farming Unit (CFU).
- o The terrene rope is essential because it ensures accurate spacing of the basins in CF. The rope consists of a rope or string with bottle tops squeezed onto it at 70 cm intervals.
- o The rope is used to mark out basins at the correct spacing. Each squeezed bottle top marks the end of a basin.

STEP 3: Making out the permanent planting basins

- o The terrene rope is used to mark out where to dig the planting basins.
- o These are spaced at 70 cms along the row and the rows are 90 cms apart. There will be 15,850 basins per hectare.
- o Stretch the rope across the prevailing slope using the 2 pegs to anchor it. Keep it well clear of the ground so it remains straight in spite of trash and clods brought up during digging the basins.
- o The position of the bottle tops (red obtained dots) is now marking the edge of the elongated basins.

The basins are not round but rectangular.

- o Use the 90 cm sticks to get the correct spacing when you move the Terrene Rope to the next row.
- o It is worth marking out accurately in the first year because the basins will be permanent.
- o Another important and unique aspect of hand hoe CF is that each year the basins are re-dug in exactly the same places as before.

STEP 4: Digging the basins

- o The basins should be dug well before the onset of the rains. CF means doing the work in advance, so our fields are ready rather than being overwhelmed when the rains come.
- o Making the basins when the rains have already started means you have missed one of the main benefits of CF.
- o When digging a basin swing the Chaka hoe like an axe using the weight of the hoe blade to penetrate the soil. This is why the Chaka hoe must have a long handle. Cut out slices of soil working forwards.
- o When you have finished a basin move backwards to the next mark and start digging the next basin following this simple method will save you days of work.

STEP 5: Making basins the correct size

- o The basin should be 20 cms deep, 30 cms long and the same width as the blade of the hoe.
- o If you place your outstretched hand down the

hole, the top of the basin should be level with the bone on your wrist.

- o This depth will ensure that any hoe or plough pans are broken.
- o The basin needs to be 30 cms long so that seeds of different crops can be spread along the basin. When the plants emerge they will not be overcrowded.

STEP 6: Start land preparation early and work steadily

- o Farmers should be advised to start land preparation as soon as the harvest is over. The best way is for the adults in the family to work for about three hours each morning.
- o Three adults can dig about 350 basins in 3 hours. In this way 1 hectare can be completed in 6 weeks.

STEP 7: Applying basal fertilizers, manure and lime

- o Properly dug and precisely spaced basins allow farmers to be extremely accurate in the application of fertilizer and seeds. Guess work is no longer necessary and the inputs can be placed exactly where they are needed. Kraal manure is a valuable resource that farmers often fail to use to its full advantage.
- o With CF, manure is scattered across bottom of the basin. Two full coke tins per basin are recommended. This is the same as 4 tons (or 4 scotch carts) per hectare.
- o Farmers who spread manure across the field and then plough it in, waste most of it.

- o The black number 8 fertilizer cup is recommended for the application of fertilizer and lime. The fertilizer should be scattered in the bottom of the hole.
- o One No 8 cup per basin gives 125 kg per hectare of “D” compound and 100 kg of urea.

STEP 8: Deciding when to plant

- o This depends on the season and is one of the most difficult decisions farmers have to make. A major advantage of CF is that when heavy rains fall, the farmers can plant because they are ready to do so.
- o Most conventional farmers have to combine land preparation and sowing. This complicates and delays the job.
- o The main objective is to achieve rapid, even, and complete emergence of the crop. To achieve these results timing is critical.
- o Always plant seeds during or immediately after heavy rain. Never plant several days after rain when the soil is already beginning to dry up. When the rain stops, continue planting for only 48 hours. Then stop planting until the next good shower.

STEP 9: Sowing crop seeds

Guide to Planting Dates - Agro-regions I & II		
Crop	Dates	Note
Cotton	Only plant after 15 November or immediately after heavy rains.	This is the only crop where we recommend dry planting.
Maize	Plant immediately after the first heavy rain that falls after November 1st.	Do not advise small scale farmers to plant before November 15th even if heavy rain has fallen. It is too risky.
Groundnuts	After the first heavy rain that falls after November 15th.	'As above.
Sorghum	Plant immediately after heavy rain between 1st – 15th December.	
Millet	As above: 1st – 15th December.	
Sunflower	As above: 1st - 15th December.	

Soya beans	As above: 1st - 15th December.	
Cowpeas	As above: 1st – 15th December.	A small area planted at the same time as maize will provide early high quality food.
Green gram	As above: 1st – 15th December.	
Pigeon Peas	As above: 1st – 15th December.	

- o **CAUTION:** Check the level of the soil in each basin before planting. The hollow in the centre of each basin should be about 5 cm or the size of a matchbox. Use a match box to sow seeds correctly so that the effort put into land preparation will not be wasted. After covering, the soil should be compacted lightly to ensure good contact between seed and soil. The water will also absorb quickly.
- o **Maize:** Four seeds are sown along the basin and covered 5 cm - (size of a matchbox) of the soil. Clods should be broken so that the soil makes good contact with the seed. Aim is to have 57,000 (90%) plant germination per hectare.
- o **Soya:** Plant 10-12 seeds along each basin and cover with 2 cm of soil. Do not plant too few seeds as this will reduce the yield. The aim is to have a vigorous

stand of 125-150,000 plants/hectare. Remember to treat soya bean seeds with inoculums before sowing.

- o Cotton: Before sowing cotton seed, all the soil should be moved back into the basin so it level with the ground. Plant a pinch of 6-8 fuzzy cotton seeds at each end of the filled hole. The seed should be pushed into the soil but should remain visible. After thinning to 4 plants per basin the aim is to have a stand of 63.000 plants per hectare.
- o Gram: Plant 7 to 8 seeds along each basin and cover with 1-1.5 cms of soil. Gram is best suited to the drier areas. It should never be grown in the Copper belt or the North. Plant 7 to 8 seeds along each basin and cover with 2cms of soil.
- o Groundnuts: Sow 8 to 10 seeds along the basin and cover with 3 cms of soil. If you are planting groundnuts it is better if the basins are made a bit longer, i.e. 40 cms to avoid overcrowding.
- o Sowing Sunflower: Plant 2 to 3 seeds at each end of the basin. Sunflower seeds should not be planted deeper than 2 cms. Sunflowers will not emerge if planted too deep.

STEP 10: Thinning and supplying

- o Cotton is the only crop where thinning should be done. These should be thinned out before they are 5 cm tall leaving 2 strong seedlings at each end of basin. This is 4 seedlings per basin or 63,000 seedlings/hectare.

STEP 11: Weeding

- o Weeding is critical in CF and it has to be done early and continuously. Farmers often stop weeding after the crop has matured believing the weeds can no longer do any harm. This is a serious mistake because each weed will shed thousands of seeds which will germinate the following year and for many years thereafter.
- o Weeds should not be allowed to grow beyond 5-6cms as they can cause a lot of damage to crops by competing for water, nutrients, and light.
- o Labour for weeding also declines as a farmer keeps practicing conservation farming. This is because the soil is never ploughed so the number of weed seeds in the topsoil decline.
- o Weeding is a major problem for small scale farmers. The Zamwipi is a simple and light hand held glyphosate application that can reduce the weeding requirement by 70%. Contact the CFU for more information.

STEP 12: Pot holing

- o Pot holing is worth doing if the rain during the early part of the season is poor.
- o Pot holes are dug one meter apart along the crop inter-rows as part of the first weeding. They should be about the same size as a basin and left open.
- o Pot holes will harvest rainfall and thus reduce crop stress when there are longer gaps between rains.

STEP 13: Top dressing of maize

- o On medium to heavy soils, maize should be top dressed once when it is knee high. It is best for 2 people to do this job. The soil should be moist. The first person makes an elongated hole with a blunt stick 20 cm from the side of each stand of maize plants. The next person follows and applies the fertilizer with a no. 8 cup and heels it in.
- o If the soil is very sandy, then the top dressing should be left uncovered. The first top dressing is applied at knee height (normally 6 weeks from planting) and the second dressing some 3 weeks later when the maize is waist high.

STEP 14: Topping maize

- o Top the stalks just above the cobs and drop the tops into the rows. This will speed up digging and reduce lodging from termites and wind. Termites will attack the toppings rather than the crop.

C.2.2.4 Additional Information about Conservation Farming

The following additional topics are available:

- *Fertilizer rates*
 - o *Lime rates*
 - o *Top dressing rates (maize)*
- *The importance of crop rotation and strip crop rotations*
- *Intercropping & CF*

- *Tree planting and CF common mistakes and misunderstandings about CF/conservation tillage.*
- *Conservation farming - the results*

Contact the Conservation Farming (CF) Ministry of Agriculture and Cooperatives PO Box 50698 LUSAKA Tel. 260-1-250010/253252

C.2.2.5 Conservation Farming for Region III

Abstracted and adapted from Conservation Farming Handbook for Hoe Farmers in Agro-ecological Region 3: the Basics”, Zambia National Farmer Union Lusaka.

The north of Zambia usually receives high rainfall (>1000 mm). For this reason it is preferable to plant crops on ridges rather in basins to avoid water logging.

Ridges are aligned on the contour to minimize the movement of rainwater and topsoil down the furrows between ridges.

Vetiver grass (hedges) is planted behind each 15th ridge to reduce the danger of gullies forming when heavy rains break down the ridges and flow down the main slope in the field. The hedges provide successive barriers that arrest or slow the flow of water and capture any topsoil that has begun to move.

Ridges are not split each season and moved into the previous season’s furrows. Instead, they remain in the

same place permanently and are built up before or immediately after the first rains each year. The aim is to minimize soil disturbance and oxidation of the soil organic matter in the ridges which provide the medium in which young crops establish themselves and which are the target for all applied nutrients.

Step 1: As for region I and II

Step 2: Pegging out contours using the line level

- *In region III, it is important to peg out contours using the line level to ensure that furrows between the ridges are level. Because they are not sloping downwards, the rainwater captured in the furrows will sink into the soil rather than flowing. This will also reduce gully formation and washing away of topsoil.*
- *To mark out contours, the following tools are needed:*
 - o a line level with hooks,
 - o two straight poles of 1.5 meter length,
 - o a 5 meter length of string attaching the poles at equal heights and
 - o plenty of strong pegs and a stone or hammer.

Step 3: Aligning permanent ridges along pegged contours

- *In region III, aligning permanent ridges along pegged contours requires 3 people.*
- *Starting at the top, the 5 meter string is unwound and stretched tight between the 2 poles and the line level is hung on the string exactly at the centre of the length of string where the mark has been made.*

- *The men hold the poles vertically and the one beside the first pole drives a peg into the ground next to it. The man in the middle checks the line level and instructs the man in the second position to move up or down the slope of the field until the bubble is in the middle of the markers in the line level.*
- *The second man then drives a peg into the ground beside his pole. The line joining the two pegs is now on the contour.*
- *When the second peg has been driven in, the man holding the first pole moves to the second position and the man holding the second pole moves forward to the next position.*
- *When the edge of the field is reached, the supervisor measures 15 long paces down the field from the centre of the first line of pegs. This is where the second line of pegs is placed to mark out the second contour. Always start at the same edge of the field.*
- *If there are sufficient pegs, about 160, a team of 3 people can easily peg 1 hectare in a day.*

Step 4: Building up ridges on the contour

- *Using the pegs as a guide, ridges are built up on the contour. Start at the top on the first line of pegs and work down the field aligning successive ridges parallel with the previous ones.*
- *Ridges should be 90 cms apart. Some adjustment may be necessary when you are approaching each new line of contour pegs to make the ridges merge with next contour. Don't aim for perfection.*

Steps 5: Applying lime and basal fertilizer to the ridges

- *Basal inputs can be applied at any time before the beginning of rainy season.*
- *Before applying in basal inputs, furrows are made along the top of the ridge using a blunt stick. These furrows should be about 15 cms deep.*
- *Lime should be applied to all main field crops each season at 300 kg/ha. The application of lime is targeted and not scattered. This means rates can be reduced from 1000 to 300kg/ha.*
- *One coke tin of lime spread along 25 paces gives 250kgs/lime. The quality of lime is important. The finer the better, however any agriculture lime is better than none. Basal fertilizers or manure can be applied at the same time as the lime.*
- *After applying basal inputs, they should be covered with about 5cms of soil leaving a shallower furrow ready for planting seeds.*

Step 6: Sowing seeds

- *In the north, maize and groundnuts should be sown the day after heavy rainfall anytime between the 8th and 31st November weather permitting.*
- *Never plant seeds into a drying seedbed. Soya beans, field beans and sunflower should be planted between the 15th and 24th of December.*
- *Intercropping with beans and maize is a good system.*
- *Maize seeds are sown about 20 cms apart in the furrow and covered with 5cms of soil.*
- *Soya bean and groundnut seeds are sown about 5cms apart and covered with 5cm of soil.*

- *Beans seeds are sown about 7-10 cms apart and covered with 5 cms of soil.*
- *Sunflower seeds are sown about 20 cms apart like maize. However, sow 2 seeds at each station because the seeds are delicate and emergence is not always good. Sunflower should never be planted deeper than 2 cms*

Step 7: Early and continuous weeding

- *Like with basin CF, early and continuous weeding throughout the season is a critical element of CF. Weeds should never be allowed to grow beyond 5-6cms.*

Step 8: Top dressing maize

- *The best time to top dress maize is when it's raining lightly. In many areas in the north the soils are very sandy. If this is the case, the crop should be top dressed twice, the first time when the maize is knee high and the second time when the maize is waist high.*
- *One coke tin scattered along the top of the ridge alongside the growing plants every 25 paces gives 150kgs/hectare.*

Fertilizer Application Rates						
Fertilizer	Coke tin	Paces	Rate/ha	Coke tin	Paces	Rate/ha
Lime	1	25	250	1	20	200
Compounds	1	25	200	1	20	150
Urea/CAN	1	25	150	1	20	125
Manure	2-3	1	4/5 tons			

- *Applying fertilizer accurately using a tin takes a bit of practice. Before starting it is a good idea to drive 2 pegs into the ground 25 paces apart, fill a coke tin with sand or fine dry soil and practice until you are satisfied that you can spread the fertilizer with reasonable accuracy.*

Step 9: Planting vetiver hedges

- *In the north and east of Zambia, particularly on steeper slopes where hoe or ox draft ridging is commonplace, the establishment of contoured vetiver hedges will be of great benefit.*
- *Vetiver hedges slow the flow of storm water, stop ridges collapsing and keep topsoil in the field. It is a challenging and time consuming task but must be encouraged.*

C.2.3 Home Gardens

Abstracted and adapted from the FAO publication, "Improving Nutrition through Home Gardens, Training Package for Preparing Field Workers in Southern Asia, 1996". Available from Ministry of Agriculture and [Livestock. Pages 107-115, 29-30.]

Home garden produce

Most people eat because they are hungry. However, while the feeling of hunger tells you to eat, it does not tell you what to eat. Field workers promoting home gardening need to have a basic

understanding of nutrition in order to help households achieve adequate daily nutrition.

Variety of Foods



C.2.3.1 Practical Nutrition for Field Workers

Nutrition is about food and how it is used in the body

Nutrition is an area of knowledge and practice. It is concerned with the food system; that is, how food is produced, collected, bought, processed, sold, prepared,

shared, and eaten. It is also concerned with what happens to food in the body - how it is digested, absorbed and used and how it finally influences the wellbeing of the human body.

Food is made up of a combination of nutrients such as carbohydrates, fats, protein, and micronutrients (vitamins and minerals). Nutrients are needed for energy (for activities such as working, playing, running), for growth (building and maintaining the body) and for protection against infection.

In the past, nutrition workers used the idea of the “three food groups” (food for energy, food for building the body and food for protection) when they taught people to plan meals. However, it is important to teach that many foods belong to more than one food group and that people need to eat a variety of foods to stay healthy.

For example, most of the foods in the Nutrient Composition of Raw Foods in the table below contain some of each type of nutrient. They all contain carbohydrates and fats for energy, protein for building and maintaining the body, and small amounts of vitamins and minerals for protection against infection.

However, each food has different amounts of each nutrient, so the message to convey is that, to get a balanced diet, people must eat a variety of different foods. For example, groundnuts and soya beans are good sources of carbohydrate, fat and protein but provide very

little vitamin A and C; or maize meal is a good source of carbohydrate but is a poorer source of protein, fat and vitamins. To balance their diet, people must complement staples such as rice (rich in carbohydrates) with foods from animal sources (rich in protein) and green leafy vegetables, such as pumpkin leaves and yellow coloured fruits, which are very rich in vitamins.

Nutrient Composition of Raw Foods					
Foods (100g)	Energy (kcal)	Protein (g)	Fat (g)	Vitamin A (Re)*	Vitamin C (g)
Maize meal (breakfast)	354	7	0.5	0	0
Maize meal (roller)	363	7.5	3.5	9	0
Cassava flour	342	1.5	0	0	-
Rice (polished)	335	7.0	0.5	0	0
Groundnut	570	25.0	45.0	3	0
Beans (kabulangeti)	315	18.8	1.4	0	109.02
Soya bean	405	38.0	20.0	9	0
Pumpkin leaves	25	4.0	0.2	167	80
Guava	46	1.1	0.4	48	325
*Re = Retinol equivalents in _g: 1 Re = 33.3 International Units (IU).					

Nutrients are needed to keep the body alive and healthy

Most farmers know that crops need certain nutrients in order to grow well. Plants get these nutrients from the soil or from fertilizer. In a similar way, people need certain types and quantities of nutrients from their diet, from the time of conception to old age. A lack of nutrients leads to illness and even death and, in young children, affects growth and development as well as health.

The amount of nutrients needed varies for each person and at different stages of life. The amount of energy and nutrients that people need to obtain from their food in order to keep healthy and active varies with age, sex, level of activity, pregnancy, lactation, and state of health. The most critical stage of human development is from conception to about 36 months. This is when physical growth occurs most rapidly. Therefore, it is crucial that pregnant and lactating women and small children receive the right amount of nutritious food in order to ensure proper growth, brain development, and resistance to infection.

C.2.3.2 Practical Nutrition Messages Related to Home Gardens

Priority messages

- *Snack foods from the home garden can be an important source of nutrients.*
- *There are many reasons why families like different foods. The nutritional value of a food is only one*

factor to consider when planning meals.

- *Complete, nutritious and tasty meals can be planned by adding items from the main food groups to the normal cereal staple.*

Snack foods from the home garden can be an important source of nutrients. Snack foods eaten between main meals are a normal part of the family diet. They are usually foods that provide energy quickly and are eaten fresh or cooked. A batch of cooked snack foods such as cassava cakes and coconut sweets can supply the family for several days. Some good snack foods are:

- *Cooked, roasted or fried root crops and maize;*
- *Starchy fruits (e.g. banana, avocado);*
- *Sweet fruits (e.g. mango, ripe pawpaw/papaya, guavas, sugar cane);*
- *Roasted groundnuts, pumpkin seeds and maize seed*

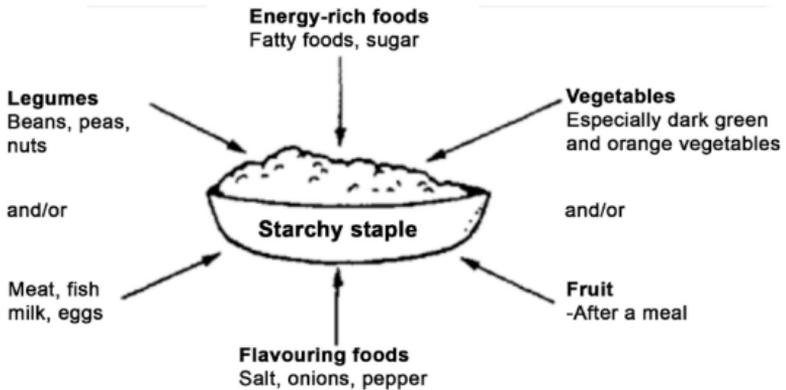
A home garden containing a wide variety of crops for snack food helps to maintain good nutritional levels in the family.

There are many reasons why families like different foods. The nutritional value of a food is only one factor to consider when planning meals.

Agricultural workers often think of food in terms of different crops. Some are hard to grow, some are easy to grow, and some get good prices at the market. Field workers concerned with improving nutrition think of the nutritional content of food. However, families may

consider other things besides farming and nutrition. They choose the food they eat for a variety of reasons, including habit, tradition and preference for a particular taste, texture and colour as well as the time it takes to prepare a meal. Many people feel that they have not eaten properly if they have not had one of their normal staple foods at least once a day.

Family Mixed Meal Guide



Complete, nutritious, and tasty meals can be planned by adding items from the main food groups to the normal staple food.

Use the Family Mixed Meal Guide (see figure) to plan meals for a varied and nutritious diet. Start with a local starchy staple (such as rice, cassava, maize, sorghum, millet, yam, or sweet potato) and combine it with one or more foods from each of the food groups.

In this way people can choose the foods they enjoy as well as plan complete and nutritious meals that satisfy the

body's physiological needs.

The home garden, if large enough, has the potential to supply most of the non-staple foods and some of the staple foods (e.g. roots, tubers and rice) that a family needs each day of the year. In every village there are examples of home gardens which are managed well. These home gardens produce a wide variety of food crops which supply the family throughout the year with fruits and vegetables, roots and tubers, some meat and fish, legumes, spices, medicines, etc.

Priority Messages

- *A well-developed home garden makes a vital contribution to household food supplies by supplying a variety of nutritious foods all year and providing income from the sale of its products*
- *Well-developed home gardens exist in most villages.*
- *Improving the home garden means expanding its structure and function.*

A well-developed home garden makes a vital contribution to household food supplies

A home garden can supply a family with substantial quantities of a variety of foods all year round. First, the home garden can produce food for meals; and, second, products from the home garden can be sold for income to buy other essential things.

The priorities for family food supplies are an adequate

quantity and sufficient variety. The household needs enough staple food, but also enough of the right kind of other foods. Variety in the home garden produces different foods with essential nutrients. Young children, especially, need a sufficient quantity and variety of food.

The household also needs the right food in all seasons of the year. Food production is often lowest from the middle of the dry season to the middle of the wet season. The start of the wet season is also the time when sickness among young children is most common and they need foods rich in vitamins for protection. A well-developed home garden can provide food in all seasons. Snack foods from the home garden are also important in the family diet.

Income from the home garden also contributes to the household food supply. Some crops, animals or products made in the home garden (e.g. handicrafts) can be sold or exchanged for food or other things needed for the wellbeing of the family (e.g. education, health care, and clothing).

Well-developed home gardens exist in most villages

Well-developed home gardens can be found on a walk through most villages. These households have the ideas, skills and resources to produce all year many different staple crops, roots, vegetables, fruits, livestock and sometimes fish.

Many layers of plants can be seen in a well-developed

home garden. Tall plants are combined with shorter plants. Plants grown together mature at different times. Animals consume plants from the home garden and return manure to the soil.

C.2.3.3 Improving the Home Garden Means Expanding its Structure and Function

Improving household food supplies requires improvement of the physical structure and technical system of the home garden. To achieve this, four important principles must be observed:

1. Diversify the kinds of crops and animals to provide a variety of foods in all seasons of the year.

Most well-developed home gardens grow a large number of different crops as well as different animals.

As an example, one well-diversified home garden had more than 35 different crops as well as three types of livestock. This would mean such a family produces nearly all it needs from its home garden.

2. Intensify the home garden structure in order to produce the maximum amount of foods and other products from the area available.

Production from most home gardens can be intensified

- that is, more things can be produced using the same amount of land and about the same amount of inputs. Well-developed home gardens typically use a cropping system in which different crops are selected which can be grown together in the same place.

An example is planting sweet potato and bean together between fruit-trees. All the plants share the light, water and soil nutrients because they have different heights and are harvested at different times. In this way, three crops are produced where there normally would only be one crop. A mature multilayer structure in which trees meet overhead can have other crops planted beneath and does not require much work after it is established, but careful selection of suitable crops is important.

3. Increase the number of products and activities in the home garden.

Surveys show that most households are able to increase the number of products or conduct more activities in their home garden. Well-developed home gardens use the land for a number of products and activities, including food production, production for income, the production of spices, the manufacture of medicines and the provision of fuel wood and building materials.

4. Improve the productivity of individual crops to reduce losses and use inputs better.

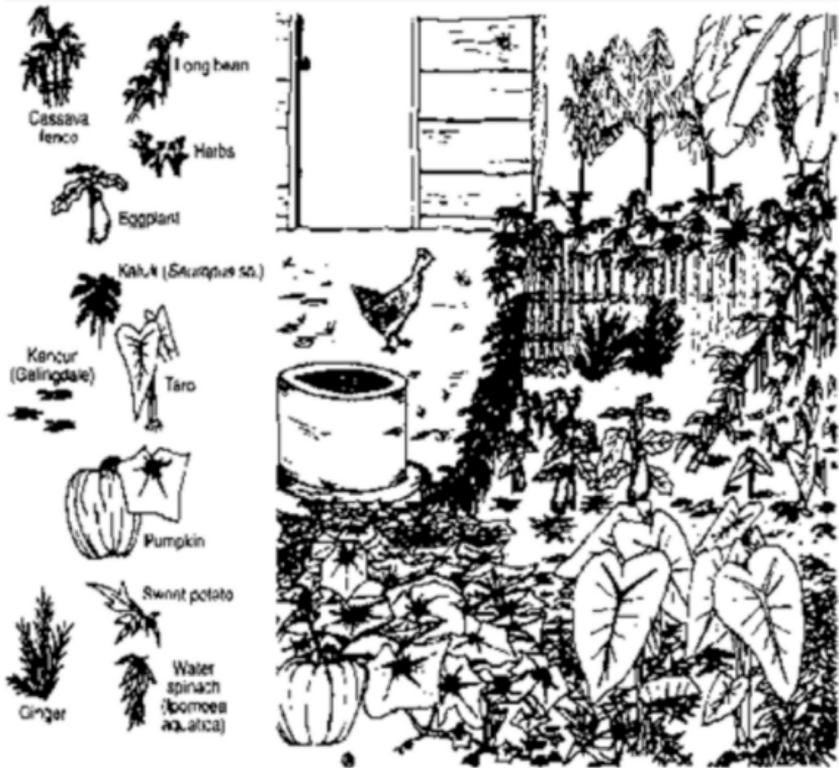
Home garden surveys have shown that the growth and

yield from most crops could be improved with very little extra effort by making use of natural resources. Organic matter can be used to improve the soil, while multistory cropping can increase production by improving home garden conditions.

C.2.3.4 Home Garden Case Study for Discussion with Families and Farmers

Home garden crops

Some home garden crops



Many home gardens are not fully developed in structure and function. Examples of well-developed home gardens exist in most villages. The home garden is used to obtain household food supplies and contribute to family well-being through two main activities:

- *By growing a variety of foods;*
- *By producing goods that can be sold to buy essentials that cannot be grown on family farmland.*

Unfortunately, far too many home gardens are not fully developed even after many years of occupancy. The home garden structure often shows poor use of the land, and its potential to produce crops and livestock is not reached. For example:

- *The land is not intensively cultivated - many home gardens have only a single layer of plants.*
- *There is not enough diversity of crops, often a single-crop system is used;*
- *Crops are poorly suited to their location;*
- *Individual crop production is poor;*
- *Trees produce poorly because of overcrowding or bad pruning;*
- *Obtaining an income is the main reason for cultivating the home garden;*
- *Home gardens are not well maintained and weeds overcome crops.*
- *Improving the home garden makes good economic and nutritional sense*

Many households produce cash crops and try to get some employment off the farm. It is uncertain whether these activities can earn enough income for purchasing an adequate diet. Also, for many commercial crops, a long period of growth and care is needed before produce can be harvested and sold, and future prices are not always certain. Thus, growing food in the home garden is a safe option for obtaining daily food and extra income.

Although food production is undertaken in nearly all home gardens, very few home gardens are actually producing enough food to supply most of the households' diet. In addition, an insufficient knowledge of nutrition undoubtedly contributes to food shortages and nutrition problems in the family.

C.2.3.5 Household Food Security and Nutrition Questions to Discuss with Families in Relation to the 1st 1000 MCDs

Household food security is essential for good nutrition for the whole family. It's also important to know how a household is faring where food is concerned. The questions below can be used to ascertain the situation of all family members.

Questions that can be asked to learn how the household is doing

- 1) Has the household achieved year-round food supplies?

- 2) Does the diet provide sufficient energy and nutrients?
 - a) If not, what is lacking?
 - i) Why?
 - b) What are the main child health problems identified by the household?
 - c) Do these health problems indicate nutritional deficiencies?
- 3) What kinds of food would improve the household's diet?
- 4) How much of the household's food needs are being met from the home garden?
- 5) What major problems are there in the food system?

Questions that can be asked to help the household work out what can be done - Plan of Action

- 1) How does the household plan to solve the food problems?
- 2) Could the home garden contribute more to household food needs in terms of quality and diversity?
- 3) What nutrients are scarce?
- 4) Is there a variety of crops for each nutrient?
- 5) Which plants on the list of home garden crops and animals are not common in this home garden?
 - a) Trees
 - b) Annual crops
- 6) What does the family plan to grow?
- 7) What problems were raised and how can they be solved?

- 8) What aspects of nutrition did the family need to know about?
- 9) Could the home garden contribute a larger quantity of food to the household's supply?
 - a) Does the soil need feeding, water management, erosion prevention?
 - b) Could productivity be significantly increased?
 - c) If so, how?
 - a) Multilayer planting
 - i) Increased diversity
 - ii) Pruning
 - iii) Plant selection
 - iv) Use of organic matter
 - v) Plant spacing
 - vi) Pest management
- 10) How many plants will be planted and where?
- 11) What are the problems and how can they be solved?
- 12) What human resources are available?
- 13) Is the household well-informed about nutrition?
- 14) Is the household new to this area?
- 15) Are the household members experienced farmers?
- 16) Do they have a realistic appreciation of the home garden potential?
- 17) How much labour is available for the cultivation of the home garden?
- 18) Who does most of the work on the home garden?

C.2.3.6 Home Garden Development

Abstracted and adapted from the FAO publication, "Improving Nutrition through Home Gardens, Training Package for Preparing Field Workers in Southern Asia, 1996. Available from Ministry of Agriculture and Livestock,

Rationale Behind Home Garden Development

Home gardening can be greatly improved by enhancing use of the garden. Many home gardens are not fully used, mainly because of a lack of knowledge. Home garden owners or managers need more information on how to manage land, diversify and intensify the crop base and improve individual crop productivity.

Goal: Improved food production and nutrition through better home garden utilization.

Objective: To enable households to put into action their own plan for the improvement of their home garden, involving:

- *Improving soil management;*
- *Diversifying the food crops grown;*
- *Intensifying land use;*
- *Improving productivity of individual plants.*

Strategy: A Field worker will help families to analyse the main problems that exist in their home gardens. The Field worker will also help to identify families who have

developed their home gardens well and who apply good practices.

Home garden owners or managers (e.g. husband or wife or both) can be invited to a series of training sessions, involving demonstrations of good home garden practices and an introduction to new techniques. Home garden owners or managers can then, with the help of the Field worker, develop plans for improvement of their own home gardens.

Outputs and targets:

NOTE: For each of the following outputs and targets, a date for completion should be set.

- *Identify main home garden problems with the participation of home garden owners or managers.*
- *Identify well-developed local home gardens.*
- *Prepare training plan and materials.*
- *Train ten home garden owners or managers.*
- *Develop individual plans for home gardens and prepare a list of the materials required (and costs) in discussion with the home garden owners or managers.*

Activities: Actions of the Field Worker

- *Surveys local home gardens, identifying their potential for increased food production and the problems involved;*
- *Identifies two or three examples of home gardens*

showing good management, diversified and intensified cropping systems and good individual crop productivity;

- *Prepares a training course;*
- *Invites home garden owners or managers to participate in the training course;*
- *Conducts training sessions, including:*
 - *One walking tour of “good example” home gardens, using the home garden owner or manager as guide*
 - *One demonstration session on easy new techniques*
 - *Two follow-up discussion sessions*
 - *One session for finalizing individual home garden plans*
- *Arranges supplies of seeds and seedlings as necessary;*
- *Visits participants’ home gardens to discuss the feasibility of improvement plans.*

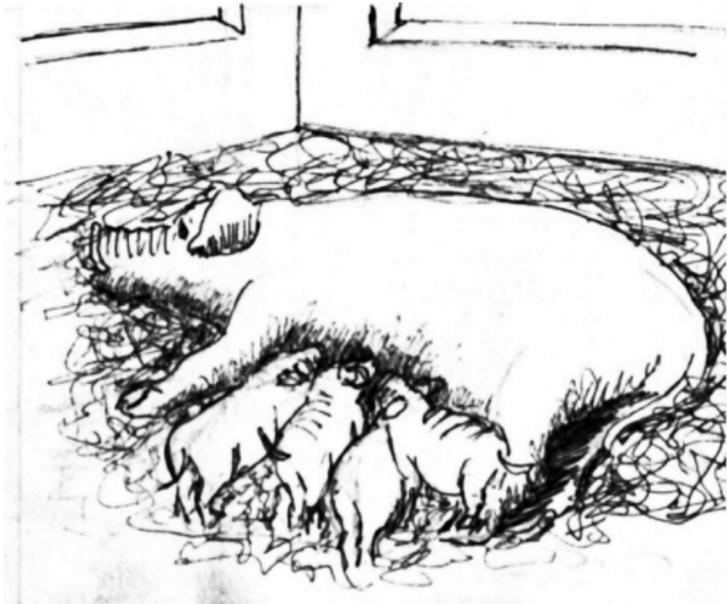
Inputs: The following inputs are needed:

- *Field worker – 23 days of work (see timetable below)*
- *Seeds and seedlings from the MAL.*
- *Technical support (one or two advisers for training sessions) from the MAL, the local university or other specialist local institutions.*

Timetable

- *Information collection: ten days;*
- *Planning of training: five days;*
- *Training: three days;*
- *Follow-up visits: five days.*

C.2.4 Raising Livestock to support the 1st 1000 MCDs



C.2.4.1 Pig Production

*This section is abstracted, **adapted** and reformatted from Pigs for Prosperity Diversification booklet number 15, 2011, Klaus Dietze, Rural Infrastructure and Agro-Industries Division, Food and Agriculture Organization of the United Nations. ISSN 1810-0775 Rome <http://www.fao.org/docrep/015/i2471e/i2471e00.pdf>*

Additional useful information on small scale pig production can be found in Pig farming in Zambia posted

by **Caleb Siamalambo** in **ENVOYS' PROFESSIONAL WORLD** on 07/03/2012, web address: www.yookos.com/community/gospelenvoyschurch/proworld/blog/2012/07/03/pig-farming-in-zambia, and the **Farmer's Hand Book on Pig Production** (For the small holders at village level) GCP/NEP/065/EC Food and Agriculture Organization of the United Nations With Financial Assistance from the European Commission http://www.fao.org/ag/againfo/themes/documents/pigs/Handbook%20on%20Pig%20Production_English%20layout-Vietanm-Draft.pdf

Why Pig Farming

Small and medium sized livestock like poultry, sheep, goats, and in particular pigs are a viable and profitable enterprise that can be easily be adopted and adapted by small scale farmers. Pigs require little initial investment; they are prolific and are good feed to meat converters compared to other livestock such as cattle.

Pigs produce meat (pork) without contributing to the degradation of grazing lands and pork is particularly suitable for processing. Further pork provides a more varied diet for the farm family and pigs are one of the few livestock animals where nearly all parts of the animal can be consumed by the farm family and/or sold.

Pig products range from primary commodities such as pork to processed food products such as sausages and smoked hams to cooked salted ears, eaten as snack foods.

Different pig breeds have been adapted to the most diverse climatic conditions with a good degree of success.

Small scale farmers new to pig enterprises advisably commence the activity with a focus on adequate pig confinement using appropriate housing structures and prevalently local feed resources.

Practical extension and training enables farmers to raise pigs successfully and to apply simple processing techniques to produce various pork products. This increases the value of the commodity and enables small scale farmers to sell pig products over and above slaughter time.

Pigs are easily integrated into small scale farming systems and can be fed with by-products from crops that cannot be consumed or used more efficiently by small scale farmers. Their manure can be used as fertilizer as well as for energy production systems. Apart from regions with cultural and religious reservations towards pork, pigs are potentially a viable, valuable and important diversification enterprise.

Pigs and livelihoods

A pig enterprise contributes in many ways to improve the livelihood of poor and vulnerable small scale farmers. Pork and other pig products provide for high value animal protein, the meat is easy to dress and has superior curing and storage qualities. Additional income is earned from the sale of animals and importantly from their products. This additional income can be used to buy foods that

improve the diets of families, especially pregnant women and young children, to invest in farm assets, pay for school fees and health care.

Pigs provide income for women as such strengthening their role in families as well as in local communities. The sick and disabled can participate in pig raising as it does not require excessive labour and is not too complex in its management. The low start-up costs and small investments required for buildings and equipment are recovered fairly quickly as slaughter can take place at about six to eight months from farrowing (birth), depending on breed and feed availability. Pigs additionally can be considered as a store of wealth and a safety net in times of crisis.

The pig, depending on feed and other management aspects, commonly grows rapidly to slaughter age and has a high reproductive rate compared to ruminants, making it a low risk investment with quick returns.

Additionally, pig husbandry can be easily integrated with a series of other farming activities within the agricultural and aquaculture sectors. Pig production is a form of livestock keeping that does not necessarily require access to agricultural land and has therefore gained importance in the growing sector of peri-urban and urban small scale livestock keeping. All these advantages make the livelihood activity of pig production a valuable diversification option in small scale production systems, comparable to some degree to small scale poultry, sheep and goat production.

Pig production

The productivity of pigs is determined by the breed and overall husbandry management. Well-managed breeding sows (female pigs) of improved breeds will farrow (give birth) twice a year and provide approximately 10 piglets per litter or 20 piglets/year. Weaned piglets can be sold for income generation and/ or fattening. This can be performed on the farm, allowing the farmer the option to choose the time of slaughter/ selling, for example, when prices are favourable.

Pig farming is a low external input enterprise dependent on family labour and on other local inputs, particularly feed, that have no or low opportunity costs. In India for example, despite being small scale (generally no more than one to five crossbred pigs), production often contributes significantly to the livelihood of the majority of pig-rearing households.

At household level pig production provides access to animal protein for farm families, contributing to an improved diet for family members. Pork with its beneficial components like essential amino acids, vitamins and iron, facilitates balanced nutrition which is especially important for pregnant women and young children in food insecure regions. On-farm processing of pork can produce products with improved storage characteristics, enabling meat consumption throughout the year regardless of when slaughter occurs.

Pigs can contribute positively to the empowerment of women and enhance their equal participation in local markets. It can allow women to have their own income which can influence decision making towards nutrition improvement at household level. In case of widowhood or abandonment, it can provide a safety net. It can also give women a greater role in their local communities.

The level of technical skills and physical strength needed to succeed in small scale production are minimal and routines required can easily be understood. Tasks can be split among all family members including people suffering from disabilities or suffering from illnesses such as HIV/ AIDS. Pig management does not commonly involve excessive labour.

Women that are involved in the raising of pigs can also get involved in processing of pork giving them yet another source of income deriving from pig enterprises. Kitchen processing is easy to set up, has very few start-up costs and can be a first step towards a more formalized operation.

In poor rural but also peri-urban areas, pig production often functions as a source of wealth that can be accessed when additional income is needed. This might be the case when school fees need to be paid, household members seek medical assistance or cash is needed for further investments. In this regard, pigs represent an attractive intermediate between poultry and cattle production when considering the cost of production.

Basic forms of production are easy to incorporate into existing farming activities; they do not require large investments or technical skills that would make the initial hurdle too high to overcome as a result of limited access to financial and natural resources by small scale farmers.

Introducing pigs to a farming system can be beneficial for a series of agricultural activities. Pigs produce meat without interfering with grazing lands. The animals can feed off by-products from cash crop production or kitchen leftovers and therefore add value to nutrients that would otherwise have been lost to the farming system. Pigs can roam on crop fields after harvest and while searching for food they loosen soil structures without disrupting them.

Their manure is a valuable fertilizer that can contribute to increased agricultural productivity and/or it can be used as a source of fuel when processed in a bio-digester. Methane production from pig manure collected in small scale pig holdings can be sufficient to cover the demand for household cooking stoves and therefore reduce the dependency on external energy sources like wood or fossil fuels.

Pigs and rural development

A functioning small scale pig sector in rural areas has proven to be very beneficial for rural development. Pig production brings fast returns to the farmer from relatively small investments and can therefore improve livelihoods within a relatively short time frame.

Estimates have to be made if feed can be grown and/or bought and which option is the most feasible in terms of costs, labour time, etc. The production system to adopt needs also to be considered as this relates to market demand as well as to the farmers resources and access to credit. Production systems can be free roaming, semi-intensive and intensive. Housing and equipment will need to be taken into account, such as feeders, water troughs, fencing, housing materials, etc. Credit and its availability will also need to be considered.

The first step in starting any pig enterprise is to ascertain market demand as well as finding out as much as possible about markets.

- *Markets and market demand*
- *Pig breed*
- *System of pig production to adopt*
- *Housing and related equipment*
- *Feed and feed sources and access to them*
- *Water sources and quantities locally available*
- *Health care and veterinary assistance*
- *Credit and access to credit*

Information on markets is also useful for marketing planning reasons, for example finding out what products are in most demand, when to sell, who to sell to, what prices can be obtained, etc. Buildings, fencing, water troughs, other equipment, feed, medicines and some labour are needed.

Evaluation of the livelihood activity

Clearly profit potential is the critical and important indicator for evaluating if a pig enterprise is feasible or not.

Pig enterprises at small scale farm level have five main elements that need to be considered: breeds, housing, feeding, health and slaughtering. However, particular attention also needs to be given to public health issues as well as environmental issues and animal welfare concerns.

Selecting the right breed and breeding

There is a temptation at the small scale level to consider breeds commonly found in intensive industrialized pig production. These few breeds are highly productive in terms of outputs, can be efficient in feed utilization, but are very resource demanding and access to breeding stock can be costly. Many attempts in the past have been carried out to use such pure breeds at small scale farm level, but with varying levels of success. Crossbreeding with local stock has been found to be successful.

The least resource demanding form of pig husbandry is scavenging where pigs roam freely, receive little if any supplementary feed and are not provided with a permanent shelter. The negative implications of this production type in terms of public health and animal disease control make it an unacceptable form to be promoted. However this does not need to be confused with accepting this form of pig production under certain cultural and economic

backgrounds.

Large Black Hampshire and Large White Yorkshire pigs in the tethered/stall-fed system are sometimes used as a primary source of livelihood. Commonly confinement has a series of advantages over scavenging. Animal identification is easier leading to better health control; feed intake and the frequency of feeding can be controlled more appropriately and animals can fatten faster as they do not waste energy looking for food. Farrowing can be carried out more successfully within a protected environment for sows and piglets, ensuring a higher survival rate of the new-born.

Minimum standard housing facilities for pigs should therefore result in confinement, restricting access of the pigs to a defined area only. The minimum area available per confined pig, which is usually kept in a group, is defined by the pig's age and weight – about 1 m² per fattening animal needs to be considered. The confinement area needs to include shelter, protecting the animals from rain, direct sunlight and wind as well as temperature extremes. In hot climates, shelter is as important as mud, puddles or pools. If pigs are protected from excessive climatic variations this will contribute positively to herd productivity and health.

The type of pens built depend primarily on building material availability and the small scale farmer's resources as well as production objectives along with market demand for pig products. The building site will have to consider local climatic conditions, exposure to sun and wind, and

provide for appropriate ventilation.

Pens should be built so that they are easy to clean and provisions need to be taken for easy collection of manure and run-off. Flooring should be elevated above ground level, where this is not possible it needs to have a gentle slope. Importantly piglets need to be provided with a secure and warm area in the housing, keeping the sow at a distance to prevent crushing. The use of a farrowing crate can usually avert this threat but should only be applied for the days around farrowing for animal welfare reasons. Animal exercise and movement is good for the overall condition of the animal in terms of muscles and skins.

Feeding and water supplies should be provided outside of the pen and need to cater for the number of animals in confinement. Importantly, pigs of different ages and sizes should not be kept in the same confinement or fed at the same time. Small sized animals will be at a disadvantage toward larger sized animals and this will lead to different fattening patterns.

Feeding pigs

Feeding pigs on both vegetable and animal products can compete directly with humans in this regard. Careful consideration needs to be given to this factor in local



areas where feedstuffs are scarce and it is advisable that in such circumstances pigs are given feed that is not useful to humans. This commonly means by-products and other waste from crop and animal production or swill. However it is important to note that pig feed needs to contain a good balance of protein, energy, minerals and vitamins. An appropriate balanced ration will keep a pig in good health, develop its weight, and maintain its reproductive capacities.

Sufficient local feed and water resources have to be available in areas where smallholder pig production is to be promoted. One of the challenges is the availability of adequate feedstuffs despite seasonality.

Pig health

Animal health is a key factor for sustained pig production. Unhealthy animals provide for losses in terms of animal weight, money invested, feed, equipment as well as potential income. The potential threat to public health deriving from diseases that can affect animals as well as humans (zoonoses) deserves attention. Preventive measures that reduce the probability of health problems and allow better control of diseases once they occur should be promoted actively through training and extension. Confinement of animals and limiting their access to waste, human defecations, other livestock or wildlife will reduce the possibility of disease spreading and allow a better control of the animals' performance – making timely disease detection more likely to happen.

Inappropriate slaughtering and handling of pork can endanger consumers' health and result in loss of profits for the small scale farmer.

Pigs that have been put under stress, felt pain, have been injured and bruised prior to slaughter provide low pork quality. This low meat quality also jeopardizes processing.

Assistance should be given in terms of training and extension in appropriate handling and slaughtering practices on-farm by building on traditional knowledge and culture.

Animals should be stress and injury free during operations prior to slaughter. Bruising in pigs damages the blood vessels and releases blood in the surrounding muscle tissue. This is especially damaging to pork quality in that consumers will not accept such pork, further it cannot be processed, and it decomposes and spoils more rapidly as blood in pork is an ideal medium for growth and contamination.

Since small scale pig production in many countries is often closely linked with the informal/unregulated part of the meat sector, promotion of this form of production should be accompanied with respective investments in extension and training as well as in veterinary health services.

Small scale farmers have numerous options for marketing. Piglets can be sold to other farmers for fattening; pigs can

be sold live weight; pigs can be sold to butchers; pork can be sold directly to consumers on farm and/or in a market; pork can be processed into various products and then sold; and by-products can be sold to processors, butchers and consumers.

Traditionally only when pigs and piglets are ready for sale (appropriate weight) are marketing operations considered. But marketing really starts when farmers are breeding pigs for production. In this regard the pig enterprise needs to have a destination market that is assured or the likelihood of selling in the destination market is very high.

Small scale farmers should recognise that production and planning aspects must be seen from a business perspective. This involves such aspects as keeping records about the pig herd, finding the appropriate cost:feed ratio, estimating money requirements for the production season and coming up with risk strategies, for example to avert sickness in the herd.

Good Agricultural Practices (GAP) address environmental, economic and social sustainability of farm processes. It is based on four main pillars: economic viability; environmental sustainability; social acceptability; and food safety and quality. In terms of a pig enterprise GAP considers such aspects as adequate and appropriate feed, veterinary care and space for each pig in a pen, and so forth. Good Hygiene Practices (GHP) in terms of pig production focuses on the overall health and hygiene of animals, track records of treatments administered to

pigs, the type of feed and composition of feeds as well as environmental factors. In terms of slaughtering GHP looks at all the measures that are required to ensure safety, for example slaughtering tools and equipment need to be clean and sanitized. Particular attention to hygiene and safety needs to be taken while slaughtering as this in traditional societies commonly occurs on farm and on the ground.

Pork products range from dried pork, through sausages to hams. The simplest processing is drying, where for example pork is set in a salt solution and then left in the sun to dry. Sausages require a slightly more complex process and they can be either fresh (need to be cooked prior to consumption) or cured. Sausages can also be fermented and ripened. Hams can be cured and cooked and require more complex processing and importantly careful management when in ripening, which normally can take many months, depending on the final product.

Raising pigs can bring a rich source of animal protein and energy to the family diet and generate income that can be used to help ensure a healthy diet for the family and especially for women before and during the 1st 1000 MCDs and healthy complementary meals for the child 6-24 months of age.

Raising pigs requires knowledge and good practices to be successful. They need adequate and safe housing, good feed and water. A grown sow needs 40 litres of water a day and another 100 litres for cleaning, a pig being raised for food (“fattener”) needs half those amounts. The sow will

produce 5kg of manure a day or 1800 kg per year which can be used as fertilizer on farm fields and vegetable gardens and fruit trees.

Most farmers who raise pigs use local crops such as maize and crop residues for feed as well as some purchased meal and concentrates.

Pens should be continually cleaned with disinfectant or sodium hydroxide (NaOH, 5%). Whenever pigs are sent to slaughter their housing should be disinfected before new pigs are brought in. Any animals dying of a disease should be burnt to prevent further contamination. Even the meat of healthy pigs may be contaminated with germs. It is therefore important always to boil or to roast meat very thoroughly before eating it.

Local breeds are often resistant to diseases. The main problem with keeping any sort of pig in free-range or semi-intensive systems is not disease but disabling infestation by worms or other parasites. Intensive pig keeping systems where many animals are kept together in a small space has the greater risk of disease.

Small farmers using a free-range or semi-intensive pig raising do not generally have funds to spend on medical treatment. If at all possible, the advice of a vet should be sought if there is disease among a farmer's pigs. Even insects, wild animals and earthworms can transmit disease.

Therefore farmers should take precautionary measures:

- *Give a sick animal a separate pen.*
- *Do not let people near the sick pig (they might have pigs at home and carry germs away with them).*
- *After contact with a sick animal never touch other animals without first having washed your hands and changed your clothes and footwear.*

Sometimes diseases are caused by a combination of harmful organisms. Pneumonia is an example, which can be caused by bacteria or viruses (and usually by both at the same time), and also by parasites (lung worms and intestinal worms that have found their way into the lungs).

C.2.4.2 Goat Production

The following information on goat rearing was abstracted, adapted and combined from “An Introduction to Raising Meat Goats, Southern States,” webpage: <http://www.southernstates.com/articles/raising-meat-goats.aspx>; A module from Zambia Grade 8 Education: “Pastoral Farming”, website http://www.ischool.zm/media/textbooks/geography/unit11_pastoral_farming.pdf; the “Farmer’s Goat Production Handbook”, Bonface K. Kaberia, Mr. Patrick Mutia, and Mr. Camillus Ahuya, Kenya Dairy Goat and Animal Healthcare Project (1996 - 2003) funded by DFID; <http://www.farmafrica.org/downloads/resources/FARM-Africa%20Dairy%20Goat%20Production%20Handbook.pdf>

Goats are browsers unlike pigs or sheep and can live by

eating branches, barks and leaves. They are able to survive in the absence of good pastures and are found in all the provinces of Zambia. They are kept mainly for subsistence. Goats are small, requiring less land per head than cattle, fairly easy to handle and multi-purpose; potentially providing milk, meat and land management.

Goats are ruminants, which mean they chew their cud like cattle and have a 4-compartmented stomach that uses bacteria to break down grasses, scrub and other green material.

Why keep dairy goats?

Goat will live even where there is a drought. They do not need a lot of water and can go for quite a long time without water in very dry times. They need less feed to keep than a cow and they will eat many different plants. Goats are good at keeping bush under



control, stopping too much shrub growth. Goat droppings are used as manure for organic farming.

Goat's milk is good! Goat's meat is tasty! Goat's milk is easy to drink and is a richer food because it has more calcium, phosphorus and chlorine than cow's milk. Milk is used at home so that the family get the best milk. If there is a cow many farmers will sell the cow's milk for cash and make sure the family gets the goat's milk to drink! Goat's meat is

very tasty and it is juicy and eaten often by many people. More and more people are learning about how good goat's milk, cheese and yoghurt are.

Goat's milk is better for the family as it has a high nutritional content. Meaning that it is a very high quality food and very good for young and old. Some people cannot drink cow's milk because they have an "allergy" to it. This is why some children are fed on goat's milk when cow's milk and all else has failed. Nobody is allergic to goat's milk!

Goats are often eaten during traditional ceremonies, parties, clan meetings and they are important in some rituals. Goat horn and bone are used in the traditional craft industry. They require less labour and time per head compared to cattle.

Goats Land Requirements

Goats are top down grazers and will select from weeds, leaves and grasses to meet their own requirements. They can help to improve marginal areas encouraging re-establishment of grassy species, providing low cost environmental management as well as meat.

Getting started

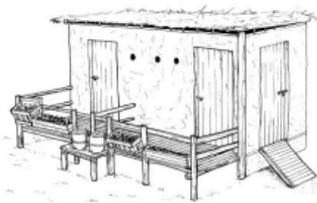
Choosing healthy stock is important but difficult for the beginner. The best advice is to buy from a reputable goat producer. Goats like to escape. Here are some possible goat fencing choices: cyclone fence, 6x6 woven wire, re-

enforced chicken wire and barbed wire.

Goat nutrition and diet

For optimum breeding and kidding, goats need the correct balance of protein, vitamins and minerals. There are commercial supplements and goat mineral. Good quality hay provides protein and roughage. Access to clean water both in the field and in the pens is essential.

Housing for goats



If goats have a good house the animals do not get sick very often. You can make sure that only the animals you want to breed do so, they will be very easy to feed and feed will not be wasted. The house will also save the goats wasting energy and increase the amount of milk. A good goat house is rain proof, damp proof, well ventilated, free from direct wind, and free from sharp objects that might cut the goat (see figures). It should be pest and wild animal proof, have slats on floor for free fall of droppings. The house should include an area of at least 2 meters per animal. Houses can be made of wood or of mud, should be built up off the ground and include ventilation holes in the walls near the top.

Feed trough

In the feeding area, built one metre above the platform made with rafters, must be easy to clean troughs. The floor of trough can be made of off cuts and must be able to hold hay.

How does a goat like to eat?

A goat does not like to graze on the ground like a sheep or cow. Goats like feeding at knee height up to head height. So they like to feed above the ground often standing on their hind legs and resting their fore legs up on the bush or goat house wall. Goats need to be able to drink fresh water at all times.

Milking

To keep milk clean, the most important thing to do is keep yourself, your hands and buckets, clean. Also carefully clean the doe's udder. People who are ill should not milk. All those who milk goats should wash their hands with soap and hot water or disinfectant before starting to milk. Finger nails should be cut and clean. Before milking the udder should be washed with clean water which has disinfectant added to it. Use two cloths alternatively for washing the udders. Leave one in the disinfectant whilst the other is in use. The first drop of milk from each teat should be thrown away as it has a very high bacterial count.

Hand milking

Good milking is done by the squeeze method. Avoid the pulling technique as it hurts the udder and the teat and udder will get a mastitis infection.

Goat breeding

Kidding (the birth of young goats) is one of the joys of keeping goats. For optimum performance the buck (male goat) should be isolated from the does (females) and only put with selected does in good condition. The gestation period is on average five months, which allows you to monitor the does when kidding time approaches.

Goat health

A sick goat stands apart from the others in a group. (Animals about to give birth also behave like this). A sick goat is restless and they often do not lie down and rest even when others in their group do so unless it gets very ill. They hold their heads down and have dull eyes and show little interest in their surroundings. A sick goat may have a rough coat and look weak and tired. They do not like to feed.

The death of kids before they are weaned is perhaps the single biggest cause of loss experienced by goat farmers.

Herd health

Vaccination against tetanus, clostridials, caseous

Lymphadenitis and Chlamydia are recommended. As with sheep, worm control (find a goat wormer) is essential. Seek advice from the veterinarian to set up and maintain an adequate parasite control regime. Regular foot trimming is required.

C.2.4.3 Producing Poultry (Village Chickens)

Abstracted and adapted from MoAL NAIS, "Poultry Housing; Chicken Rearing", Full version, available on MAL website. Pages 1-15.



Poultry housing

If a farmer decides to keep chickens in a special poultry house, then he will first have to consider the following

aspects.

- *Extra costs.*
- *Need to make sure that the materials needed are locally available.*
- *Need to choose between a chicken house with or without a run. If you choose for a house with a run, check if there is enough space to regularly change the position of the run.*
- *Need to decide about continuing to breed your own stock of chickens or buying new stock. If you breed your own stock, you will need to build more houses to keep the chicks of different ages separately.*

Housing and climate

Chickens can tolerate high temperatures but some negative effects appear when they are too warm. To avoid such effects make sure of the following aspects when building a poultry house:

- *If possible, build the house in an east-west direction. The chickens will be less exposed to direct sunlight.*
- *Place the house so that there is grass and such like around it.*
- *Plant trees around the house so that its roof stays in the shade.*
- *Make sure that the roof has a large overhang (90 cm or more) to limit direct sunlight and prevent rain from wetting the inside of the house.*
- *Keep the bottom 50 cm of the side walls closed and*

the rest open. There will always be enough fresh air in the house. Close the top part of the side walls with chicken-wire or some other suitable material.

- *Build the roof as high as possible above the floor. It will then be less hot inside the chicken house and ventilation will be better.*

You could consider covering the roof against the heat, for example with leaves or some other material. However, one disadvantage of this is that pests such as rats and mice can nestle in the covering.

Try to limit the occupancy of the chicken house as much as possible. Many birds in a small house can cause problems due to the extra warmth they create and increased chance of parasitic infections. In case of floor housing, there should be no more than 3 chickens per square meter. In houses with wire netting or slatted floors instead of hard floors, a higher chicken density is possible.

To stimulate feeding, turn on a light in the house before sunrise and after sunset when it is cooler. This also helps to keep a steady level of egg production.

General prerequisites for a chicken house

When building a poultry house, not only the climate is important. It is also necessary to make sure that the house is easy to clean and, if possible, easy to disinfect. For this, a poultry house will need a concrete floor. An important condition for permanent housing in closed houses is the

permanent availability of feed. A constant supply of fresh water is also essential. If the housing is to contain a large number of chickens, a separate working space in front of the house is necessary.

Feed can be stored there and eggs can also be kept there temporarily. To avoid deterioration of the quality of the eggs, they should not be kept here longer than one week. It is best to keep the eggs in a cool space, at about 20°C. This can be done by keeping the number of windows in the storage space to a minimum and only ventilating at night when the air is cooler.

Some housing possibilities

There are many different kinds of housing in which to keep chickens. There are four main types:

- *Housing with a run.*
- *Housing with litter and without a run.*
- *Housing with a partial or complete slatted floor (wire netting or wooden slats)*

A general description of each type of housing will be given below together with its advantages and disadvantages.

Housing with a run

A chicken house with a run has one or more fenced off runs in which the chickens can roam. The run is attached to the house to which the birds have access day and night. We

strongly recommend that you have more than one run so that access to the runs can be changed every two weeks. Then runs covered with grass or other vegetation get a chance to recover from the pecking and scratching of the chickens, and the risk of parasitic infections decreases.

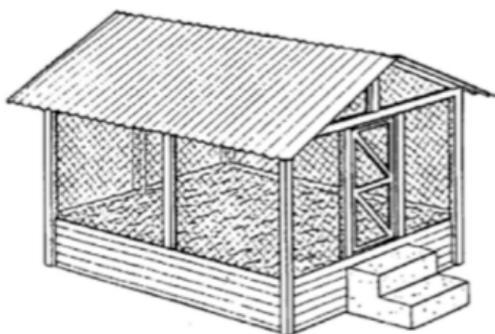
A second important aspect when considering a house with a run is that the run must remain dry. It is clear that the house must, of course, satisfy all other general criteria and those specified by the climate in which it is built.

Housing with litter and without a run

With this type of housing the chickens stay in the house day and night. The floor is covered with litter to absorb the moisture of the chickens' faeces. The most important condition for this type of housing is that the litter must remain dry.

Moist litter produces too much ammonia, which damages the health of the birds. It also encourages the development of all kinds of parasites. To keep litter dry, the following must be done.

- *Use litter which absorbs moisture. Wood shavings are best but will not always be available everywhere. Chopped up straw and other materials are also suitable.*



A deep litter house. Corrugated metal and weld mesh have been used in the construction of this house

- *Make sure the house is well ventilated.*
- *To avoid wet spots in the litter, make sure not to spill water on the floor. Preferably place the drinkers on a small elevation covered with chicken-wire.*
- *Litter must be turned regularly and replaced once a week.*

Housing with a slatted floor

In many countries with a temperate and moist climate, a large part of the floor area is covered with slats. With slats, the risk of wet litters and therefore of parasitic infections is less. The housing density with this kind of housing can be higher, for example 5 or 7 birds per square meter instead of 3. The slats can be made of wood or bamboo. The space between the slats must be wide enough for the bird droppings to drop through but should not hamper the movement of the birds. Thin slats stay cleaner than wide slats. Slats with a width of 1.5 cm and a height of 4 cm laid 2.5 cm apart give good results. These slats are generally

laid in sections of 120 cm by 120 cm.

Instead of slatted floors, you can also use wire netting. This is usually laid in sections of 250 cm by 200 cm. The netting usually has a mesh of 2.5 cm by 7.5 cm. The wire should be about 3 mm thick. Perches are fixed onto the wire netting so that the birds can move comfortably and have a place to sleep at night.

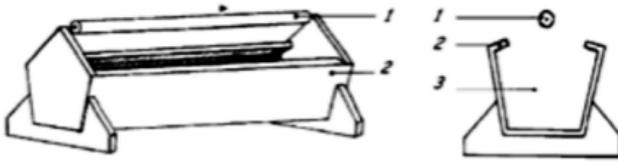
To collect as much of the manure as possible under the open floors, the drinkers and feeders are best placed on the slats or wire. You can cover part of the floor, for example one half or a third, on both sides or in the middle, with slats or wire netting. Sometimes the entire floor is covered with slats or wire but this can damage the feet of the chickens and cause loss of eggs.

To make regular removal of the manure easy, place netting or slats at the sides of the housing.

Poultry housing equipment

In all poultry housing for laying hens, drinkers, feeders, perches, and laying nests need to be installed. You can also add lighting and a system to collect manure.

Feeders



Through feeder on platform. 1. Spinner 2. lip 3. trough

Theoretically it is not necessary to have feeders in poultry houses that have runs as the chickens find their own food. However, it can be useful to give extra feed in feeders. This can raise production, especially at times when there is less food available outside. For all other types of housing, feeders are essential. You will always lose some feed if you scatter it on the ground.

If there are only a very small number of chickens, feeders that you fill by hand are the best. They can be made in different ways. (see figures for examples of rectangular wooden troughs.)

There are some important considerations concerning feeders. Make sure that there are enough feeders. With a rectangular dish each animal needs at least 5 cm of space along one side of the dish. This gives the birds enough opportunity to feed during the day. If all the chickens need to feed at the same time, more space is necessary, approximately 15 cm per bird. With round dishes the space per bird is considerably less.

It is a good idea to place a stick which rotates above the

feeder to prevent the birds from sitting in the feeder and dirtying the feed.

To reduce the amount of feed wasted, put only small amounts of it in each feeder at one time. This means that you will need to feed the chickens several times a day. Another advantage of several daily feedings is that feed intake can increase. Intake is often not optimal in warm climates. For this reason it is also best not to feed at the hottest time of the day.

Build lips around the edges of the feeders to catch spilt feed.

Place the feeders at different locations in the poultry house so that it is easy for the birds to find a dish. Make sure that feeders are no more than 5 m apart.

In housing with wire or slatted floors most, if not all, feeders should be placed on the wiring or slats.

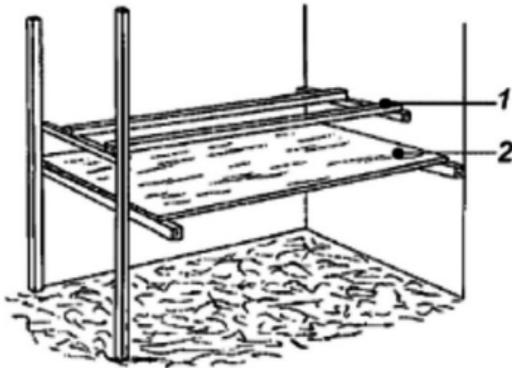
In tropical areas it is very important to supply enough and above all cool, clean and fresh water to chickens. There are a number of ways to do this. For small numbers of chickens, an upside-down bottle is cheap and easy. Another possibility is buying simple round metal or plastic bowls. The advantage of a drinker with a reservoir is that water is available for a longer period of time and the chance of the water getting dirty is less.

There are some important considerations to think about

when installing drinkers.

- *Make sure that water is always available.*
- *Make sure that the water is clean and as cool as possible.*
- *Clean the drinkers daily.*
- *In litter cages, place the drinkers on a small elevation of chicken-wire to prevent spilt water from wetting the litter. If no elevation is installed, the drinkers need to be moved to a new spot every day. In all other types of housing, it is best to place the drinkers on wire or slats.*
- *Drinkers need to be placed at different locations in the poultry house but should not be further apart than 3 to 5 m.*

Perches

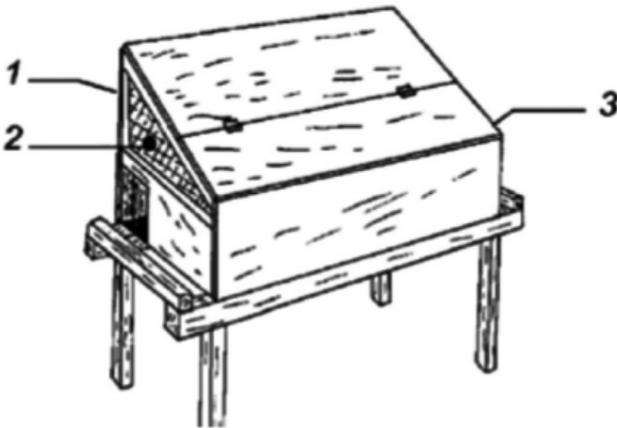


Perch with droppings board. 1. Perch, 2. droppings board (cleaned daily)

Chickens like to spend the night on perches in high places. During the day the more nervous birds can also quickly

find shelter there. You will need to have a space under the perches which catches the bird droppings. The litter will get less moist and it is also easier to collect the manure.

Perches are usually made of wood and are small slats 5cm wide and 5-7cm long. It is best to place them about 35cm apart. Each chicken needs approximately 15cm (or more) of sitting space, depending on the size of the birds. Although perches are indispensable in all kinds of chicken houses, the kind of perch and its location differ per house. In housing with litter it is a good idea to place a wooden floor under the perch to catch most of the droppings. The manure can then be removed regularly, preferably once a week.



Laying nest. 1. Wire netting back to next box, 2. Wire netting also provides ventilation at the side, 3. entrance hole also at this end.

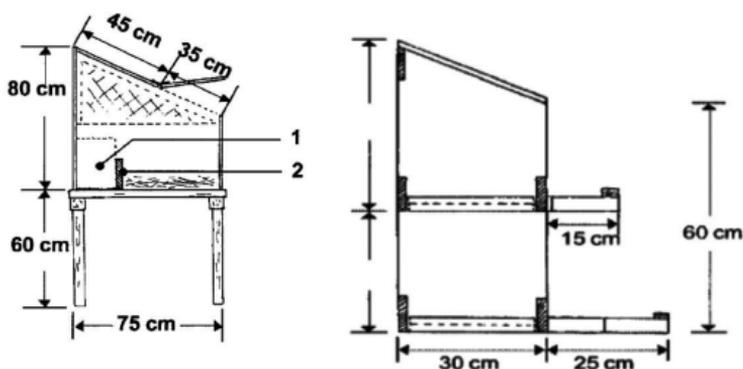
Usually this wooden floor is installed about 75cm to 80cm above the ground, so that the perches are placed 1 m above the ground. To prevent the chickens from coming into contact with their droppings, close the front opening between floor and perch. In cages with wooden

slats, perches are not necessary. However, they should be installed if the floor is made of chicken-wire. This enables chickens to spread themselves evenly over the wire floor at night.

Laying nests

In all poultry houses except battery cages, eggs are collected by hand from nests on which one hen sits. These individual nests need to be about 30cm wide, 35cm long and 40cm high. They can be made of wood or of other locally available materials, such as bamboo or hard types of grass. They need to be filled with a thick layer of litter to prevent eggs breaking. To keep the litter in the nest, make a little partition about 10 to 15cm high at the front of the nest. Hens usually prefer to lay eggs in a protected nest like this than simply on the floor of the house. It is best to install a sloping cover over the nest box to prevent chickens from sitting on the nests and making them dirty. Laying nests are usually placed above the ground, for example at 1 m height. You will need to place a jumping perch in front of the nests.

Nests are usually grouped together in blocks along one or more walls of the chicken house (see figure). In open housing, however, we recommend placing the nests along the width of the house so that air circulation is restricted as little as possible. Floor eggs are often a big problem in litter housing and housing with slatted or wire those eggs are usually dirty and require extra work.



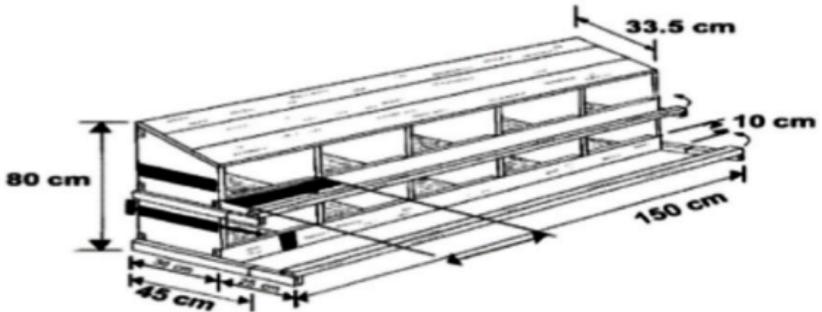
Laying nest. 1. peephole 2. inner litter retaining board

During the first weeks of the laying period, the percentage of floor eggs will reach a maximum of 5-10% after which it should decrease quickly to 1 or 2% at the most.

The following measures will help limit the number of floor eggs:

- *Place enough laying nests, at least one per five laying hens.*
- *Place the nests on time, at least 2 to 4 weeks before the laying period in the poultry houses starts.*
- *Collect the floor eggs several times a day at the beginning of the laying period to discourage the hens from continuing to lay them.*
- *Try to disturb the roosting hens as little as possible in the morning. Later on in the day the eggs need to be collected as often as possible to*

Laying nest. Nests are closed with perches during the night



- *prevent them from breaking.*
- *Keep the nests as dark and cool as possible.*
- *Maintain a thick and comfortable layer of litter in the nests.*
- *Make sure the nests can be reached easily. Remember to install jumping perches.*
- *Communal nests which can be used by several (for example ten) hens at the same time are probably not very suitable for tropical conditions. The hens cannot get rid of their excess body heat very well.*

Transportation crates

To prevent chickens from dying during transportation, spacious and airy crates must be used. These crates can be made of wood or other locally available materials.

Lighting

There are two ways to try to raise the production of chickens by using artificial lighting. If the housing is lit in the cooler hours before sunrise or after sunset, the chickens are able

to eat more. If the day length is increased by using artificial lighting, laying hens are encouraged to lay more eggs.

However, day length must not be increased during the growing period of the young chicks until just before they start laying. Otherwise, it can lead to a premature laying maturity. It is best to start raising the chicks at the time of year that the day length decreases.

Poultry nutrition

First we consider these essential nutrients. Then some attention will be paid to feeding methods and feed composition.

Water: Poultry should have a continuous supply of clean fresh water available. A lack of water can seriously retard growth and impair egg production.

The body of a bird is made up of 60% water and eggs are approximately 65% water. The presence of clean and fresh water is essential so that nutrients can be absorbed and toxic materials removed from the body.. Birds consume considerably more water at high ambient temperatures than at low temperatures.

It is undesirable to restrict water intake of any bird, particularly in the tropics, where deprivation can lead to death within twenty-four hours. Short periods of deprivation can result in moulting and cessation of egg production.

Energy requirements: Energy losses between gross energy and net energy derived from the diet.

Health care in poultry

On small scale chicken farms in rural areas, young and old birds will be kept together. As old, contaminated birds pass on diseases to younger chicks, it will be difficult to get rid of contagious diseases.

Poultry general hygienic measures

It is very important to keep the chance of infection by contacts with sources of infections to a minimum. Preventive measures for infectious diseases are:

Hygiene

- *Before the birds are put in their housing, clean it thoroughly, especially the floor.*
- *Limit contact between the birds and faeces as much as possible.*
- *Keep the drinkers and feeders clean.*
- *Make sure there are no wet spots in the litter.*

Vaccination: Prophylactic use of anti-coccidial agents and some common problems and their possible causes

When you have noted certain abnormalities among your chickens, it is not always easy to determine what the problem is. Maybe the following tips can help you.

High mortality rate among young chicks: When a large number of chicks die during the first days and weeks, the following are possible causes:

- *Shortage of feed and/or water*
- *Diseases, especially those caused by infections.*
- *You can avoid many problems by taking good care of the day-old chicks.*

Avoiding health problems in short: The best prevention of diseases is good hygiene and disinfection. Be careful with adding new chicks to your stock. Best is to use the 'All-in-all-out' system. It depends on your situation (small/large scale farm, country, problems with certain diseases in the past) whether you should vaccinate against some diseases or use anti-coccidial agents. If you have got serious problems you should consider slaughtering your whole stock and starting anew, after thoroughly cleaning and disinfecting instead of treating the animals.

C.2.4.4 Rabbit Production to Improve Nutrition during the 1st 1000 MCDs

The following information has been abstracted and adapted from "Rabbit Production," National Agriculture Information Services, (NAIS) MAL. Pages 1-11.

Rabbit raising is especially adapted to villages, small farms and urban areas, where other types of livestock may not be practical. The majority of rabbits are raised for meat

production, although the skins from these rabbits are a useful by-product, which can be used to make strong carpenter's glue.

There is also an increasing demand for rabbits to be used for biological purposes. The rabbits' fur can be used to manufacture felt hats, while the droppings can be used for backyard manure or as organic fertilizers for vegetable production.



Rabbit production is preferable to other livestock because:

- *Rabbits are small and very cheap to purchase and house;*
- *Rabbits are highly prolific, capable of giving up to 5 litters of eight young ones born per year. The gestation period of rabbits is 32 days*
- *Rabbits grow very fast and can attain a weight of 2 kg by the age of eight weeks, though they are born naked and are blind until they are two weeks of age. The young rabbits weigh only 57 grams at birth on average. In practice such growth rates are difficult to achieve; and*
- *Rabbits are efficient converters of a wide range of vegetable crops with a carcass yield of 55% that consists of more than five (5) parts meat to one part of bone in the edible parts.*
- *For these reasons rabbit production is of*

economic importance because it can be a good source of income.

Breeds

The rabbits that are best suited for meat production are the medium and large breeds. The following are the advisable breeds:

- *Californian: This is white in the body with coloured nose, ears, feet and tail. It is well fleshed, particularly over the shoulders and back with the weight of between 3.63 and 4.76 kg;*
- *New Zealand White: This is a particularly well fleshed rabbit with pink eyes and weighs between 4.08 to 5.44 kg. There are also Red and Black varieties.*
- *Flemish Giant: This breed weighs between 5.9 to 8.16 kg, and has a very well fleshed body, with the colour being white, the most popular, and steel or light grey;*
- *Champagne d'Argent: This is a breed that has under fur of dark slate blue, surface fur of blue white or silver. It has a sprinkling of long black guard hairs, and it weighs between 4.08 to 4.44 kg.*

Selection of breeding stock

The following are the points to look at when choosing breeding stocks:

- *Low maintenance requirement of parent stocks*

- *High fertility with large litter*
- *Attain live weight of 1.5 kg or more over 8 weeks*
- *Good live ability*
- *Reliable mothering ability.*

Housing and equipment

Housing is a very important factor in East and Central Africa because the rabbit originate from the low temperate zone, and has a low tolerance to heat. Therefore, housing must provide the necessary ventilation and shade, otherwise a lot of trouble will be experienced from heatstroke. Protection must also be given from strong winds, without hindering the ventilation or conditions. If hutch units stand outside, it is important that the roof of the hutch gives enough protection from the rain and sun, because rabbits do not like getting wet.

Hutches are the most common type of housing, and the recommended sizes for individual rabbits are 0.61 metres high x 0.76 metres deep and 0.91 metres long for medium breeds, and 1.22 metres long for the large breeds.

For breeding female rabbits (does) a good nest box to provide seclusion when she kindles and protection from litter should be constructed. An inexpensive nest box can be constructed from wood and it can be about 0.30 metres wide x 0.25 metres deep x 0.55 metres long.

A well-designed and well-built hutch reduces labour, and facilitates easy feeding and cleaning. The outdoor hutch

is the most suitable for the majority of farmers engaged in rabbit keeping, and should be sited in a sheltered place, backed against a wall, and under trees, if possible, for extra shade. Do not have the hutch facing west or against a wall with a western aspect. It is best situated to give the maximum ventilation, shade and protection.

The hutches should be raised up off the ground to working level, and a sloping roof made of water-proof material such as asbestos, corrugated iron or thatching grass should slope from the front to the back, with an overhang at the front and rear for weather protection. A hutch can be made from scrap or bush timber, and wire mesh for the four sides.

In Zambia, the open type of hutch constructed from 1.3 metres wire netting nailed to frame is by far the healthiest. Rabbits do not like draughts. They can be excluded with Hessian sacks.

Several types of flooring can be used, wire mesh, slatted floor, or a combination of one of them, and a solid floor, with the solid floor being in front of the hutch. When using mesh, check before use that there are no sharp points that could damage the rabbit's feet. When using slats, they should be 2.54 cm wide and spaced 1.86 cm apart. If the hutches are exposed, a portion of the front and sides can be covered over. These covers could be portable, because the majority of rabbit keepers may remove them at certain times of the year.

One end of the hutch should be left out and replaced with

removable slats, until the young rabbits are old enough to leave and return to the nest.

When hay or green food is fed, a hay manger should be incorporated into the hutches. An inexpensive feeder can be made from an ordinary 22.73 litres can.

Feeding

Quality and quantity of feeds determine the productivity of rabbits.

The extensive system of rabbit production is used by subsistence farmers. In this system the rabbits are highly adapted and can make use of a wide variety of foods including kitchen and garden waste. Just as in feeding of other livestock, the food contains carbohydrates, proteins, fats and oils, vitamins and minerals. A convenient way of listing some of the foods that would be fed to the rabbits would be as follows:

- *Carbohydrate sources such as maize (dry grains on cobs), millet grain, sorghum grain and wheat grain;*
- *Bulky feeds such as cabbage, rape, Chinese cabbage, carrots, beet-root, banana leaves and stem, Swiss chard, Napier fodder, mopane leaves, mulberry leaves, sweet potato leaves, leafy garden vegetables, succulent grasses; and*
- *Protein sources such as groundnuts, sunflower seeds, field beans, cowpeas, velvet beans, Lucerne hay and sun hemp hay.*

A ration should contain at least one type of feed from each of the groups indicated above. Rabbits are naturally herbivorous and most palatable green feedstuffs are an excellent food.

When hay or bulky foods are fed, a manger should be provided in the hutches.

Food requirements

The food requirements of rabbits vary, and observation is most important, and one of the keys to success. Stale food is bad for rabbits; ensure that fresh feed and greens are given. Residues should be removed one hour after feeding, although the amount of food fed should be judged so that very little, or nothing is left.

Water

All rabbits should have access to clean, cool water at all times. During hot season a doe and her litter can drink five (5) litres a day.

Types of feeding and drinking equipment

- *Feeding and watering equipment can be quite simple but they should be types that will prevent wastage and contamination of feeds and water.*
- *Troughs, hoppers and tubular feeders are all suitable for feeding rabbits*

- *Drinkers should be heavy to avoid tipping over and should hold enough water for a day.*

Breeding

The period from mating to kindling is 31 or 32 days. The earliest age for breeding is five or six months for medium breeds, and between nine and twelve months for the large breeds.

- *The gestation period plus a nursing period is eight weeks. A doe can therefore produce up to four litters in one year.*
- *Always take the doe, for mating, to the buck's hutch and never the buck to the does as this may cause a fight. Bucks should be reared separately.*
- *When mating is completed the buck falls on one side after squealing, and the doe should then be taken to her hutch.*

Does

A doe can be kept until she is three years old; after that it will start to prove to be uneconomic to keep.

Bucks

One buck can cater for up to about 10 breeding does, and it is important that the breeding bucks are of a high standard of nutrition as they are responsible for all the progeny.

Good breeding bucks should be lean rather than plump. The ideal physical condition is not always easy to obtain,

for ultimately it is the amount of work and plan of nutrition which will govern the buck's fitness.

Kindling

The nest box should be introduced into the hutch about one week before the doe is due to kindle. Some clean, dry soft litter can be put into it, and about two days before kindling, the doe will supplement this litter by starting to pull fur from her own body. The majority of kindlings take place at night, and it is rare to have complications. The doe is usually restless after kindling and should be left undisturbed for the day.

Do not handle the young ones for a day or two because the doe would reject and kill them if disturbed by touching or loud noises. The young rabbits should open their eyes at 10 or 11 days old. Watch for eye infections, which prevent the eyes from being opened. If the infection is treated properly it will soon be cured; the eyes should be bathed in warm water, or treated with a specific eye ointment or antibiotic ointment.

By three weeks of age the young rabbits will start coming out of the nest, and the slats can be removed. By 8 weeks of age, when the milk supply has decreased and the young rabbits have got accustomed to eating the feed, they can be removed from the doe, and this is called weaning.

Re-mating

- *It is advisable to re-mate does six (6) weeks after kindling if on an extensive system of feeding; and two (2) weeks if on intensive feeding system. Does should be tested and re-mated 10 days later.*

General management

Day to day duties of a rabbit keeper involve removing all manure, soiled bedding and contaminated food daily, as well as cleaning the hutch weekly.

- *Good sanitation is the best way to control disease.*
- *All manure, soiled bedding and contaminated feed should be removed daily.*
- *Keep all the equipment clean by washing it in hot soapy water, or hot water with washing soda added.*
- *Isolate all rabbits suspected of being sick, and obtain advice. Burn or bury all dead rabbits.*
- *Provide suitable accommodation, which is dry and well ventilated.*
- *Clean houses and disinfect them regularly.*
- *Keep all equipment clean by washing in hot soapy water or hot water with soda added.*
- *Provide clean water/feed all the time.*
- *Prevent overcrowding.*
- *Isolate or eliminate rabbits suspected or proven to be sick.*
- *Prevent unnecessary people, dogs, cats or chickens*

from getting in contact with rabbits or the feed and water.

- *Above all maintain good management and sanitation such as regular removal of manure, beddings and contaminated food and water.*
- *Avoid unnecessary stress, poor situation, extreme cold and noise.*
- *Vitamin supplement can also be helpful.*

Hot weather management

Changes in the general care and management of the rabbits are often needed during periods of hot weather. Make sure that the rabbits have adequate shade, ventilation and fresh, clean, cool water. When it is too hot, the roofs of hutches can be covered with an insulation of grass; wet sacks can be placed there too, and on the floor of the hutch to enable the rabbit to lie on it.

Handling rabbits

Rabbits must be handled in a gentle and firm manner always using both hands to lift a rabbit. They must never be held by the legs, as these are easily broken, also they must never be carried by the ears alone.

Records

Accurate records are an important guide to management; and a rabbitary should at least do the following records:

- *A hutch Record Card for each doe showing date of birth, date mated, buck number, date tested, number in litter born, date of kindling, weaning date and number;*
- *Breeding book showing all does, date of mating, doe number, kindling date, number born, number dead, number weaned and date;*
- *Expenses and sales records showing quantities and cost of feed bought, quantities and cost of rabbits sold.*

Slaughtering and dressing rabbits

Rabbits should be killed in clean sanitary surroundings and the following procedure is recommended:

- *To avoid pain, stun with a sharp blow at the base of the neck or dislocate neck and immediately cut the head off to allow bleeding;*
- *Suspend the rabbit by its hind legs with a string or hook inserted between the bones and tendons;*
- *Cut off the tail and feet, then cut into skin just below the string or hooks of suspended legs and slit open on inside of legs to the base of the tail;*
- *Separate edges of skin from carcass and pull skin over the animal;*
- *Open belly and hook two fingers around stomach and pull intestines and stomach out;*
- *Break off intestines going into pelvis, push finger into pelvis and pull out last bit of intestine;*
- *Make sure the gall bladder is pulled out together with liver.*

- *It is advisable to wash the carcass in cold water, and brush the neck thoroughly in water to remove the blood.*
- *Note that all parts of the rabbit can be eaten.*

Market for rabbits in Zambia

The rabbit market in Zambia is unexploited. This is due to low levels of production. Rabbits can very effectively compete with chickens and are



likely to be preferable because they are cheaper on feed requirement compared to chickens. Rabbits are also self-multiplying and very profitable. Rabbits are sold alive or dressed at about 8 weeks. Rabbits should be sold before five (5) months of age to make a profit. If stock is to be kept for breeding, it should be kept separately.

C.2.4.5 Aquaculture to Improve Nutrition during the 1st 1000 MCDs

The following information has been abstracted and adapted from “Aquaculture Production,” National Agriculture Information Services, (NAIS) MoAL, Pages 1 – 11



Introduction to aquaculture

Aquaculture is the production of protein rich foods through the controlled cultivation and harvest of aquatic plants and animals. Using inexpensive equipment and simple techniques, aquaculture can supply more protein than normally produced through conventional agriculture such as dairy, poultry, and cattle farming and traditional fishing.

Almost any type of aquatic organism can be raised from its youth to a healthy, marketable adult.

Overall operation and maintenance

Aquaculture systems can be operated and maintained in several ways. But no matter which type of operation or which method of culture is selected, sufficient food and oxygen must be provided.

The animals stocked in the aquaculture system must be large enough to grow to market size in the desired time. Some preliminary experimentation is needed to determine the minimum desirable size. Only healthy animals should be chosen for stocking the aquaculture system.

Site selection

Without proper selection of the site, the effort put into aquaculture can be wasted.

Site selection for fresh water: selection of sites for fresh water aquaculture projects should consider the following:

- *Quality and quantity of water supply for stagnant ponds or running water project. Parameters to be considered are pH, temperature, dissolved oxygen, rate of volume flow and the suitability of pollution.*
- *Type of soil - clay soil is preferable to sand bottoms.*

- *Topography and elevation of site 2-6% slope and elevation of 50 to 800 m above sea level are considered ideal.*
- *Accessibility to market - transport and Communication has to be considered.*

Topographic Survey

The site where **you** plan to build a pond may be situated in a valley of any shape. It may be irregular with steep slopes; it may be a sloping plane or flat.

Construction and Operation of Fish Ponds

Once pond cultivation has been decided, ensure that the soil is able to contain the water in the pond, with adequate quality for the species. Ensure also that the water quantity must be able to fill the pond in less than one month and replace losses due to seepage and evaporation.

Water Supply

There are **several** sources of water for pond culture, including rainfall, surface water, springs, and wells. Surface water often contains unwanted fish, pollution, parasites, and disease, and is the least desirable water source. It is often necessary to aerate to remove undesirable gases and raise the oxygen level. Springs may also contain unwanted fish and can dry up at the time water is most needed. Rainfall may be even more undependable and low in nutrients. But it will generally be free of pollutants and high in oxygen.

The minimum pond water depth depends on the air temperature, seepage rates, and the dependability of the water supply. In an area dependent on seasonal rains, the water should be at least 3 m deep over at least 25 percent of the pond. In warm areas with low seepage or sufficient water supply, the minimum depth may be as little as 1m.

Pond construction

The pond should be constructed with side slopes in a ratio of 2.5 to 1 and a gentle bottom slope of at least 6.4 cm per 30 m. To stabilize side slopes, grass should be planted as soon as possible after construction. If the bottom material consists of good stable soil, put in a drain well, or harvest basin. Although most fish are harvested by netting, some will escape and be easily caught in the drain well.

It may be necessary to build a dam to trap the water for the pond. If so, assistance should be sought from a qualified engineer, as a break in the dam can have serious consequences.

A drainpipe large enough to drain the pond in less than five days should be placed in the bottom of the pond through the dam.

To prevent decaying material from reducing the oxygen levels and to allow harvesting with nets, all trees, bushes, rocks, and stumps should be removed from the pond bottom and sides.

Foods and feeding — supplementary feeding

Insufficient food will result in slow growth, or even shrinkage, small animals (dwarfism), and a high potential for disease. Generally, fish will eat one tenth to one half their own weight per day.

Both natural and artificial foods may be used. Artificial foods (those that will be consumed directly without conversion to algae) consist of plants, processed food, and certain industrial wastes. The following examples of plant foods can be given depending on availability:

Maize bran, rice bran, wheat bran, mill-sweepings, oil cake, molasses, brewery wastes and other industrial wastes such as decomposed fruit, and any vegetable leaves which should be finely sliced. The leaves of the cassava can be used (tubers and peelings are not suitable). It is best to feed daily at the same time and place, preferably at 10:00 hours. This way the fish will gather at a certain place and time and it will be possible to observe the fish. Larger ponds can have more places of feeding.

Daily management — watching the fish

If the fish is active and swimming easily around they are in good condition. In case you feed supplementary feed and the fish are waiting near the water surface, they are likely to be hungry. The best time to inspect the pond is during the early morning hours.

Checking the water fertility

Measuring the transparency of the water can aid in checking the fertility of the pond water.

It is critical in pond operation that an adequate amount of oxygen be dissolved from the air into the water. Without enough dissolved oxygen, the fish will die.

Harvesting

Harvesting rates depend on the farming system. For ponds without any additional feeding harvesting rates are approximately 3 kg per 100 cm² per year. These rates increase substantially when various additional feeding methods are used; to as high as 35-70 kg per 100 cm² per year if chicken manure is used.

C.2.4.6 Space and equipment needs for various animals

The following information has been abstracted and adapted from the "The Farm Management Resource Guide," National Agriculture Information Services, (NAIS) MAL.

Space and equipment needs for various animals

Animals: Kind/ Number	Meters ²	Meters	Equipment
Cattle			
1 Dairy cow	10	-	-
Calf pen for 1 calf	1.3	1.3 x 1	-
Night paddock (kraal) per adult head	30	-	
Pigs			
1 Sow farrowing pen	9	4.3 x 2.4	-
4 Sows dry pen	12	3.8 x 3.0	-
8-10 Fatteners	10	3.6 x 2.8	-
1 Boar	10	3.6 x 2.8	-
Poultry: In unit of 100 birds			
Brooding up to 3 weeks	8	-	3 chick troughs, 3 chick drinkers
Broilers, 3 weeks – 11 weeks	10	3.5 x 3.0	4 water buckets, 4 tubular feeders

Growers, 3 weeks – 20 weeks	22	5.0 x 4.4	5 water buckets, 5 tubular feeders
Layers, 20 weeks onwards	35	5.0 x 7.0	5 water buckets, 6 tubular feeders 20-25 nest boxes

C.2.5 Production of Vegetable and Fruit Crops to Support the 1st 1000 MCDs

The following information has been abstracted, reformatted and adapted from the “Improved Vegetable Production Practices for Small Holder Farmers in Zambia,” Donald S. Mingochi and Sina W.S. Lunchen, MAFF, FAO and IFA.

C.2.5.1 Establishing a Vegetable Nursery

It is advisable to start young plants of most vegetable crops in a nursery. Several advantages accrue to starting seedlings in a nursery as opposed to direct planting in the field:

- *There is better supervision of the seedlings.*
- *Seedlings can be effectively protected from adverse conditions such as strong winds, heavy rains, marauders, pests and diseases.*
- *It is easier to find a small area with high soil fertility for making the nursery bed.*
- *There is economic utilization of seed, land, labour and water;*
- *Soil sterilisation against weeds, pests and diseases is made possible.*

For ease of supervision, the nursery should be ideally located close to the farmhouse. Protection may however be required where free-range chicken and other domestic animals are kept around the residence. Barriers such as wire mesh, thorn bushes or twigs are often used to keep out the marauders. The site chosen should be near water on well-drained fertile soils. It should also be close to the source of irrigation.

Seedbed preparation for the nursery

The size of the seedbed will depend on the amount of seed to be sown, which ultimately depends on the field area to be planted. To improve on drainage, the seedbed should preferably be raised 15-20 cm above the ground. Soil in the seedbed needs to be irrigated to field capacity and then dug over several times so that all clods are broken and fine tilth is attained. Livestock manure or compost should be added to the seedbed at the rate of 3 kg/m² (approximately 1 cm thick). The manure should be well decomposed

and requires to be thoroughly incorporated into the soil.

A compound fertilizer such as “D” maybe applied alone or together with the manure at the rate of about 100 g/m² (approximately two adult handfuls). Thorough mixing of the fertilizer with the soil is necessary. To avoid stagnation of water in localised spots, the seedbeds need to be properly levelled.

Soil sterilisation of the seedbed

Where there is a high occurrence of soil borne diseases like damping off and soil pests such as nematodes and cutworms, sterilising the soil in the seedbed may be necessary. The cheaper method of soil sterilization is to burn dry vegetation (grass or twigs) on top of the seedbed. This method of sterilization by heat has however the disadvantage of destroying humus and useful soil organisations. Some nutrients may also be lost through heating. Mineral fertilizers should therefore only be applied after the soil sterilisation process.

Sowing seeds into the seedbed

Seeds may either be hand drilled or broadcast. Drilling in furrows makes it easier to carry out agronomic operations such as



weeding, spraying and transplanting. Furrows spaced at 5-10 cm can easily be made with a stick.

The depth of the planting in the furrow will depend on the size of the seeds to be sown.

Mulching the seedbed

Mulching of the seedbed after sowing helps in maintaining optimum germination and emergence conditions in the seedbed especially soil moisture. Dried grass, leaves or polythene sheets are suitable materials for mulch. Banana leaves also provide excellent mulch. Watering of the seedbed should be done immediately the seedlings emerge, otherwise they may become dried out. Daily checking of the seedbed for seedling emergence is thus important. For most crops seedlings emerge 4-10 days after sowing.

Watering the seedbed

The seedbed should be watered with fine droplets of water to avoid exposing the seeds and crusting the soil. It is therefore advisable to use a watering can with a spray head. Where this is not available, an ordinary tin with holes drilled at the bottom may be used. In the hot season, the nursery needs to be watered daily. This should then gradually be reduced to a 2-4 days interval depending on prevailing weather conditions.

Care of the nursery

Weeds, pests and diseases should be controlled in the nursery in order to produce healthy seedlings at the time of transplanting to the field. Healthy seedlings are more likely to be able to withstand stress conditions in the field and ultimately give better performance after transplanting. Regular checking of the seedlings is advisable so that appropriate corrective measures may be timely undertaken in the event of occurrence of adverse growing conditions such as pests or diseases. Thinning of seedlings to spacing of 2-3 cm between plants within the row should be carried out when the plants have attained a height of 4-5 cm.

Hardening the seedlings

To condition seedlings to stressful environmental conditions prevailing in the field, hardening may be necessary. Hardening involves the systematic reduction of water supply to the seedlings 4-7 days before transplanting into permanent beds.

transplanting

It is important that seedlings should be transplanted at the right state of growth. Under-aged as well as overgrown seedlings tend to establish poorly when transplanted in the field. Most vegetable crops should be ready for transplanting 4-5 weeks from sowing. Onions may however take as long as 6-7 weeks before reaching the transplanting stage. Before transplanting, the seedbed should have been

thoroughly watered about 12 hours earlier to facilitate lifting the seedlings. Wetting of the soil minimizes the risk of root damage resulting from exposure at the time of lifting. It also ensures that the soil surrounding the roots will remain undisturbed. On non-overcast days, seedlings should be transplanted either early in the morning or in the late afternoon to avoid death from wilting. A garden fork, spade or hoe may be used to lift the seedlings from the soil. The tool should go deep enough into the soil to avoid damage to the roots.

C.2.5.2 Home Garden Products

The following information is abstracted and adapted from the following reference materials:

“Agriculture Diary for Extension Officers”, January to June 2012, Department of Agriculture.

“Improved Vegetable Production Practices for Small Holder Farmers in Zambia”, Donald S. Mingocho and Sina W.S. Lunchen, MAFF, FAO and IFA.

“The Farm Management Resource Guide”, National Agriculture Information Services, (NAIS) MAL.

Sweet Potato

Varieties: Chingovwa, Luapula, Zambezi and many local varieties grown throughout the country.



Planting and Spacing: one vine should be planted every 25 cm along the middle of the ridge.

Harvest: Harvesting can be done within 3-4 months

Yield 12- 20 tonnes/ha

Eggplant

Varieties: African Egg Plant White;
African Egg Plant long; Aubergine
Black Beauty

Climate and Soil Requirements:

Optimum temperature 180 to 210 C

Planting: August to November and
February to April

Seed Rate: 500g seed/ha

Spacing: 90 cm x 75 cm

Fertilizer Application: Basal: 100kg/ha,
Top Dressing: 100 kg (AN)



Carrots

Varieties: Cape Market, Chantey,
Nantes, Fancy and Kuroda.

Climate and Soil Requirements:

Cool season and performs best
from March to July in well-drained
sandy loams.

Seed Rate: If carrot is directly sown
into the field the depth should not be deeper than 0.5 cm.
If sown in a nursery 500 g/ha and transplant after 6 to 8



weeks

Spacing: Space at 30-45 cm between rows and use 2-4 kg/ha of seed. Thin seedlings when 6-7 cm high to allow for optimum growth.

Harvesting: after 100 days

Yield: 28-40 tonnes/ha

Mango

Fibre type: Peach, Nolea, Sober

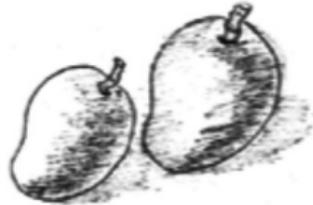
Spacing: 6 m x 4 m
(416 plants/ha)

Fertilizer treatment: per tree
per year

Mature plants: 700 g N, 400 g P₂₀₅, 750 g K_{2O}

Harvesting: Fruits are picked when they begin to change colour or a few ripe fruits have dropped from the tree.

Yield: 80-120 tonnes/ha



Banana

Varieties: Dwarf Cavendish;
Williams

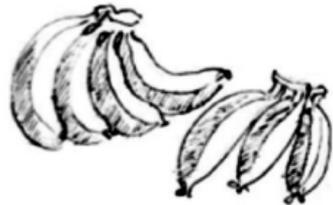
Soil Requirements: Well
drained with high organic
matter. Soil pH of 5.5 to 6.5

Climate Requirement:

Optimum temperature is 25-30°C (below 10°C causes chilling).

Planting Materials: Propagated vegetatively (suckers)

Spacing: 3m x 3m giving 1,300 plants/ha



Fertilizer Requirements: Large quantities of compost or manure are needed per year (10-15 tonnes per year). At planting apply 50g “D” compound/per hole.

Yearly applications: 120g ammonium nitrate per stool every month except June and July to avoid frost damage, 7-10 kg manure per year.

Desuckering: Only three plants per station should be allowed to grow. `

Garlic

The following information has been abstracted and adapted from the Ministry of Agriculture and Livestock and Ministry of Agriculture and Cooperatives “Garlic and Onion Production Production” booklet National Agriculture Information Services, Lusaka, Zambia, NAIS.

Planting: Do not plant garlic after onion, leak, but after legumes like beans, peas and groundnuts. Plant the cloves direct in rows 30 cm apart with 10 to 15 cm between the cloves of garlic just lightly.

Press the cloves into the friable tilth not quite covering the tips. Bigger cloves require 12 kg per 100m². Smaller cloves require 9 kgs per 100m².



Weeding: Keep free from weeds all the time by careful hand weeding and do not let the weeds get large. Do not hoe deeply around the garlic plants; just keep a shallow fine tilth without damaging bulbs.

Irrigation: Do not over or under water to keep the plants growing steadily Irrigate at regular intervals. At the time of harvesting, water should be gradually reduced to encourage the bulbs to dry off and became firm. Irrigation should be stopped when crop has started to lose 25 to 50% of the leaves.

Growing period: 22 weeks

Harvesting period: 4 weeks

Yield: 1 to 2 kg/m²

Storage: Bend down the tops with rake or foot to hasten ripening before they are harvested

Lettuce

Varieties: Crisphead
butterhead, romaine or cos and
leaf

Climate and Soil Requirements:

Temp of around 15°C, well-
drained sandy loan of pH of 6

Seed Rate: 2 kg/ha

Spacing: 30 x 30 cm

Harvest: When 50% of seeds in the heads show white
pappus or fluff.

Yield: 10-15 tonnes/ha



Amaranthus

Varieties: UNZA A1 and UNZA A2.

Climate and Soil Requirements: August



and April. Amaranthus thrives in all soil types but more in full light.

Land Preparation: Well tilled.

Seed Rate: 1.5–2 kg/ha.

Spacing: Sown directly into soil either alone or intercropped. May also be broadcasted on rubbish dumps. Shallow planting (1-1.5 cm is recommended)

Harvesting: The leaves are ready for harvesting from the 6th to 10th week after planting

Yield: 7-10 tonnes/ha

Paprika (Peppers)

Varieties: Hot Pepper – Mufulira, Paprika, Green Pepper – California Wonder

Climate & Soil: August to November & February to April: well-drained soils, PH 6-6.5; 1.5 kg/m² of manure should be added to land for field planting

Seed Rate: 1 kg/ha

Planting: Seeds are sown 1.5 cm deep,

Spacing: 90x30 cm between rows and 20cm within rows

Transplanting: 4-6 weeks after sowing or when 5-8 cm tall

Harvesting: Growing period is 18 weeks

Yields: 4-5 tonnes/ha (green peppers and chillies), 3 tons/ha (paprika)



Rape Production

Rape is a vegetable cultivated for its leaves that are commonly used as relish to accompany the main staple starchy food. There are two distinct types of rape, the local types or Ethiopian mustards and the exotic ones or European rapes. The two types differ in their adaptability to seasons and susceptibility to pests and diseases.

When to Plant: It is possible to have year round rape production depending on the choice of type and/or cultivars. Exotic rapes perform better in cooler months while local rapes such as Prior, Nanga rape and NIRS 1 can do well in the summer and rainy seasons. The local rape types have a low chilling requirement and they tend to flower prematurely particularly under stress conditions such as low soil fertility and moisture.

How to Plant: Sow directly in the field by drilling at 1-2 cm depth. Planting: can be done on flat beds, furrows or micro-basins in the dry season. Raised beds or ridges are recommended for the rainy season and in dambos with a high water table.

The recommended spacing of 45 to 60 cm between rows and 30 cm between plants results in larger leaves. However, Zambians have a preference for smaller leaves. This can be achieved by a close spacing of 20 cm between rows and 5 cm between plants before thinning. The plants are later to be thinned to 20 cm between rows and 20 cm between plants. Thinned plants are also popular amongst

consumers and often sold. This enables growers to have some early cash from their crop.

Tomatos

Varieties: Roforto VFN, Red Khaki and Rossol VFN for hot dry season. Herald, Roma VF, Red Khaki for cool dry season. Roma VF, Herald, Monoprecos during rainy season.



Planting: Sow seed in nursery. Germination expected 5-8 days. Apply copperoxychloride or Dithane M45 to avoid diseases in rainy season.

Seed Rate: 100 g/ha when transplanted

Spacing: 90-120 cm x 30-50 cm

Fertilizers: 12 x 50 kg "D"/ha basal, 2 x 50 kg AN/ha top dress. All top dress applied as split dose, i.e. at 2 weeks after transplanting and then 4 weeks after flowering

Rotation: Do not plant tomato on land that had eggplant, peppers, potatoes, tomato in last 2 years

Pests and Diseases: Fruit borers, foliar diseases (early and late blight), red spider mites

Yield: 24-48 tonnes/ha

Potatoes

Varieties: Baraka, Pentland dell, uptodate, Pimpernel

Climate and Soils: Light well drained soils, pH 5.5-6.5



Seed Rate: 20 kgs of seed potato is required for 100 m².

Space: 6 – 10cm deep depending on the soil moisture.

Well-sprouted materials are used.

Fertilizer: Apply 12.5 to 25 tonnes of compost or manure (20 litres tins for every 8 metre). Apply basal dressing as a side landing without contact to the tuber (30 gms/m² compound “D”) and cover the tubers and irrigate to facilitate sprouting the tubers. Top dressing of ammonium nitrate at 10 kg/m² to be applied when plants are 20cm high.

Earthen Up: To keep the tubers covered by 25cm of soil is an important operation all the time. Hoe weeding in the later growing season is not economical and moving in the field when the crop is very dense assists in spreading viruses. Use of resistant or tolerant varieties is recommended.

Harvesting: 90 to 120 days to reach maturity.

Storage: Short term storage is possible by keeping the potato in a darkened room with cool light air.

Yields: 20 to 40 tonnes/ha

Pumpkins

Varieties: Green Boer; Big Max; Flat Boer

Climate and Soil Requirements:

Rainy season crop. Good drainage soils with near neutral pH.

Seed Rate: 1.5-5 kg/ha

Planting time: September - December



Spacing: Range from 90 x 90 cm (bushy types) 2 - 2.5 m x 50 cm - 1.5 m (vine types)

Fertilizer: Basal: 5 x 50 kg bags/ha (or 40 g per station),

Top Dressing: - 2 x 50 kg bags/ha (or 10gper station),

Manure/Composite: 2-3 kg per m2

Isolate new crops from old crop

Yields: 18 - 22 tonnes/ha.

Cucumber

Varieties: Palomar DMR and African Horned Cucumber

Seed Rate: 3 kg/ha.

Climate and Soils Requirements:

Sandy loam soil with neutral pH, plant August to December

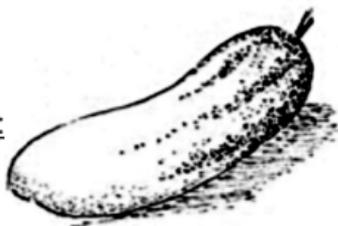
Spacing: 1 m x 1 m

Fertilizer: Basal: 400 kg of "D" Compound/ha, Top

Dressing: 100 kg of AN/ha, 2 kg/basin of manure

Harvesting: 5 weeks

Yields: 8 tonnes/ha



Onion

Varieties: Texas Early Grano, Red Creole, Yellow Granex F1, Tropic ACE, Dessex F1, Pusa red.

Climate and Soil

Requirements: March to

October. Cool season, in well-drained fertile soils.



Seed Rate: Sow seed in nursery 500 g/ha and transplant after 6-8 weeks.

Planting Materials: Seeds and grafted seedlings

Spacing: 25-50 cm x 5-7 cm

Weed Control: Keep field weed free at all times.

Harvesting: Harvest when fully matures, i.e. 75% leaf fall.

Storage: Bend down the tops with rake or foot to hasten ripening before they are harvested.

Yield: 24-32 tonnes per hectare

Okra

Varieties: Clemson spineless
Green velvet, Perkin spineless
and Pusa sawani

Climatic conditions: frost free
conditions. Well-drained soil
type.

Planting and seed rate: 5 kg/ha

Depth of 2 to 3 cm

Spacing: 90 cm X 45 cm

Fertilizer: "D" compound at 400kg per hectare.

Ammonium nitrate 200 kg/ha Split application.

Crop protection: Aphids - Pirimicarb. Powdery mildew
- Benomyl (Benlate) 500 to 1000 g/ha or at 1 g/
litre, Chlorothalonil (Bravo) 2 to 3 kg/ha or 2.5 ml/l,
Hexaconazole (Anvil) 2 ml/l

Harvest: 6-9 weeks after sowing depending on the variety.

Yield: 15 to 20 tonnes/ha



Avocado

Varieties: Lula, Hass, Nabal, Reed, Benik

Soil Requirement: Fertile, well drained. pH 5.5-6.5

Planting Materials: Seed and grafted seedling

Spacing: 7.5m x 7.5m (178 plants/ha)

Harvesting: Fruiting starts 3-4 years after planting, 7.7-13.2 tonnes/ha



Sunflower

Varieties: i.e. Open pollinated and hybrid

Varieties:

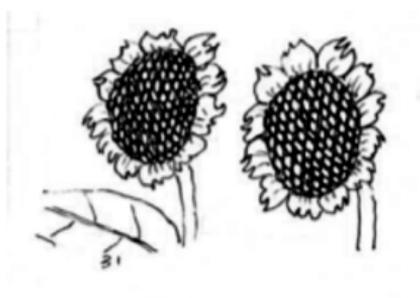
Climate and Soil

Requirements: Temp 18 to 25°C. Soils deep well drained, with a pH above 5.

Planting: Mid-December to early January. Sow seeds 2-3 cm deep. A rate of 5-7 kg/ha gives a plant population of 40,000 to 45,000 plants/ha

Spacing: 90 x 25 cm or 75 x 30 cm

Fertilizer requirement: The recommended rates are 200 kg/ha "X" or "D" compound and 150 kg/ha ammonium nitrate or 100 kg/ha Ammonium nitrate or 100kg/ha urea. Acid soils – liming can be done at the rate range of 500 to 2,000 kg/ha



Harvesting: Should start when the sunflower heads turn yellow and the leaves turn brown.

Storage: Dry before bagging to avoid rotting and fungus attack. Moisture content of sunflower seed is 10%.

Sunflower diseases and symptoms:

Leaf blotch -- Early or vegetative stage of sunflower growth.

Leaf spot - Flowering time and affects all parts of the plant, i.e. petioles, stems, petals, bracts, leaf blades and veins.

Bacteria Stem Rot - Lodging of the plants caused by the weakening of the stems.

White Blister - White blisters appear on the leaves, usually in groups.

No chemical control measures have been recommended for the above diseases. Proper management (cultural practices) are recommended such as crop rotation, planting disease resistant varieties, correct plant populations.

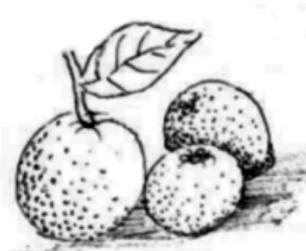
Citrus (oranges, lemons, grapefruits and mandarins)

Varieties:

Sweet Orange: Washington Navel, Hamlin, Oasis, Valencia Late, Delta, Midnight, Pineapple, Bahianinha

Lemon: Eureka, Lisbon

Grapefruit: Marsh Seedless, Redblush



Mandarin: Dancy, Tangerine, Satsuma, Cape Naartje

Soil Requirement: Light textured soil and well drained

Planting Material: Budded seedlings and cutting grafts

Spacing: 6 m x 4 m giving 400 trees/ha.

Harvesting: Citrus trees are expected to start bearing from the third year after planting

Yield: For tree age in years: 4-5 years, 0.5-1.5 kg; 6-8 years, 2-3.5 kg; 9-10 years, 7.5 -9.0 kg; 11-14 years, 10-12 kg; more than 15 years, 12-15 kg

Pawpaw

Varieties: Kamiya, Mexican Red, Mexican Yellow, Solo

Soil Requirement: Light, well-drained soil

Planting material: Propagated by seed

Spacing: 4m x 4m (625 plants/ha)

Harvesting: Pawpaws are ready to be harvested when most of the skin is yellow-green.

Yield: 3.0 tonnes/100 trees/year



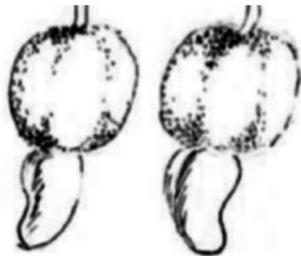
Cashews

Varieties: (Brazilian dwarf)

Soil requirement: Deep, well-drained, sandy loam soils

Planting: 8 m x 5 m (250 plants/ha)

Fertilizer Requirement: apply 750



g LAN, 2 kg superphosphate/tree/year

Harvesting: Fruiting starts 2-4 years after planting

Yield: 1.0 – 4.5 tonnes/ha of unshelled nuts.

Pineapple

Varieties: Red Spanish, Smooth

Cayenne, Singapore Spanish

Planting: Propagated using suckers, shoots, slips and crowns; depth of 7.5-10 cm in double row beds 1.5 m apart

Spacing: 30 cm row x 60 cm between rows x 90 cm between beds.

Mulching: Use green manure and organic refuse (sugar cane biogases)

Weeding: Nit Grass use Bromaci or Gramoxone at 1.5 to 3 litres per ha

Irrigation: Crop must be irrigated regularly; a rainfall amount of 1000 - 1500 mm is said to be optimal for pineapples

Harvesting: Pineapples take 12-24 months to mature

Yield: 40 tonnes/ha for a well-managed plantation but can go up to 70 tonnes/ha

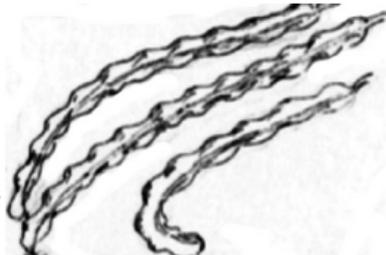


Cowpeas

Varieties: Lutembwe, Bubebe, Local types

Climate and Soil Requirements:

Rainfall between 250 and 750



mm. Soils from sandy to heavy loam (pH 4.2 - 5.0)
Planting: Early maturing varieties, late December to early January.

Seed Rate: 20 kg/ha

Spacing: 50 to 90 cm apart

Inter-cropping: Main crop of maize or other cereals

Weed Control: One weeding at approximately 20 days after Planting

Harvesting: The crop should be harvested (preferably in dry weather) when the majority of the pods have turned brown and the seed start to rattle in the pod.

Yield: Lutembwe and Bubebe yield, 1-3 tonnes/ha; local types, 0.5-1 tonnes/ha

Groundnuts

Information adapted from the "Production Guide Groundnut", Soils and Crops Research Branch, Ministry of Agriculture and Livestock, web address: <http://www.zari.gov.zm/media.php?mediaID=145> and "Groundnut Manual for Uganda, Recommended Practices for Smallholder Farmers in Uganda", Chatham, UK, Natural Resources Institute. W.W. Page, C.M. Busolo-Bulafu, P. vander Merwe and T. Chancellor, Funding from DFID. 2002. Web address: http://teca.fao.org/sites/default/files/technology_files/GroundnutManual.pdf

Varieties: Chalimbana, MGS 2, MGV 4, Makulu Red, Champion, Chipego, Natal Common, Comet, Luena, SC Orion

Climate and Soil Requirements: Rainfall between 450

and 1250 mm. Groundnuts grow better in light soil. pH 5.3-7.3

Rotation: Rotate at least every 3 years with cereal crops (maize, sorghum, millet)

Seed selection: Pods to be opened 2-3 weeks before planting and good seeds selected. Certified seeds should be used every 2-3 years.

Seed Rate: 20 kg/ha

Planting: Planting should be done as soon as the rains begin. Plant in rows and on ridges if field is in a damp area. Early-maturing varieties such as Chipego, Comet, Luena and Natal Common should be sown from early to mid December after effective rainfall. Late-maturing varieties like Chalimbana, MGS-2, Makulu Red, Champion, and MGV-4 should be planted immediately after the first effective rains in early to mid November.

Depth and Spacing: 3-5 cm deep, 45 cm apart. For small seeded varieties, 60 cm row spacing is ideal while for medium to large seeded ones 75-90 cm is ideal. Within row spacing of 7-10 cm is preferable for small seeded varieties while 10-15 cm is suitable for medium to large seeded types.

Weed Control: Early removal important (3-6 weeks after planting)

Harvesting time: 120-140 days. Groundnuts should be



harvested when they are mature. Groundnuts are mature when 70 % of the inside of the shells have dark markings and the kernels are plump. Pulling up a few plants to check on pod and seed conditions is recommended to determine appropriate time for harvest.

Harvesting: Harvested plants should be stacked in the field for 6-7 days to allow them to dry up to 6-8% moisture content in the sun and air, before stripping the pods. The crop should be harvested by pulling up the entire plant.

Yield: 2.5-3 tonnes/ha.

Mushroom production

Abstracted and adapted from “Mushroom Cultivation Guidebook For Extension Workers, Japan Overseas Cooperation Volunteers (JOCV)” by Josephine Mulenga, Horticulture Officer, Kasama Farm Institute (September 2012) and Mushroom Growing Observation at Co-operative College and Chalimbana Farm Institute (final Draft) Rural Extension Services Capacity Advancement Project (RESCAP) REPORT ON PILOT 2010/Department of Agriculture/Ministry of Agriculture and Livestock.

Small scale mushroom production represents an opportunity for farmers to earn extra income if it is integrated in their existing agricultural production system. Additionally, mushrooms provide many essential amino acids and also



contain medicinal properties. In Zambia, people collect wild edible mushrooms in the rainy season and only some cultivate them for the local market.

Mushroom cultivation enables farmers to generate income through the utilization of crop, forestry and animal wastes. They also do not require a large piece of land for cultivation and most importantly production can be done at a time when most agricultural activities have ended. Mushrooms can be grown throughout the year in cool areas and during cool months in warm areas. With the beneficial effects that mushroom cultivation has to society, scaling up of its production will definitely benefit the community at large. Mushroom production can be a source of the much needed income for families in the 1st 1000 MCDs.

Mushrooms are the fruiting bodies of macro fungi. They include both edible/medicinal and poisonous species. However, originally, the word mushroom was used for the edible members of macro fungi.

Edible mushrooms can be taken regularly as part of the human diet or be treated as healthy food or as functional food.

It is hoped that mushroom farming will become a very important activity which will lead to the economic betterment of not only small scale farmers but also of integrated medium scale farmers.

In order to promote production of mushrooms among small

scale farmers especially women, RESCAP facilitated the establishment of two pilot demonstration sites in Lusaka. The purpose (of these sites) was to grow mushrooms and observe its performance with participation of experienced mushroom growers (farmers). The sites identified were Co-operative College and Chalimbana FI. Upon successful completion of this exercise, it is hoped that mushroom growing can be promoted in other parts of the country as well.

The advantages of mushroom cultivation can be summarized as:

- 1) Waste raw materials such as soya bean straws and maize cobs, such are largely burnt by farmers and cause air pollution, can actually be used for the cultivation of mushrooms. This kind of bioconversion exercise can greatly reduce environmental pollution.
- 2) Mushroom cultivation can serve as means of generation of employment, particularly for rural women and youth in order to raise extra income for the families.
- 3) It can provide the people with an additional vegetable of high quality, and enrich their diet with high quality proteins, minerals and vitamins which can be of direct benefit to human health and fitness. The extractable bioactive compounds from medical mushrooms would enhance humans' immune systems and improve their quality of life.
- 4) Mushrooms are a cash crop. The harvested fruiting bodies can be sold in local markets for additional

family income or exported as an important source of foreign exchange that will definitely improve the economic standards of people.

Common varieties grown in Zambia

- *Shiitake...very sensitive/needs very high standard hygiene*
- *Button...basically grown on seedbeds*
- *Oyster...commonly grown in Zambia/easily grown/high adaptability to environment*

Materials needed for mushroom production

- *Production facility: 1 structure x 2 sites*
- *Incubation room: with black plastic sheet inside. This is where spawning bags are incubated for substrates colonization.*
- *Mushroom fruiting house: Wooden frame with clear plastic sheet inside. A rack is made for hanging. This is where mushroom production takes place.*
- *Drum to sterilize the media by hot water*
- *Media: chopped wheat straws, sawdust for Shiitake, and maize bran mixed with agriculture lime*
- *Plastic bags (capacity of 5kg)*
- *Spawn (seed)*

Note: Oyster and Shiitake varieties produced by UNZA, Oyster variety produced by private supplier in Chilanga, Lusaka

See photos for example of construction of mushroom production facility and incubation room.



Construction of mushroom production facility



Incubation room

C.2.5.3 Step by Step Procedure of Mushroom Production

1. Preparation of substrates for mushroom

Pre-wet the chopped maize stalks or rice/wheat straws or dried banana leaves or soya bean straws for Oyster and sawdust for Shiitake depending on the availability of the materials. Incubate them in a plastic sheet overnight. Supplement with rice or bran, water hyacinth and calcite lime or agricultural lime.

2. Pasteurization



3. Sterilizing substrate

The substrates are put into a sack and a homemade sterilizer which can be made from an open drum with a platform with holes. Pasteurize in hot water at 70°C for 45

to 60 minutes and then empty the pasteurized substrate onto a plastic sheet for it to cool down to 40°C (30°C for Shiitake).



4. Spawning

Pack the substrates into 5 kg plastic bags while adding planting spawn and then tie the mouth of the bags. This should be done in an enclosed place or where there is no air current.

5. Colonisation

Incubate the spawned bags in the dark or alternatively cover with a plastic sheet until the bags are fully colonized. It normally takes about 14-40 days (30-120 days for Shiitake).

Conditions required at this stage are:

- *Temperature 10-25°C*
- *Humidity 85%*
- *No light is required*

6. Fruiting

When the bags are fully colonized transfer them into the fruiting house. The fruiting house should provide enough light for the mushroom to start forming. Light which would enable one to read a newspaper when inside the mushroom house is just enough. Make a few holes into the bags so that mushrooms can breathe from them. Watering 2-4 times per day is required in order to get good yields.

For the hanging method, tie them onto the racks and make a few long slits on the bags using a clean sharp knife or razor blade.

Conditions required at this stage are:

- *Duration to be required at this stage is 90 to 120 days for Shiitake*
- *Temperature: 18-25°C for oyster and 10-20°C for Shiitake*
- *Humidity: 80-90% (application of water on the floor and walls).*
- *The air freshness in the house is also needed (routine opening).*

7. Harvest

Harvesting is done 3 to 4 times on average for the period of 30-120 days. Some warm mushrooms (e.g. Oyster mushrooms) are relatively fast growing organisms and can be harvested in 3 to 4 weeks after spawning. It is a short gestation agricultural business and can be of immediate benefit to the community.

Pest and diseases

The mushrooms are very sensitive as such farmers need to be very clean and keen in caring for them. The control of pest and diseases is essential for attaining good yields. Mushrooms are easily attacked by fungal infection (*Trichoderma*), and pests such as rodents and termites.

C.2.6 Fruit and Vegetable Processing and Preservation

The following information is abstracted, adapted and reformatted from two sources: (1) "Food Processing, Utilization and Nutrition with a Special Focus on the Dietary Need of People Living with HIV/AIDS", Reference Booklet, Food Security Pack Project, Chitundu M. and Mukumbuta S., PAM, 2004, with support from FAO/PAM and (2) "Training Manual for Field Workers on Fruit and Vegetable Processing and Utilisation". The information has been combined to facilitate finding information on similar fruit and vegetable products. The source publications are available from PAM.

Man has kept fruit and vegetables in his diet to provide variety, taste, interest and aesthetic appeal and to meet certain essential nutritional requirements. Ascorbic acid (vitamin C) for example, is the most important nutrient supplied by fruits and vegetables because man is not able to synthesize it. Furthermore, vegetables and some fruits can be important supplementary sources of carbohydrates, minerals, and protein.

In Zambia, different types of fruits and vegetables are available at different times of the year. These broadly fall into two categories: those gathered from the wild, e.g. masuku and mushrooms and those cultivated, e.g. oranges and pumpkin leaves.

Fruit and Vegetable Processing

Processing is a series of actions undertaken to prepare a crop into a form that can be stored, or to make food more palatable.

Reasons for processing include:

- *To preserve seasonal gluts which often lie rotting. Fruit trees tend to crop in flushes and in the fresh form are difficult to store. This leads to gluts in the local market. Especially true for mangoes, pineapples, bananas, tomatoes, etc.*
- *To avoid difficulties encountered in storing large quantities of fresh produce which often lead to heavy losses.*

The condition and marketable life of fruit and vegetables is affected by such things as temperature, humidity, level of damage inflicted before and after harvest and type and degree of micro-organism infection, insects, etc.

The small local markets usually cannot absorb the large quantities of fresh produce when in season. Ineffective distribution and transportation fails to meet demand in other areas, often urban.

The difficulties indicated above often cause rural producers to sell commodities at a giveaway price or to let them rot. To prevent this loss, produce can be converted into value added products by processing or preservation. The processing and preservation technologies increase the storage life of the final product and can offer income opportunities and employment.

C.2.6.1 Processing - Principles, Methods, Techniques and Operations

Basically, the processing technologies for fruits and vegetables do not vary. The same package can be used to process different produce into different end products. However, fruits are nearly all “high acid foods”. This acidity naturally controls the type of micro-organisms that can grow in fruit and the only spoilage likely to be found in fruits are moulds. These rarely cause illness if consumed. However, the acidity level is less for many tropical fruits such as banana, mango, and pawpaw.

Vegetables are classified as “low acid foods” and many dangerous food poisoning organisms can grow in low acid products if they are in moist conditions. However, vegetables can be safely preserved by making them acidic, by salting, fermenting or drying them.

Basic Processing Principles

- **Hygiene** is always very important in any food processing venture. If hygiene is not observed, the products can be contaminated by bacteria, yeasts or moulds. Those working on food processing should always wash their hands before any processing operation. All utensils and equipment must be properly cleaned before and after use. Packaging material such as bottles or containers must be washed with soap and hot water. All waste products should be disposed of outside the working area.
- **Quality and Degree of Maturity:** High value preserved products require high quality raw materials. The best fruits and vegetables suitable for processing must be used. In the case of vegetables, harvesting should be done when the vegetables are still fresh and tender, and well coloured. These will have a high nutritional value. Old and discoloured vegetables should not be preserved. Depending on the desired end product, fruits to be preserved can either be fully ripe or under ripe.

Preliminary Processing Methods for Fruits and Vegetables

- **Washing, sorting, peeling and cutting:** *Raw materials must be processed within 24 hours after harvesting to prevent deterioration. Sorting is done to separate damaged from undamaged produce and ripe from unripe fruit. Some fruits are cut in two to check the inside for insects or rotting. In preparing for drying, peeling facilitates the operation of cutting the raw material into pieces or slices. The slices must be the same thickness to allow for the same drying time.*
- **Blanching with or without salt:** *The raw material prepared is placed in a sack or piece of cloth (mutton cloth) and plunged into boiling water for three minutes. The cloth is then removed from the boiling water and dipped in cold water to stop further reaction. This process is called “blanching” and it improves the quality and keeping properties and preserves the natural colour of dried products.*
- **Sterilization:** *Sterilization is carried out in large pots. Straw is placed at the bottom of the pot and between the layers of containers to avoid breakage. The pot is filled with water up to two fingers above the bottles. The last layer of bottles must be covered with straw and by a lid of a smaller diameter than the pot. This lid is topped with a weight such as a stone.*

The water is allowed to boil before counting the time needed for sterilization. The time depends on the nature of the product and the size of the container.

The purpose of sterilization is to destroy micro-organisms and to make the product preservable for some time.

- **Sun Drying:** *Sun drying is the most appropriate way of preserving many vegetables and some fruits. It has the advantage of being a traditional, well-understood technology and equipment costs can be low. During drying, water is removed from the product by a combined effect of three basic elements: temperature, humidity and air flow. Drying is successful only if the relationship between the three elements is correct.*

Traditionally, produce is dried in direct sunlight on all kinds of natural surfaces. The disadvantage of sun drying is that the quality of the product is often poor since there is infestation by insects, contamination by dirt, chickens, rodents, goats, etc., and spoilage by occasional rains. In addition, most vitamins are sensitive to light. Significant destruction occurs when produce is exposed to direct sunlight.

- **Mechanical Solar Drying:** *Solar dryers have been developed to overcome the above mentioned shortcomings. A simple structure is used to enhance the effect of the sun's heat and to protect the product. Heat is absorbed from solar radiation by a black surface. The temperature inside the dryer can be maintained at 60-70°C which minimizes damage to vitamins and other nutrients.*
- **Heat Treatment (Boiling):** *Simple equipment are required for processing, preserving and packing heat treated fruit products such as jams, jellies, and*

syrups. These must be boiled to concentrate the sugar to the right level. They are then transferred into jars while hot. On a small scale, boiling is carried out in stainless steel, aluminium or enamelled pots. Great care must be taken to avoid localized over heating causing burns and flavour changes. The product must therefore be stirred vigorously while heating. Lemon juice is added to some products to rectify the acidity.

- **Packaging:** *The difficulties in obtaining packaging material can be one of the greatest constraints on preserving fruits and vegetables. It is important to ensure that the right packaging material is obtained before any processing activity is started. Many preserved fruits and vegetables are packaged in glass containers, plastic bottles or containers and plastic bags.*

Good packaging and storage extends the life of the product by better protecting the food.

C.2.6.2 Obtaining Vegetables and Fruits for Preservation

Preservation of fruit and vegetables should be planned. This requires that fruits and vegetables must be grown or purchased in large quantities of vegetables (especially the local vegetables) for both household consumption and for sale.

C.2.6.3 Specific Preservation methods of Various Food Crops

Preserving Tomato by Making Puree

NOTE: To make tomato puree requires a hand operated “pulper” strainer, a large pot, jars and bottles with lids

1. Harvest or buy in the market fresh ripe tomatoes.
2. Eliminate any rotten fruit.
3. Wash in clean water and drain.
4. Cut the tomatoes in quarters and eliminate those that are rotten inside.
5. If using jars or bottles wash them separately and drain.
6. Put the tomatoes in a pot and cook on medium heat, stirring with a wooden spoon every now and then. Adding some salt is optional. Remove the contents from the fire when the contents begin to boil and cool partially.
7. Extract the tomato juice by passing the product through the pulper.
8. Place the pot with the juice back on the fire and let it concentrate stirring with a wooden spoon every now and then to prevent the mixture from sticking. Add 1 % salt, dissolve and remove the pot from the fire.
9. Fill jars or bottles to the top with hot puree and cover.
10. To sterilize, place the containers in water while they are still hot making sure the temperature of

the water and of the bottles is the same to prevent breaking. The water must cover the containers. Sterilize in boiling water for 45 minutes from the moment the water starts to boil. Then remove the pot from the fire. Let the containers cool in the pot until the next day.

11. Label each container with the name of product ingredients and date of preparation.
12. Store in a dry place free from dust and light. The shelf life should be at least 12 months.

Preservation of Bean or Cow Pea Leaves

Method 1: Sun drying

1. Harvest tender leaves
2. Sort, wash in clean water and drain the leaves
3. Spread on the reed mat or clean surface on a raised platform and dry in the sun.
4. Turn the leaves frequently to facilitate drying
5. When dry, store in a clean container with a well-fitting lid

Method 2: Par boiled bean/cowpea leaves.

1. Pluck tender leaves
2. Sort, wash and drain
3. Boil enough water in a big pot
4. Put the vegetable in the pot of boiling water.
5. Cook for 5 minutes whilst turning the vegetable with a cooking stick
6. Spread the cooked vegetable on a reed mat that is placed on a raised platform to dry under a shade.

A solar dryer can also be used for drying the vegetables.

7. Turn the leaves frequently to facilitate drying and store in a clean container when dry.

Preservation of Sweet Potatoes

Method 1: Drying

1. Sort and wash the sweet potatoes
2. Peel
3. Cook in a big pot until tender
4. Cool and cut length wise
5. Dry the sweet potatoes on a clean surface on a raised platform and pack in a clean sack

NOTE: The sweet potatoes can also be peeled after boiling

Method 2: Directly sun-dried

1. Pick fresh sweet potatoes (free from weevils)
2. Sort and wash
3. Peel sweet potatoes
4. Slice, grate or chip the potatoes
5. Dry in direct sun on a raised platform
6. Turn the sweet potatoes frequently to facilitate drying
7. Pack in a container with a tightly fitting lid

NOTE: The dried sweet potatoes can be pounded or milled into flour which could be used for preparing complementary foods (porridge) and snacks such as cakes, fritters and scones.

Preservation of Sweet Potato Leaves (Kalembula)

1. Put enough water in a big pot and let boil
2. Put the vegetable in a sack and dip the vegetable in the boiling water for 1 minute
3. Drain
4. Dry the vegetable under a shade on a raised platform or solar drier

Method 2:

1. Pluck tender leaves
2. Sort, wash and drain
3. Spread vegetable on the reed mat on a raised platform to dry under a shade
4. Turn the leaves frequently to facilitate drying
5. Store the dried vegetable in a clean container with a well-fitting lid

Preservation of Pumpkin Leaves (Chibwabwa)

Method 1: Sun drying

1. Harvest tender pumpkin leaves
2. Sort, wash and drain out the water
3. Remove the strings
4. Sun-dry the leaves whole, on a clean reed mat on a raised platform under a shade.
5. Turn the leaves frequently to facilitate drying
6. When dry store in a clean container with a well-fitting lid

NOTE: After washing, the leaves can also be cut into bigger pieces and dried under a shade or in a solar drier.

Method 2: Par boiling

1. Pluck tender pumpkin leaves
2. Sort, wash and drain out the water
3. Remove the strings
4. Cut in bigger pieces
5. Boil enough water in a pot and add salt.
6. Add vegetable in the pot to cook
7. Turn after 5 minutes and cook until not very tender.
8. Spread on the reed mat on a raised platform to dry under a shade
9. Turn the leaves frequently to facilitate drying
10. Store in a clean container with a well-fitting lid

Preservation of Pumpkins

1. Pick fully matured pumpkins
 2. Wash and cut the pumpkin in thin slices
 3. Wash the slices and sun-dry on a raised platform
 4. Pack and store in sacks or air tight containers
- NOTE:** The pumpkin slices can be soaked or sprinkled with lemon juice to add taste and prolong the shelf life. They can be cooked as a snack or added to other foods such as fish and meat as a vegetable.

Preservation of Cucumbers- Amankolobwe, Kasongo

1. Pick mature and ripe fruits
2. Cut and remove the seeds
3. Wash the cut fruits in clean water

4. Place on a clean surface to dry under a shade on a raised platform
5. Turn the cucumbers frequently to facilitate drying
6. When dry store in a clean container with a tight fitting lid

NOTE: The dried local cucumbers can be cooked with groundnuts or added to other foods as a vegetable.

Preservation of Preservation of Rape, Chinese Cabbage and Cabbage

Method 1: Sun drying

1. Pluck mature and tender leaves
2. Wash and cut into thin slices
3. Dry on a raised platform under shade to retain nutrients and colour
4. Turn the vegetables frequently to facilitate drying
5. Pack in a container with a tight fitting lid or sack and store.

NOTE: Reconstitute the vegetables by cooking with groundnuts or a little oil, tomato and onion.

Method 2: Blanching

1. Pluck tender leaves
2. Wash and cut
3. Boil water and add salt
4. Put the cut vegetables into a sack and dip into the boiling water for 3 minutes

Method 3: Blanching Alternative

1. Place the cut vegetables in a basket or colander

2. Pour the boiling water onto the vegetables
3. Leave for 5 minutes turning until the vegetables are soft and the water is well distributed
4. Drain the vegetables in the basket or colander
5. Dry on a raised platform under a shade
6. Turn the vegetables frequently to facilitate drying
7. Pack in a container with a tight fitting lid and store.

Orange and Lemon Juice

NOTE: To preserve orange and lemon juice requires a hand juice extractor and a mesh strainer

1. Wash, peel and cut oranges (or lemons) into quarters.
2. Wash bottles to be used for storage separately and drain.
3. Separate juice from the skin and pips using the extractor.
4. Filter through a fine mesh strainer.
5. Add 0.5 kg sugar to 3-5 litres of water.
6. Bring to water and sugar to boil.
7. Add the filtered juice and boil again.

Removal oil through skimming.

8. Fill and cap each bottle while the juice is still hot.
9. Sterilize for 10 minutes (bottles should be covered in a pot with boiling water).
10. Cool, wash the bottles and label them.
11. Store in a cool dry place, and juice has a shelf life of 12 months.

Preservation of Lemons: Lemonade

1. Pick 4 ripe lemons
2. Cut into halves and squeeze out the juice
3. Boil enough water and let it cool
4. Add water to the juice bit by bit until enough to give a good taste
5. Add sugar to taste
6. This drink is a good source of vitamin C and can be served to all members of the family.

Preservation of Intungulu Juice

1. Pick the wild fruits (intungulu), sort and wash
2. Split the fruits into halves and put in a pot
3. Add enough water to submerge the fruits
4. Boil the fruits for 20 minutes
5. Sieve and add sugar to taste
6. Put in a sterilised container and store in a cool place

Preservation of Guava Juice

1. Pick ripe guavas
2. Wash
3. Cut off the apex and peel
4. Cut in small pieces
5. Pound in a clean mortar until the pulp gets fine
6. Add boiled cool water (1 part water to 2 parts pulp)
7. Mix well
8. Sieve

9. Add 2 tablespoons of lemon juice and sugar to taste
10. Store in plastic containers or bottles
11. Can stay up to 5 days if unrefrigerated

Alternatively: After cutting the fruit, boil until the pulp becomes soft, mash and sieve. Add sugar and lemon juice to taste.

Preservation of Mango Jam

1. Pick ripe firm mangoes
2. Wash, peel and cut into small pieces
3. Put in cooking pot and add water (enough water)
4. Cook till tender
5. Drain and store the excess water
6. Mash and sieve (to remove fibres)
7. Measure the paste 2 parts to 1 part sugar
8. Add ½ cup lemon juice
9. Put in a pot add 2 cups of the excess water and cook until the jam sets (jam has set when it does not drop from cooking stick)
10. Cool and store in clean container

This method can also be used to make jam from pumpkins and guavas. The jam can be added to porridge for children as a source of vitamins and minerals.

Preservation of Mango Slices

1. Pick ripe but firm mangoes
2. Sort, wash and peel

3. Dip in lemon juice or ensure pieces are covered with the juice
4. Slice thinly and place on a raised drying rack and dry in a shade
5. Turn frequently to facilitate drying

Preservation of Bananas

1. Pick ripe but firm bananas
2. Sort, wash and peel
3. Cut into small slices
4. Dip into lemon juice or ensure that the lemon juice is evenly distributed on the banana slices
5. Dry in a solar dryer
6. Turn the bananas frequently to facilitate drying
7. Remove the banana slices from the dryer when crispy
8. Pack and store in an air tight container
9. The bananas can be served as a snack to all members of the family.

Preservation of Pawpaw Jam

1. Pick ripe pawpaws and wash
2. Peel and cut into small pieces
3. Mash into a pulp and measure using a cup
4. Add sugar to the pulp (2 parts of pulp to 1 part of sugar)
5. Bring to boil stirring continuously until all sugar dissolves
6. Add 2 tablespoons of lemon juice

7. When set the jam will slide slowly from the cooking stick
8. Pour into sterilized bottles and store in a cool place
NOTE: The pawpaw mash can be used as a complementary food for children.

Preservation of Caterpillars

1. Collect fresh edible caterpillars
2. Clean the caterpillars by squeezing out the intestines, wash them and put in a clean pot.
3. Add enough water
4. Addition of salt is optional
5. Boil until very cooked
6. Spread on the reed mat to dry on a raised platform
7. Turn the caterpillars frequently to facilitate drying
8. When dry, store in a clean container with a tight fitting lid.

Preservation of Mushrooms

Method 1: Drying

1. Gather the mushrooms (remove the soiled roots to avoid contamination)
2. Sort to remove rotten ones and dirt.
3. Break mushrooms in small pieces
4. Spread on a clean surface to dry
5. Turn the mushrooms frequently to facilitate drying
6. When dry, store in a clean container with a tight fitting lid

NOTE: Mushrooms should not be crispy when dry but must be slightly flexible

Method 2: Cooked

1. Place the cleaned and broken mushrooms in a pot and cook
2. Addition of salt is optional
3. When cooked, spread on the reed mat to dry on a raised platform
4. Turn the mushrooms frequently to facilitate drying
5. Store in a clean container with a tight fitting lid.

C.2.7 Legumes Processing, Preservation and Use

Abstracted, adapted and reformatted from “Food Processing and Utilisation Training Manual for Field Workers in Zambia”, Chitundu M. and Mukumbuta S., FAO with support from FAO and PAM. Pages 43-57.

Food legumes are edible seeds of cultivated leguminous plants. They are important sources of plant proteins while the common staple foods such as maize, rice, sorghum, millet, cassava and Irish potatoes are sources of starch and carbohydrates. In addition to protein, legumes also provide carbohydrates and some minerals and vitamins. Efficient utilization of legumes depends upon appropriate preparation processes in order to make them acceptable and digestible foods.

C.2.7.1 Plants as Sources of Protein

Seventy percent of the world protein consumption comes from plants and 30 % comes from animals. Different plant sources have varying protein content (check in the *Zambian Food Composition Tables*). However the table below (*Plant Sources of Protein*) gives an example of some foods.

Plant sources of protein		
Food	Energy (Cal)	Protein (g)
Maize flour (breakfast)	354	7.0
Maize flour (roller)	363	7.5
Millet flour	339	6.4
Sorghum flour	343	9.9
Cowpea dried	346	22.0
Beans dried	315	18.4
Groundnuts	502	27.1
Cassava flour	342	1.5
Sweet potato - pale raw	114	1.5

C.2.7.2 Food Legume Consumption in Zambia

Beans and groundnuts are the widely consumed food

legumes in Zambia. Beans are mainly eaten whole as relish at least 3-4 times a week by many families. Groundnuts are eaten mainly as a snack or as a sauce incorporated into many dishes or relishes.

Soya bean was grown for many years as a commercial crop for oil extraction and stock feed in Zambia. A very good marketing system was put in place in the late 1970s and 1980 under LINTCO such that farmers had a direct market for their produce. However, after LINTCO was liquidated, the production of soya beans also declined. Nonetheless, through promotions by the Food Legume Team, the desire by small scale farmers to grow soya beans has been stimulated and many people have come to appreciate the importance of soya beans in the diet.

Soya beans have a higher protein (35-40%) and fat content (20%) compared with other food legumes with typical compositions of 18-25% protein, and 1.5% fat.

Soya flour and other soya food products are produced more at a commercial level in Zambia. They include Infant weaning food, infant breakfast porridge and high energy protein supplement (HEPS). These are widely used as weaning foods for children in Zambia except for HEPS which has been used to rehabilitate malnourished children and mothers in Zambian hospitals and clinics.

C.2.7.3 Grinding Roasted Groundnuts into Peanut Butter

Peanut butter machines that are manually operated or motor and engine driven are available on the market. At the moment, the machines are imported and are stocked by SAMS and Africare which can assist in procuring the machines.

When processing groundnuts into peanut butter, the following important points must be remembered:

- *The groundnuts must be dry (8.5% moisture content), and must be free of aflatoxin.*
- *The clean-shelled nuts must be roasted slowly and evenly on low heat. Care must be taken to avoid burning the nuts.*
- *After roasting, cool and remove the skin to reduce the fibre content.*
- *Add salt at 1 teaspoon per kg of groundnuts. The salt is added on the second run when using the manual peanut butter machine. The latest model produces peanut butter in one run. Salt is added after filling the hopper.*

C.2.7.4 Cowpea and Soya Bean Dehulling

Dehulling is the removal of the seed coat from the grain. Dehulling improves the appearance, texture, palatability and digestibility of the legumes and reduces the cooking time.

Wet Cold Method: (cowpea, beans, mung bean)

1. Soak the legume for 6-12 hours
2. Agitate the beans between the fingers
3. Put the dehulled legumes in a bucket and add plenty of water. The seed coat will float on top while the cotyledons (dehulled legume) will sink to the bottom. Pour off the water to remove the seed coats. Repeat the process until all the seed coats are removed.

Dry Hot Method: (cowpea, beans, mung bean)

1. Select good clean beans
2. Roast over low heat in small quantities for the recommended time
3. Cool and dehull

C.2.7.5 Milling of Grain Legumes

Milling is the grinding of grain legumes into a meal or flour. Legume meal flour is used for many purposes. Pounded groundnuts are widely used as stews with vegetables and meat dishes. Soya flour mixed with mealie meal is a good food to prepare at home and is also used industrially in the formulation of weaning blends such as high protein supplements {HEPS}. Other legume flours can also be used for similar purposes.

Legume flours such as soya bean and cowpea can be added to wheat flour to increase the protein value of the baked products such as bread and biscuits.

Preparation of Raw Groundnut Meal

Groundnut flour may be prepared from raw or roasted groundnuts but roasting enhances the flavour.

1. Use clean good quality shelled groundnuts. Throw away all mouldy nuts.
2. Pound the nuts lightly in a mortar to loosen the skin
3. Remove the skin by winnowing
4. In small amounts, pound lightly until fine meal forms.
5. Separate the fine meal by sieving
6. Store in a clean air tight container

NOTE: Caution: Due to the high fat content, groundnuts may become oily and form a paste. To prevent this, add small quantities of mealie meal while pounding.

Roasting

1. Sprinkle water over the groundnuts to aid the removal of the skin after roasting
2. Roast in an oven or open fire until the desired brown colour is achieved.
3. Allow the nuts to cool before removing the skin.
4. Remove the skin by rubbing either between hands or on a mat
5. Winnow
6. In small amounts, pound lightly until fine meal forms.

7. Separate the fine meal by sieving
8. Store in a clean air tight container

Cowpea or Bean Flour

1. Remove all dirt, foreign materials and poor grain.
2. Roast for 15 minutes, making sure the heat is well distributed
3. Dehull by pounding lightly and gently in a mortar
4. Winnow
5. Grind using a hammer mill or a pestle and mortar
6. Sieve to obtain fine particles. If a mortar is used, repeat the process of pounding and sieving until enough quantity is obtained
7. Store in a clean dry container with a lid or polythene bag.

Soya Beans

1. Cook the beans as indicated above
2. Dehull
3. Place the cooked beans on a mat to dry
4. Grind the dry cooked soya beans in a mortar or take to a hammer mill.
5. Sieve the ground beans to produce a fine flour
6. Store the soya flour in an air tight container.
NOTE: See also Part C Section 387-427 on Recipes for nutritious Legume Recipes from this source.

Special Treatment of Soya Beans to Avoid Off-Flavour

Soya bean cells contain an enzyme called Lipoxygenase that can cause off-flavours. The enzyme produces the off-flavour only when it comes in contact with the fat in the soya bean cells in the presence of cold water. However, this enzyme can easily be inactivated before the off-flavour is produced. In undamaged dry soya beans, the sites of the enzyme and fat are separated within the cell tissue. Thus, the off-flavour is not present in sound, dry soya bean seeds. It is generated by improper handling and preparation procedures.

Damaging the cell tissue by pounding or grinding exposes the sites of the enzyme and fats. However, as long as the tissue remains dry, the off-flavour is not produced. The addition of cold water to the damaged tissues causes an instant reaction between the enzyme and the fats that result in a strong bean odour and bitter flavour. Once the off-flavour has developed, it cannot be eliminated.

The wet heat treatment inactivates the enzyme. The enzyme is inactivated within 45 minutes. If dehulled, dry soya beans are dropped into boiling water, the enzyme is inactivated within 10 minutes. If soya bean flour is dropped into boiling water the enzyme is inactivated within 5 minutes.

An alkaline medium, such as sodium bicarbonate (baking soda), causes a more rapid destruction. Heat also destroys several chemical components of soya beans known as anti-nutritional factors. Trypsin Inhibitor (TI) is the most important anti-nutritional factor. When the TI is destroyed, all the other anti-nutritional factors are also eliminated.

C.2.8 Urban Agriculture

Abstracted, adapted and reformatted from “The Urban Producer’s Resource Book: A Practical Guide for Working with Low Income Urban and Peri-Urban Producers Organisations”, SPORE, February-March 2012 | 57 | 15, <http://spore.cta.int>

Tyres, old plastic pots, and sacks rigged up can be used to grow vegetables. These are just some of the techniques being used by a new generation of urban farmers, who are developing inventive ways to make the most of limited space to produce food. Jennifer Daley lives on the out-skirts of the densely populated town of Mandeville in Jamaica. With no access to agricultural land, she uses wheelbarrows and just about anything that can contain soil to grow her crops. Sheila Hope-Harewood farms in a suburban area of the parish of St Michael in what is becoming the newest urban centre in Barbados. She has a drip irrigation system and grows guava, lemon, pomegranate, ackee, sugar apple, mango and banana, as well as a variety of vegetables that she sells at a stall in the local market.

Other African, Caribbean and Pacific (ACP) farmers are producing livestock in urban settings. Husband and wife John and Betty Msowoya have set up several small fishponds on the out- skirts of Mzuzu in Malawi. They also keep a few pigs and use the manure to fertilise their ponds and promote the growth of the fish that they supply to city markets. In Nairobi, Kenya, a number of people who lost their jobs as a result of layoffs have turned to urban

chicken farming, making an average of €6 per bird and earning additional income from eggs.

For decades, poverty, food insecurity and malnutrition were viewed as rural problems. But with the populations of many ACP countries becoming more urban, poverty and poor nutrition are emerging as growing challenges for city dwellers. More than half the world's population now lives in urban areas, and 3 billion more city dwellers are expected by 2050. A recent World Bank and IMF report showed that the growth in urban poverty is now rapidly outstripping that of rural poverty, with the urban poor particularly vulnerable to food price rises since food accounts for 60-70% of their income.

Urban agriculture (UA) offers some solutions, ensuring supplies of fresh vegetables and other nutritious food to urban dwellers where poor roads and weak supply chains make it difficult to transport highly perishable produce from rural areas. It has been estimated that some 200 million people are engaged in urban agriculture and related enterprises.

For the poorest urban dwellers, the share of income derived from UA often exceeds 50%. UA, which includes peri-urban farming in areas close to cities, may take place at households or at plots some distance away, in parks, along roads, streams and railways and in the grounds of schools and hospitals. It can involve the cultivation of food crops, rearing animals including poultry, goats, sheep, cattle, pigs, guinea pigs, grass cutters and fish and producing non-food

products such as medicinal plants. It can also encompass a range of other services such as processing, packaging, compost and animal health services.

In central Kigali (Rwanda), residents are cultivating land to improve food security.

FAO estimates that 130 million urban residents in Africa alone engage in agriculture, mainly horticulture, to provide food for their families or to earn income from sales. Advantages include low start-up costs, short production cycles and high yield per unit of time, land and water. UA can be an effective coping strategy when times are hard. In the slum area of Kamae, Kenya, families have been allocated small landholdings by the local administration and given training in growing crops and rearing small livestock.

In Havana, the capital of Cuba, urban agriculture developed after imports and exports collapsed following the disintegration of the Soviet Union. With no access to oil, tractors, fertilisers, pesticides or other inputs, urban Cubans turned to organic farming to feed their families. Today, more than 26,000 gardens cover 2,439 ha in Havana and produce 25,000 tonnes of food annually. In Mozambique and Sierra Leone, urban farming developed as a way of feeding the influx of refugees who flocked to the cities during civil wars. In both countries, it continues to be an important source of food, income and employment and has spurred an entire value chain, including processing, packaging, transport and retailing.

C.2.8.1 Micro-Gardens

There are many valuable ways of making the most of scarce space in densely populated urban areas. Systems may include roof gardens, sacks on balconies, keeping chickens and small livestock on waste plots, backyards in Caribbean and Pacific islands and simple hydroponic micro-gardens in slum areas. UA is often carried out by women, though they may have greater difficulties in accessing services such as credit, extension and training. A micro-gardening project in Dakar has helped more than 4,000 people, mainly women, with improved nutrition and incomes.

City farming improves access of the urban poor to fresh food by lowering costs for transport, cold storage and intermediaries in the value chain. The price differential between producer and consumer may be 1:10 in rural agriculture. But it falls to 1:2 or 1:3 in urban agriculture. UA can also complement rural production during the dry



or rainy periods, helping to stabilise markets. And it can generate other income earning opportunities. For example, small livestock and poultry keeping produce valuable fertiliser, which can be sold for vegetable production, since good fertiliser is at a premium when space is limited.

Recent innovations in UA technologies promote space and waste management. Examples are gardens that make use of recycled sacks or biodegradable cement bags and rooftop gardens that harvest and treat household waste water. In Senegal, nearly half of all fruit and vegetables consumed in cities are grown in and around urban areas and rooftop gardens are a common sight in Dakar. In 2008, urban agriculture generated revenue in Senegal of around US\$400 million (€300 million). Increasing numbers of ACP urban farmers are grouping themselves into cooperatives. In Zimbabwe, a Bulawayo urban farmer's cooperative of 200 members known as the Poultry, Mushroom and Rabbit Group is giving its members new skills as entrepreneurs through training in business management skills.

In many urban and peri-urban African centres, such as Cape Town, Dar es Salaam, Kampala and Lagos, producers are moving into aquaculture, supplying fish that include tilapia and African catfish. With increasing urban demand for fresh fish, the returns are good, with most producers selling their catches at the side of ponds or at urban markets. Aquaponics, which combines aquaculture with hydroponics, makes the most of small spaces and is starting to be used in various ACP urban and peri-urban settings, albeit with external support for technology and start-up costs.

C.2.8.2 Micro-Gardens and Backyard Gardens: Urban Agriculture and City Farmers

There are many valuable ways of making the most of space in densely populated urban areas. Systems may include roof gardens, sacks on balconies, keeping chickens and small livestock on waste plots, backyards in the slums and swamps.

Benefits

City farming improves access of the poor to fresh food by lowering costs for transport, cold storage and intermediaries in the value chain.



Advantages of Urban Agriculture (UA)

- *Low start-up capital costs*
- *Short production cycles*
- *High yield per unit of time, land and water.*
- *It is an important source of food*
- *It is a source of income and employment.*



Vertical Gardens and Mini Green Houses

Two simple technologies are helping urban dwellers to grow fresh produce in very small spaces. The result is more varied diets for families and extra income from the sale of surplus.



Sack gardening technique also known as vertical gardening is one of the methods used in Nairobi-Kenya. This urban farming helps to improve diets through hygienic agricultural practices in limited spaces.

The simple technique system consists of a 90 kg sack filled with soil. Up to 50 plants can be grown in this small space, producing vegetables for sale and for consumption. This can be used as an income generating activity. For instance sack gardening is helping students in a certain school to pay for their fees by the school buying produce from them.

C.3 Health Services to Support the 1st 1000 MCDs



In the recent past following the coming to power of the Patriotic Front Government in 2011, the health delivery system was assigned to primarily two Ministries namely; the traditional Ministry of Health and the recently renamed (2012) Ministry of Community Development Mother and Child Health.

These arrangements were meant to ensure that health services are provided as close to the family as possible. This is being accomplished by strengthening the delivery of community focused programmes to be delivered right in the communities and not necessarily from health facilities.

As such, the strategic plans of the two ministries have respective vision and mission statements that encompass maternal and child health issues.

C.3.1 Ministry of Health: Mission, Vision, Overall Goal and Key Principles

Mission Statement: To provide equitable access to cost effective quality health services as close to the family as possible.

Vision: A nation of healthy and productive people

Overall Goal: To improve the health status of people in Zambia in order to contribute to socio-economic development

Key Principles: A Primary health care (PHC) approach; with equity of access; affordability; cost effectiveness; accountability; partnerships; decentralization and leadership; a clean, caring and competent health environment.

C.3.2 Ministry of Community Development, Mother and Child Health: Mission, Vision, and Values

The strategic plan for MCDMCH was revised in early 2013 as this document was written, making the statements on the mission, vision and objectives provisional at the time the FWRG was written, and they may have changed as they were further refined. The MCDMCH mission and vision are provided here as they appeared in November 2012 Draft of the Ministry's documents.

Mission Statement: To effectively and efficiently facilitate the provision of equitable social protection and quality primary health care services to communities in order to contribute to sustainable development.

Vision: Pioneers in the provision of social protection and primary health care.

Values: The Ministry in the provision of social protection and primary health care shall uphold integrity, transparency, respect of clients, confidentiality, impartiality, non-discrimination and commitment options.

Objectives Pertaining to Mother and Child Health: To provide quality maternal and child health services in order to reduce maternal and child mortality. The strategies for this are:

- *Mobilize and sensitize communities on Maternal, New-born and Child Health services;*
- *Scale up the scope and expand the coverage of reproductive health services;*
- *Scale up coverage of the expanded programme on immunisation care for the sick child and emergency triage assessment and treatment;*
- *Strengthen the implementation of Integrated Management of Child Illness;*
- *Scale up Infant and Young Child Feeding services;*
- *To provide preventive and curative health services in order to reduce the high incidence and prevalence*

- of diseases. The strategies for this objective are:*
- o Develop and implement a Behavioural Change Communication mechanism;*
 - o Strengthen Community health services;*
 - o Strengthen the preventive health care services;*
 - o Strengthen and manage curative services for communicable and non-communicable diseases;*
 - o Strengthen the mechanism for the supply of health commodities;*

C.3.3 Health Care and Promotion

Abstracted, adapted and reformatted from “Community Health Care Integrated Handbook: A Reference Manual for Community Health Workers”, Fourth Edition, Ministry of Health/NFNC, 2009 with support from GRZ, USAID, HSSP, Care International, Christian Children Fund, JICA, Lusaka DHMT, Lusaka PHO, NFNC, NMCC, Plan International, UNICEF and WHO. Pages 96-99.

Health promotion is an activity that all Field workers from all sectors can participate in. Health promotion is a process of empowering people to increase control over and to improve their health. Health promotion emphasizes community actions to change behaviour; it aims at mass behaviour change. The principles of health promotion include the following:

- *Involves whole population rather than the at risk.*
- *Directs actions on determinants of health (Income,*

education, food supply, water supply, sanitation conditions, etc.).

- *Combined approach (method) and complementary, e.g. communication and education*
- *Promotes public participation to create a sense of ownership.*
- *Enables Community Health Workers (CHWs) to have an important role in the health and social fields.*



C.3.3.1 Health Promotion at Community Level

Health promotion at community level should enhance implementation of Community IMCI. Community IMCI is defined as an integrated child care approach that aims at improving key family and community practices that are likely to have the greatest impact on child survival, growth and development.

The Key Family Practices for promotion of growth and development are grouped into four areas:

1. Promotion of growth and development.
2. Disease prevention.
3. Appropriate care at home.
4. Health care-seeking outside the home.

A. Promotion of Growth and Development

- *Exclusive breastfeeding of children up to 6 months.*
- *Complementary feeding of children from 6 months while continuing breastfeeding up to 2 years or longer.*
- *Micronutrients supplied to children either in their diet or through supplementation, e.g. vitamin A and iron.*
- *Promotion of mental and social development by responding to a child's needs for care and playing, talking and providing a stimulating environment.*

B. Disease Prevention

- *Dispose of all faeces safely. Wash hands after defecation, before preparing meals and before feeding children.*
- *Protect Children in malaria endemic areas by ensuring that they sleep under ITNs.*
- *Provide appropriate care for HIV/AIDS affected people, especially orphans, and take action to prevent further HIV infections.*

C. Appropriate Care at Home

- *Continue to feed and offer more fluids, including breast milk to children when they are sick.*
- *Give sick children appropriate home treatment for infection.*
- *Protect children from injury and accident and provide treatment when necessary.*
- *Prevent child abuse and neglect, and take action when it does occur.*
- *Involve fathers in the care of the family.*

D. Health Care-Seeking Outside the Home

- *Recognise when sick children need treatment outside the home and seek care from appropriate providers.*
- *Take children to complete a full course of immunisation before their first birthday.*
- *Follow the Health Provider's advice on treatment, follow-up and referral.*
- *Ensure that every pregnant woman has adequate antenatal care, and seeks care at the time of delivery and afterwards.*

C.3.3.2 Documented Evidence on the Impact of Key Family Practices

- *Improving breastfeeding could reduce diarrhoea mortality by 24-27% and morbidity by 8-20% in*

infants aged 0-5 months.

- *Improving complementary feeding can prevent more than 10% of deaths due to diarrhoea and acute respiratory infections (ARI), while malnutrition can be reduced by 20%.*
- *Improved sanitation could reduce diarrhoea morbidity by 26% and overall mortality by 55%.*
- *Vitamin A supplementation can reduce mortality by 23% among children six months to five years. It also reduces severe morbidity.*
- *Hand washing interventions can reduce diarrhoea incidence by 35%.*
- *Appropriate care-seeking reduces pneumonia deaths by 20%.*
- *Home treatment of diarrhoea prevents 1.2 million deaths per year globally.*
- *Widespread use of ITNs can reduce childhood mortality by 17%.*

C.3.3.3 Six Key Priority Practices for Child Survival, Growth and Development

Health workers are expected to educate community members on the following six (6) key priority practices for child survival, growth and development in their communities:

- *Breastfeeding exclusively up to 6 months (taking into account recommendations on HIV and unfaithful feeding)*
- *Starting at six months of age, provide*

complementary feeds, while continuing to breastfeed up to 2 years or longer

- *Providing under-five children with vitamin A, deworming tablets and monitoring of growth*
- *Ensuring that all children complete their full course of immunisation as scheduled before reaching one year of age.*
- *Ensuring that all under-five children and pregnant women, and PLWA with sleep under an insecticide treated net every night.*

C.3.4 Common Preventable Childhood Diseases in Communities

Community Health Workers are expected to assist in preventing common childhood diseases by promoting immunisations and other programmes in their communities. In order to advise community members on the immunisation schedule, to identify defaulters and assist with outreach immunisations, it is important that CHWs are able to recognize immunisable diseases and take appropriate action.

C.3.4.1 Immunisable Diseases: Immunisations for Pregnant Women and Infants

*Abstracted, adapted and reformatted from
“Community Health Care Integrated Handbook: A
Reference Manual for Community Health Workers”,
Fourth Edition, Ministry of Health/NFNC, 2009 with
support from GRZ, USAID, HSSP, Care International,
Christian Children Fund, JICA, Lusaka DHMT, Lusaka
PHO, NFNC, NMCC, Plan International, UNICEF and
WHO. Pages 49-52 and 53 for mother’s TT, and 115-123
for Malaria.*

Immunisation is one of the most cost effective and important public health interventions. Immunisation ensures that children and mothers are protected from specific infections.

To protect the unborn baby against neonatal tetanus young women and often pregnant women should receive vaccinations with tetanus toxoid (TT).

Children should be immunised against all seven target diseases: measles, polio, diphtheria, whooping cough (also called pertussis), tetanus, tuberculosis and diarrhoea.

Zambia is in the process of introducing new vaccines against Hepatitis B (HepB) and *Haemophilus influenzae* (Hib) respectively.

Outreach activities can improve immunisation coverage.

Key Messages about Immunisation

- *Target age group for immunisation is 0-59 months for infants and young children and pregnant and young women for TT.*
- *Diseases like measles, tetanus, and polio are preventable through immunisation.*
- *The child is only fully protected when the full immunisation course is complete.*
- *Participation of community volunteers and Neighbourhood Health Committees (NHCs in defaulter tracing and outreach activities is very important.*
- *Community volunteers need to know when and where immunisations are available.*
- *Important Information to be given to caregivers include:*
 - *Date, place, and time of the next immunisation*
 - *Information on immunisation schedule*

Recommended Vaccination Schedule for Childhood Immunisation			
Vaccine	Minimum Age at First Dose	Number of Doses	Minimum Interval between Doses
BCG	Birth	1	—
Polio (OPV-0)	Birth to 13 days	1	—
Polio (OPV-1, 2, 3)	6 weeks	3	4 weeks
DPT (DPT-1, 2, 3) + HepB and Hib*DPT booster at 18 months	6 weeks	3	4 weeks
Measles + OPV-4 if OPV-0 was missed	9 months	1	—

Immunisation Campaigns

In certain circumstances, supplemental immunisation activities (SIA) are conducted in order to:

- *Target diseases for which there is a global mandate for elimination or eradication*

- *Counter actual or suspected large disease outbreaks.*
- *Reach those children missed out of the routine regular immunisations.*

Successful Immunisation Campaigns

Additional steps at the health clinic to ensure a successful immunisation campaign include:

- *Checking the immunisation status of children on all cards whenever they come to the health facility*
- *Using every opportunity to immunise children (if eligible) whenever they come to the health centre for an illness or another reason*

There are no contraindications to immunising a sick child if the child is well enough to go home. The risk of delaying an immunisation because of a current illness is that the child may not return and the opportunity is lost. Seriously ill children should be referred to the hospital. Missed immunisation opportunities are a major cause of delay in completing the schedule.

NOTE:

- *Multiple vaccines can be given on the same visit*
- *New vaccines (HepB and Hib) will be administered using the same schedule as for DPT 1, 2 and 3, and will use the same reporting*
- *If measles vaccine has not already be given, it should be administered whenever a child is admitted to the hospital to prevent nosocomial measles*

transmission

- *Mass measles immunisation campaigns are planned for after the 9-14 year age group; for these campaigns to be most effective, coverage of over 90% is needed.*

C.3.4.2 Malaria

Malaria is the most common cause of illness and death among children under 5 years of age in Zambia. Most of the visits and admissions to health facilities are due to malaria. Malaria can be prevented and cured.

Malaria is a disease people get when a mosquito carrying the malaria parasite bites them and injects the parasite into their body. Not all mosquitoes carry malaria. The mosquitoes that make noise do not carry malaria. Malaria mosquitoes do not make noise. The types of mosquitoes that can carry malaria bite late at night, usually from 22:00 hours to 04:00 hours.

Key Practices to Prevent and Treat Malaria

- *Use insecticide treated nets*
- *Allow houses to be sprayed*
- *Use RDTs to test for malaria*
- *Use Coartem to treat simple malaria*
- *Finish the malaria treatment course*



- *Refer all severe cases to the health centre*
- *Teach others about malaria*

Transmission of Malara: How malaria is passed from person to person?

A person suffers from malaria after a mosquito that is carrying malaria bites them. There are five steps that you need to know about how malaria is carried from one person to another. These are:

Step One: A malaria mosquito lands on a person who is already sick with malaria. The person who is sick with malaria has malaria parasites in their blood. A parasite is a small kind of germ.

Step Two: The malaria mosquito bites the sick person. When it does, it sucks the person's blood and parasites into its own body.

Step Three: The parasites grow in the mosquito for 10-14 days.

Step Four: The malaria mosquito bites a well person. At this point, the mosquito injects parasites from the sick person into the blood of the well person.

Step Five: Once in the blood, the malaria parasite multiplies. From the time of the bite, it takes about 7 to 14 days for the person to feel sick.

Six Important Facts about Mosquitoes that Carry Malaria

1. Malaria can occur throughout the year, but it is most common during the rainy season.
2. Mosquitoes come out at night and are bothersome, but not all mosquitoes transmit malaria.
3. Mosquitoes that make noise are not malaria mosquitoes. Malaria mosquitoes are silent.
4. Malaria mosquitoes come out mainly late at night (20:00 hrs) to early in the morning (02:00 hrs). Not as much in the early evening.
5. Malaria mosquitoes can fly as far as 7 km away from the community.
6. Malaria mosquitoes can breed even in small amounts of water such as a footprint in the rainy season.

People in the Community at Highest Risk

People in the community who are at highest risk of illness and death from malaria infection include:

- *Pregnant women;*
- *Children under five years of age; and*
- *People with chronic illnesses*

It is important to know who these most vulnerable people are, since they need special protection from malaria. Families and communities should take special care to ensure that these people do not get infected with malaria.

Prevention of Malaria

- *Prevention keeps people well;*
- *Prevention keeps people from dying;*
- *Prevention is less expensive than treatment; and*
- *Prevention keeps the family happy, but sickness and death make everyone sad.*



Avoid bites from Mosquito by Insecticide Treated Bednet

Protecting ourselves from mosquito bites prevents malaria. That is the only way to be sure that we will not get sick from malaria. Some ways of preventing malaria are better (more effective) than others.

Some Useful Methods of Protecting Against Mosquito Bites

- *Sleeping under insecticide treated bed nets;*
- *Wearing the right clothes; and*
- *House spraying.*

Use an Insecticide Treated Bed Net throughout the 1st 1000 Most Critical Days

The best way to prevent bites from the malaria mosquito is to sleep under an insecticide treated mosquito net every

night. Ideally, the mosquito net should be treated by dipping it in insecticide. This is the most effective way of protection against malaria mosquitoes.

The advantages of owning and using a treated net:

- *Simple and effective: It is a simple way of providing effective protection against malaria. Treated nets are especially useful in preventing malaria in infants and children. Treated nets have a big impact on reducing severe malaria disease and deaths.*
- *Long term, full protection: A treated net gives protection even if it is torn, or not tucked in properly, or a part of the sleeping person's body is touching the net. On the other hand, an untreated net provides much less protection.*
- *Treatment extends the useful life of the net even when it is torn.*
- *Mosquitoes are killed up to 12 months after treatment. Some of the nets available are pre-treated with a **longer lasting insecticide** (e.g. mama safenite) and some new treatments (e.g. the K-O Tab 1-2-3). **These provide protection for more than 12 months.***
- *Reduces mosquito population: The widespread use of treated nets helps to reduce the number of mosquitoes and transmission of malaria. Untreated nets do not reduce the population of mosquitoes.*

Safe and easy to use:

- *Everyone can use treated nets, no special training is necessary.*

- *Treatment can be learnt by anyone in the community, and can even be done by households.*
- *Unlike insecticides used in spraying campaigns, net insecticides are safe even for children, as the quantity of insecticide used is very small.*
- *Cheap and long lasting: Mosquito nets and insecticides are not very expensive to buy. If the net is carefully looked after, it can be used for five years or above.*
- *Protects from all insects: Treated nets reduce the bites of malaria mosquitoes and other nuisance biting, crawling and flying insects. This enables the family to sleep in comfort. A treated net also provides some protection to those in the household who are not sleeping under it. These benefits are not present with untreated nets.*

How to Increase Use of the Nets

The Community Health Worker must support his/her community in the hanging of the nets. This is to help with increasing use of the nets in the community.

Other Ways of Preventing Mosquito Bites

- *Repellents and covers that may be used at night are less effective than mosquito nets. Use repellent if you are sleeping outdoors late at night (such as at a funeral). Repellents are special chemicals that are used to keep mosquitoes away.*

- *Cover up all children, including babies on the back, if you are out late at night to keep mosquitoes away from their skin. It is very important that children under the age of five sleep under a net during the day or night.*



- *House spraying: This method is effective only if all houses are sprayed. Spraying an individual house will not protect the household from malaria. All houses in the neighbourhood must be sprayed.*
- *Filling local dambos: This method will also cut down on mosquito breeding, but cannot completely do away with malaria mosquitoes since they can breed in just a little water and fly very far away.*
- *Filling in or draining places where water collects and mosquitoes breed.*
- *Eliminating stagnant water where mosquitoes can grow such as clearing areas around the houses.*

Signs and Symptoms of Malaria

Malaria usually occurs as a sudden illness. Signs of simple malaria may include:

- *Fever*
- *Feeling cold (shivering)*

- *Sweating*
- *Nausea and vomiting*
- *Headache*
- *Painful joints and general body pains*
- *Children may also present with:*



Fever (feeling hot)

Profuse sweating

- *Poor appetite*
- *Restlessness*
- *Loss of interest in the surrounding*
- *Convulsions (fits)*

Severe malaria kills children very quickly. The following are the signs of severe malaria:

- *Change in behaviour (fits, fainting, sleepy all the time, the child is confused, inability to walk or crawl)*
- *Repeated vomiting*
- *Vomiting everything*
- *Not able to drink or breastfeed*
- *Passing a little urine or dark coloured urine*
- *Severe dehydration*
- *Fever above 39°C*
- *Anaemia (not having enough blood)*



Nausea and Vomiting
 Convulsions

- *Yellow eyes*

Refer the child who has these signs urgently to the health facility.

Diagnosis of Malaria

It is important to test all patients suspected of malaria with a diagnostic test. There are two ways to test for malaria. These are the blood slide and the rapid diagnostic test (RDT). At community level, the test that is used is the rapid diagnostic test. An RDT is a simple and fast way to test for malaria. It uses a small blood drop collected from the patient. Use RDT ALWAYS when you suspect malaria.

Only those with a positive RDT test will be treated for malaria.

- *Children less than 5 kg or younger than 2 months must be urgently referred to the health centre.*
- *Children who weigh 5-14 kg and are between*
- *2 months and 5 years of age who have simple malaria (RDT positive) and no danger signs are treated with Coartem.*
- *The child should take the first dose in the presence of the CHW. The Coartem chart below gives you the correct doses.*
- *Although there are other drugs for treatment of*

malaria, Coartem is the only malaria drug that is used at community level by Community Health Workers

- *Coartem is presented in various pack sizes by age or weight*
- *It is important to finish the treatment course, even if the patient feels better*
- *Do not give Coartem to children less than 5 kg weight or less 2 months.*
- *The CHW should teach the caretaker how to give the rest of the Coartem at home.*
- *If the child vomits within 30 minutes of taking the Coartem, the caretaker should give another dose and return to the CHW for extra doses.*
- *Tell the caretaker to return immediately if:*
 - o *The child vomits within 1 hour of taking Coartem*
 - o *The child is unable to drink or breastfeed*
 - o *Becomes more sick*
 - o *Fever is still there 2 days after taking Coartem*
- *Refer the child urgently to the nearest health facility if the child had fever and a positive RDT and within 14 days of treatment returns with fever or any other condition*

Coartem dosage schedule for children between 2 months (5 kg) and 5 years (14 kg)				
Weight (kg)	Age approximate	Number tablets, per dose; give twice daily	(A + L)/dose	Total number tablets to be given over 3 days
<5	<2 months	Not recommended	N/A	N/A
5 – 14	2 months – 5 years	1 Coartem	20 mg A + 120 mg L	6

C.3.5 Vitamin A Supplementation

Abstracted and adapted from “Community Health Workers’ Integrated Care Handbook: A Reference Manual for Community Health Workers”. Fourth Edition, MoH, 2009. Pages 91-92.

Vitamin A is needed for growth and to help fight and reduce morbidity and mortality, especially in children with measles, diarrhoea, and malnutrition. It also prevents blindness and helps to maintain a healthy mucous membrane and skin. Vitamin A supplementation of young children is recommended in Zambia because of widespread vitamin A deficiency. Vitamin A supplementation is one

of the most cost effective and important public health interventions.

As well as for routine preventive supplementation, vitamin A is also administered as part of the treatment of:

- *Malnourished children*
- *Children with measles*
- *Children with persistent diarrhoea (lasting two weeks or more)*
- *Children with night blindness.*

C.3.6 Integrated Management of Acute Malnutrition (IMAM)

Abstracted, adapted and reformatted from “ Integrated Management of Acute Malnutrition,” MoH with support from UNICEF. Pages 12-15.

This subsection can be used by all community level Field workers to gain a better understanding of how acute malnutrition is identified and managed, particularly at community and health centre levels. The information provided here should provide guidance on how Field workers from all sectors can help – often by referring acutely malnourished children to trained health personnel.

Stunting – a measure of chronic malnutrition - is made much more difficult to prevent among children who go through a bout of acute malnutrition. This is made even more difficult if the acute malnutrition is not identified

early, or it persists or a child has fallen into this state more than once during infancy or the second year of life.

FWs from each sector offer various services and knowledge that can help families develop the skills, practices and resources to prevent acute malnutrition from occurring or reoccurring in vulnerable families.

FWs can use information in the FWRG and other sources to play important direct or indirect roles in preventing both chronic and acute malnutrition. Prevention of acute malnutrition and its successful management are important interventions during the 1st 1000 MCDs.

C.3.6.1 Components of Integrated Management of Acute Malnutrition (IMAM)

Children under five years of age are the most vulnerable group with a higher risk of morbidity and mortality than older children and adults. Growth failure, morbidity and mortality can be prevented through treatment of acute malnutrition in children. The IMAM approach therefore evolves itself predominantly around this age group.

What is the Integrated Management of Acute Malnutrition Approach?

- *An approach to delivering care to acutely malnourished children.*
- *It is based on two main components: community and health facilities*
- *It treats children with severe acute malnutrition*

(SAM) with complications as inpatients and the majority (80%) of cases of SAM as outpatients. In addition, it enables treatment of moderately malnourished as outpatients.

- *It is based on public health principles of increased access and coverage.*
- *It is designed to achieve a population-wide impact.*
- *It makes use of ready-to-use therapeutic food products in the outpatient setting.*
- *It is designed to be integrated in the routine activities of health care structures.*

C.3.6.2 Principles of Integrated Management of ACUTE Malnutrition (IMAM)

The IMAM programme aims to achieve the greatest possible coverage by making services accessible to the highest possible proportion of the acutely malnourished population through:

- *Decentralising care.*
- *Community involvement through sensitisation, screening and follow-up.*
- *Sector involvement through integrated referral processes and integration with Integrated Management of Childhood Illness (IMCI) and Prevention of Mother to Child Transmission (PMTCT) protocols.*
- *Timeliness*
- *Community management of acute malnutrition aims*

to find acutely malnourished children and refer them for appropriate care before they develop medical complications.

- *Trained community health service workers screen children by checking MUAC and oedema through:*
 - *Screening at health facility level or through outreach programmes.*
 - *Screening during community meetings and other outreach sessions, Child Health Week, etc.*
 - *Growth monitoring and promotion sessions at health centres (HCs) and in the community, district and provincial hospitals, Anti-Retroviral Therapy (ART) centres, etc.*
 - *Self-referral by the community.*

In health facilities health workers screen children for acute malnutrition at the Outpatient Department (OPD) and other inpatient wards. They check weight and height measurements and bilateral oedema.

C.3.6.3 IMAM Appropriate Care

Through community screening and identification, more children can be identified and treated for moderately acute malnutrition (MAM) prior to worsening malnutrition. This results in reducing the severity of cases and improving health outcomes. Management of acute malnutrition provides simple and effective outpatient care for moderately and severely malnourished children without complications who can be treated at home (through either an outpatient or supplementary programme), and

intensive clinical care for those who have severe acute malnutrition and/or complications and need inpatient treatment.

Care for as long as Needed

Any child admitted into any of the IMAM programmes must be treated until the acute malnutrition has resolved. Therefore, when children do not respond to treatment or the condition deteriorates, the Health Care Worker (HCW) should investigate all possible complications and underlying causes to address and resolve the malnutrition. Referrals between programmes must be strong to ensure proper quality of care.

Treatment components of IMAM, treatment sites and target group

Components	Treatment sites	Target group	Description
Inpatient Therapeutic Programme (ITP)	Inpatient hospital paediatric ward, Stabilisation Centre (SC)	Children with severe (or moderate) acute malnutrition without appetite and/or with medical complications	Provides inpatient care to patients with severe or (moderate) acute malnutrition with complications until the patients are stabilised and fit for outpatient treatment.
Outpatient Therapeutic Programme (OTP)	Health Posts Health centres Hospitals	Children with severe acute malnutrition with appetite and no complications.	Treats with ready-to-use therapeutic food (RUTF) and systematic medications. These are taken at home and the child attends an OTP site weekly for check-up and re-supply of RUTF. The majority (80%) of severe malnourished children can be treated in the OTP.
Supplementary Feeding Programme (SFP)	Health Posts Health centres Hospitals ART Centres	Children with moderate and mild acute malnutrition.	Where available, provides take-home rations to moderately and mildly acute malnourished children
Community mobilisation	Health facility and community level	Community and children	Sensitize and mobilize the community. Enables early case finding, referral, and follow-up of acutely malnourished children.

C.3.7 The Accelerated Measles Control Strategy for Zambia

Abstracted, adapted and reformatted from “Expanded Programme on Immunisation,” MoH with support from USAID. Pages 15, 118-119.

Measles is one of the most common and most harmful diseases for young children. Measles can lead to death. Measles also includes poor appetite, may lead to malnutrition, and contributes to stunting. ALL Field workers promoting 1st 1000 MCDs should know about measles and assist in promoting that all families complete their infant’s immunisation schedule including measles vaccination at the earliest time that this can be done.

An integrated strategy for accelerating measles control has been developed, that includes not only mass immunisation campaigns but also strengthening of routine services, case management of measles and surveillance of measles cases and outbreaks.

The strategy for accelerating measles control includes these objectives:

- *To vaccinate at least 95% of children aged 9-59 months of age regardless of prior vaccination status or disease history, during supplemental measles immunisation campaigns.*

- *To provide vitamin A supplementation to at least 90% of children aged 6-72 months during measles campaigns.*
- *To strengthen the routine immunisation programme activities in order to cover at least 90% of target children, including reaching children and families who are missed or unreachd by routine immunisation services*
- *To improve case management of children with measles through implementation of IMCI and use of high dose Vitamin A as treatment.*
- *Surveillance for measles.*

The strategies and activities for accelerating measles control include:

- *Conducting mass measles immunisation campaigns for all 9-59 month old children irrespective of immunisation status in a phased manner over several years and follow-up campaigns.*
- *Supplemental immunisation campaigns targeting at all 9-59 month old children, regardless of immunization status*
- *Supplemental immunization may initially be implemented in high density urban areas, areas with frequent outbreaks and large numbers of cases, areas with refugees or areas with very low coverage. Following the initial coverage of these high risk areas, campaigns may then be extended to all areas of the country.*

Supplemental immunisation may need to be repeated every two to three years.

Mass immunisation campaigns must be conducted in such a way that previously unreached children will be reached to reduce incidence and mortality and eventually interrupt transmission of the measles virus where routine immunization, despite relatively high coverage, was failing to prevent outbreaks from occurring.

The campaign strategy must be designed and planned in such a way that it strengthens and supports routine immunisation, rather than detracting from it or replacing it.

Why are children who have already received measles vaccine given another dose during campaigns?

In some districts in Zambia, measles vaccination coverage is 80-100% of eligible infants. However, some districts achieve much poorer coverage and therefore, an extra round of measles vaccine during a campaign is aimed at those children not reached in the routine programme as well as those who were vaccinated but not sero-converted to have a second chance to do so.

Therefore, the aim of the campaigns is to achieve very high coverage, as close to 100% as possible, in order to reduce the mass of measles susceptible children in the community below what is necessary to cause outbreaks.

The doses of measles vaccine during campaigns are considered to be extra doses as these supplement the dose children receive during routine immunisation services.

The mass immunisation against measles does not and should not replace the routine immunisation services.

C.3.8 Focused Antenatal Care (FANC)

Abstracted and adapted from “Safe Motherhood Action Group (SMAG) Training Manual Guide for Facilitators,” MoH with support from UNICEF and WHO. Pages 38-40. Full manual available from MoH.

Focused Antenatal Care (FANC) is an improved approach to the services and care of women who become pregnant. Good nutrition and care during pregnancy is one of the keys to a safe birth and to a child who has been well nourished while a foetus. This affects the child’s health, growth and development during the first two years. A pregnant woman who seeks out and receives FANC is practicing a key element of the 1st 1000 MCDs. Field workers from all sectors can support her in seeking out and obtaining FANC services and in promoting other activities and practices that better guarantee the healthy development of her child before it is born.

FANC is the care given to pregnant women from conception up to the beginning of labour. The purpose of FANC is to prepare the woman and her family for pregnancy, labour, post-delivery care, breastfeeding, and care of the newborn. The antenatal care is focused because it emphasizes the quality of visits and not the quantity. Four (4) visits

are recommended for a pregnant woman with a normal pregnancy (without complications).

Focused antenatal care includes:

- *Registration*
- *Group health promotion*
- *Taking of health history*
- *Physical examination*
- *Blood and urine tests*
- *Giving of medication and vitamins*
- *Individual counselling*

Benefits of FANC

- *Early identification of health problems in the mother and baby*
- *Giving of medicines and vitamins that can keep mother and baby healthy*
- *Advice on problems in pregnancy*
- *Advice on good nutrition during pregnancy*

Health Promotion Topics in FANC

The main role of SMAGs in FANC is to provide group education to pregnant women and their male partners. Some of the topics FANC clients and their partners need to be educated about are as follows.

- *Explain what happens at FANC visits*
- *How to create a birth plan (birth preparedness and*

- complication readiness)*
- *Nutrition during pregnancy*
 - *Immunisations during pregnancy*
 - *PMTCT*
 - *IPT and use of insecticide treated bed nets (ITNs)*
 - *Use of potentially harmful substances*
 - *Hygiene*
 - *Rest and activity*
 - *Sexual relations and safer sex*
 - *Danger signs during pregnancy and the post partum period*
 - *Early and exclusive breastfeeding and breastfeeding techniques*
 - *Replacement feeding*
 - *New-born care*
 - *Family planning*
 - *Male involvement*

Tetanus Toxoid Immunisation during Pregnancy (TT)

If a woman has not previously finished the course of Tetanus Toxoid vaccine, she should begin the vaccinations at her first FANC visit. TT is a safe vaccine that, when given

TT Vaccination during FANC	
	At first FANC visit
TT2	At least 4 weeks after TT1
TT3	At least 4 weeks after TT2
TT4	At least one year after TT3
TT5	At least one year after TT4

according to the correct schedule, protects both mother

and child against the disease.

C.3.9 Sexually Transmitted Infections (STIs); HIV AND AIDS

Abstracted, adapted and reformatted from “Community Health Workers Integrated Care Handbook: A Reference Manual for Community Health Workers” Fourth Edition, MoH, 2009. With support from UNICEF, WHO, Care International, CCF, HSSP, JICA, CHAZ, LDHMT, Lusaka PHO, NFNC, NMCC, Plan International. Pages 146-156.

C.3.9.1 What are Sexually Transmitted Infections?

Sexually transmitted Infections (STIs) are diseases that are acquired and passed on through sexual intercourse. They are spread through vaginal, anal and oral sex. Some STIs, including HIV, can be spread by other ways including razor blades in tattooing, and reusing needles and syringes. Some medical names for some common STIs include chancroid, gonorrhoea (leaking), herpes, syphilis, warts and HIV. STIs have long term damaging effects on health. They can also become painful and even cause disfiguring genital wounds. STIs seriously affect women through complications such as infertility, abortion and cervical cancer. STIs can also be transmitted from an infected pregnant mother to her baby.

Prevention and control of STIs helps prevent and control

HIV. STIs are identified by different types of signs and symptoms. They are also called by different names in different communities.

Classification of STIs

- *Sores on the genital organs*
- *Discharge from the genital organs*
- *Swellings in the groin.*

Types of Common Sexually Transmitted Infections

- *Gonorrhoea*
- *Herpes genitalis*
- *Syphilis*
- *Chancroid*
- *Chlamydia*
- *Trichomonas vaginalis*
- *Lymphogranuloma venereum*
- *Genital warts*
- *Pelvic inflammatory disease*
- *Hepatitis*
- *HIV and AIDS*

C.3.9.2 Signs and Symptoms of STI

What signs or symptoms should I look out for that may indicate an STI?

Many women do not show any outward signs until the late stage of an STI. Most STIs in women are not painful, therefore any bruise or ulcer in the genitals and mouth should be suspected to be an STI.

Common symptoms include:

- *Bumps, sores, warts or small growths near the genitals, anus or mouth.*
- *Stinging or burning when passing urine.*
- *Urinating more frequently.*
- *Swelling or redness near the genitals*
- *Fever, chills, aches and pain, yellowing of the skin.*
- *A strange discharge or smell from the vagina or penis.*
- *Vaginal bleeding other than a menstrual period.*
- *Deep vaginal pain when having sex.*
- *Pain between the hips and genitals in women.*

C.3.9.3 What Is HIV and AIDS?

HIV is a virus that can get into your body through contact with blood or body fluids of an infected person. HIV makes it difficult for the body to fight other diseases by weakening the immune system, leading to development of AIDS. The body fluids containing HIV include blood (including menstrual blood), semen, vaginal secretions and breast milk.

HIV stands for Human Immunodeficiency Virus.

When a person becomes infected with HIV, that person becomes “HIV positive” and will always be HIV positive. Over time, HIV disease infects and kills white blood cells called CD4 lymphocytes (or “T cells”) and can make the body unable to fight off certain kinds of infections and cancers.

AIDS stands for Acquired Immune Deficiency Syndrome and is caused by HIV. The names HIV and AIDS can be confusing because both terms describe the same disease. Think of AIDS as advanced HIV disease.

A person with AIDS has an immune system so weakened by HIV that the person usually becomes sick from one of several opportunistic infections or cancers such as PCP (a type of pneumonia) or KS (Kaposi sarcoma), wasting syndrome (involuntary weight loss), memory impairment, or tuberculosis.

C.3.9.4 Signs and Symptoms of HIV and AIDS

There is no way to know for sure if someone else has HIV. Many people with HIV look perfectly healthy. Other people who are sick with HIV may have symptoms that are identical to other common illnesses. You cannot tell by looking whether someone is HIV positive. The only way to know for sure is if someone tests HIV positive. It is important to consider how well you know someone and how much you trust them when talking about sex and HIV. The following signs of illness may appear in a person who has been infected with HIV/AIDS:

- *Prolonged fever*
- *Cough*
- *Breathing problems*
- *Headache*
- *Mouth problems such as white sores*
- *Difficulty in swallowing*

- *Night sweats*
- *Swollen glands*
- *Diarrhoea*
- *Weight loss*
- *Failure to thrive (in children)*
- *Rashes*
- *Vomiting*
- *Tiredness.*

Check a Child for Suspected Symptomatic HIV Infection (SSHI)

A child who has any of the following signs and symptoms must be referred to the health facility for assessment for Suspected Symptomatic HIV Infection:

- *Repeated attacks of diarrhoea*
- *Pus in the ear which lasts more than 14 days*
- *A child who is very low weight for age or has growth faltering or the caretaker says that the child has lost weight*
- *The presence of white patches in the mouth*
- *Swellings in the neck, arm pit and groin*
- *Swellings below the ears (they look like mumps) for 14 days or more*

If a child has 4 or more of the above signs then refer them to the health facility. The child has suspected symptomatic HIV infection. The child's caretaker will get counselling and will be offered an HIV test. The test will only be done if the caretaker agrees.

C.3.9.5 Transmission of HIV and STDs

One important way that a CHW can help his or her community is by providing correct information about how an individual can become infected with HIV/AIDS and STDs. By explaining how HIV and STDs are passed from one person to another the CHWs can help their community members recognize what are safe behaviours and what are risky behaviours.

HIV is spread in the following ways:

- *By having sexual intercourse without a condom with a person who is HIV positive. This is the most common way of transmission.*
- *Through mother to child transmission (MTCT). An HIV positive woman can transmit HIV through pregnancy, labour or breastfeeding.*
- *Through use of contaminated instruments. Re-usable medical tools, needles and razor blades can spread HIV if they are not properly cleaned.*
- *By transmission of infected blood or blood products.*

The Sexual Behaviours that Can Transmit HIV

- *Vaginal sex (penis in the vagina)*
- *Anal sex (penis in the anus) involving either men or women*
- *Oral sex (mouth on the penis or vagina)*

The risk of transmitting HIV is greatly reduced by using a condom.

Sexual cleansing as practiced by many communities when a spouse dies. This is a practice where a person whose husband or wife has died is required to have sexual intercourse with a relative of the dead person to get rid of the dead person's spirit. This practice should be discouraged.

Dry sex where women are encouraged to insert medicines or herbs into their vaginas to make them tight and warm. In many traditional practices this is very common among women. This should be discouraged. This makes the vagina develop sores easily during intercourse allowing for the transmission of HIV.

Mother to Child Transmission of HIV

HIV transmission from mothers to infants occurs during pregnancy, at the time of labour and delivery, and postnatally through breastfeeding. Out of 100 babies born to HIV positive mothers:

- *About 63 may not be infected with HIV.*
- *About 7 may be infected during pregnancy.*
- *About 15 may be infected during labour and delivery.*
- *About 15 may be infected through breastfeeding, if the babies breastfeed for 2 years.*

C.3.9.6 How is HIV Transmitted from a Mother to the Child?

- *During Pregnancy*
 - o *If a mother is infected with HIV, the virus can pass from a mother to her unborn baby in the womb and can be due to:*
 - o *Inconsistent condom use during pregnancy.*
 - o *Having multiple sexual partners puts the pregnant woman at risk of contracting HIV.*
 - o *Poor diet weakens her blood and immune system that may in turn expose the pregnant woman to infection.*
 - o *Poor antenatal care for early detection of sexually transmitted diseases may expose the pregnant woman to greater risk of HIV.*
- *During labour and delivery*
 - o *During this time, infection is passed on to the baby through direct contact between the mother's blood or vaginal fluids and the baby's blood due to:*
 - o *Delayed and prolonged labour may expose the mother to other infections which may give way to HIV.*
 - o *Tears and cuts of the birth canal may cause the mother's infected blood to mix with her baby's.*
 - o *Home deliveries that are risky are likely to expose the mother to tears.*
 - o *Too many vaginal examinations with unskilled birth attendants.*

- *During breastfeeding*
 - o *Infection can also be passed on to a baby through breastfeeding if the mother is HIV positive through*
 - o *breast milk.*
 - o *Poor breastfeeding methods may cause cracked nipples which may bleed during breastfeeding.*
 - o *Swollen breasts can leak infection into the breast milk Irregular feeding can cause swelling of breasts.*

C.3.9.7 Other Ways that HIV Transmission Can Occur

- *Home tattooing and body piercing*
- *Accidental needle sticks*
- *Blood transfusions*
- *Reuse of injection equipment*

HIV is NOT transmitted through:

- *Saliva, tears, sweat, faeces, or urine*
- *Hugging, kissing, massage, shaking hands*
- *Insect bites*
- *Living in the same house with someone who has HIV*
- *Sharing showers or toilets with someone with HIV*
- *Witchcraft*

C.3.9.8 Prevention of HIV/AIDS and STIs

HIV/AIDS can be prevented, but it cannot be cured. STIs can also be prevented. If discovered and treated early

enough, they may also be cured. CHWs can help their fellow community members greatly by providing them with information about how to protect themselves from HIV/AIDS and STIs. In doing so, CHWs also help the whole community, as well as society in general, because the illness and death caused by HIV/AIDS hurts not only individuals, but also the families and communities in which they live.

The Community Health Worker should be able to talk about STIs and HIV/AIDS and also provide information on the 5 C's, namely:

- **Counsel:** *Counsel community members and those infected about how to prevent further spread of the infection and take care of themselves.*
- **Condoms:** *Promote and educate on the right use of condoms for the prevention of STIs and HIV/AIDS.*
- **Confidentiality:** *Maintain confidentiality of the clients who report about their being infected or seeking counsel. The CHW must be able to keep information from his/her client or patients confidential.*
- **Contact tracing:** *Follow up sexual partners of infected clients seeking counsel from them. This is called contact tracing of sexual partners.*
- **Comply with treatment:** *Patients who have STIs should be encouraged to comply to treatment advice given to them in order to have effective treatment and cure of the treatable STIs.*

Methods of preventing HIV/AIDS and STIs

People may use the following methods to protect themselves from getting both HIV/AIDS and STIs and emphasis should be put on behavioural change that includes the ABC:

- *Abstinence from all sexual intercourse (i.e. vaginal, anal, and oral)*
- *Being completely faithful to one sexual partner who is completely faithful to you.*
- *Condoms, either male or female, for every sexual act.*

People may also use the following methods to protect themselves from getting HIV/AIDS:

- *Correct sterilization of all medical instruments prior to use.*
- *Use of new or sterilized razor blades to perform any cutting and not sharing razors for shaving.*
- *Correct screening of blood prior to transfusion (to be done by health staff in hospital).*
- *Early detection and treatment efforts can be strengthened by:*
- *Increasing awareness of types and prevalence of STIs.*
 - o *Helping individuals recognize signs and symptoms.*
 - o *Encouraging individuals to seek without delay medical care from health care providers especially if signs or symptoms are present.*

- *These detection and treatment efforts can be further improved by:*
 - o *Reinforcing prevention behaviours among people already infected with STIs.*
 - o *Encouraging people infected with a sexually acquired infection to notify their partners and refer them for treatment.*

Prevention of Mother to Child Transmission of HIV (PMTCT)

HIV counselling and testing

Women and their partners should know if they have HIV by going for voluntary counselling and testing (VCT). Couple counselling must be encouraged to empower the couple to make joint decisions.

Prevention of new HIV infections during pregnancy

Women who are newly infected in pregnancy are at increased risk of transmitting infection to their babies because the amount of virus in the blood stream. All HIV positive pregnant women should go for antenatal advice and care early in the first trimester.

Screening and treatment of sexually transmitted diseases STIs are associated with increased risk of MTCT. Prevention of STIs as well as the early detection and treatment of both partners can reduce MTCT.

Antiretroviral therapy

All couples should be helped in making sure that the antiretroviral drugs (ARVs) are taken as advised by the doctor. ARVs have been proven to reduce mother to child transmission of HIV.

Preventing and treating malaria in pregnancy

Malaria during pregnancy is associated with increased risk of HIV. Insecticide treated nets (ITNs) and intermittent preventive treatment (IPT) of malaria in pregnancy should be provided for all pregnant women regardless of whether they have symptoms of malaria.

Avoid invasive procedures.

To prevent and treat anaemia, pregnant women should obtain and take micronutrient supplementation such as multivitamins, folic acid and iron. A good nutritional diet should be encouraged.

Women should abstain or use condoms consistently and correctly during pregnancy, to protect themselves and the babies from new or additional HIV infection.

Avoid early pushing and break of waters.

All HIV+ pregnant women should make an informed choice of feeding options following counselling. But it is important to note that although breastfeeding is a risk factor for

transmission of HIV, it is, at the same time, one of the most important and effective child survival interventions available.

C.3.9.9 HIV/AIDS and STIs - Key Practices

CHWs and others should promote adopting and sustaining appropriate behaviour (as above) regarding prevention of HIV/AIDS and STIs and regarding care for HIV/AIDS infected/affected people including orphans. They should also promote voluntary counselling and testing (VCT) for all men and women of childbearing age.

Sharing Information About HIV/AIDS and STIs with the Community

It can be difficult for people to believe new information and to adopt new practices. One challenge for every CHW is how to discuss with the client at the same time respect his/her fellow community members' beliefs, myths and customs and also to share new information and to promote new behaviours with them.

Messages to Give the Community

These are some of the messages that CHWs and other Field workers can pass on to their fellow community members:

- *Practice monogamy; be faithful to only one faithful sexual partner.*
- *Use condoms properly during every sex act.*

- Use a sterile or brand new razor for tattooing.

C.3.9.10 Common Traditional Practices that Increase Risk of HIV and STIs

Sexual cleansing: This practice requires that a person who has lost a husband or wife should have sexual intercourse with a relative of the dead person to get rid of the spirit or ghost of the dead person. Therefore, if either the surviving spouse or the relative has HIV/AIDS she/he can also infect the other. This practice should be discouraged through a dialog among the community members.

Polygamy: Some traditions encourage men to marry more than one wife. Having more than one sexual partner helps spread HIV/AIDS. For instance one of the women may be infected. She can infect the husband who will in turn infect the other women. The women should be informed.

Dry sex: Dry sex is the use of certain substances in order to dry the vagina before having sex. Engaging in this practice, however, makes it more likely that a woman's vaginal wall will become damaged during sex. The damage or injury caused to the woman's vagina can allow HIV/AIDS to infect the woman through broken skin. This practice also should be discouraged through a dialog in the community.

Tattoos: People may use tattoos for a number of reasons. Young people for example may use tattooing as a way of introducing some "Juju" or herbs into their bodies to make them strong and able to win fights (i.e. peer rivalry). The

use of tattooing by traditional healers in some areas, as a way of introducing medicines in their patients, is also dangerous. HIV/AIDS can be transmitted from one person to another, if the same razor blade has been used first by an infected person.

Traditional Circumcision: Circumcision is the tradition of cutting the foreskin of the boy's penis. If the same blade is used on a boy who is infected with HIV/AIDS and on another boy who does not, the second boy can then be infected. Not all communities practice circumcision in Zambia. Where it is done, however, practitioners would be encouraged to use a sterile (preferably brand new) instrument to make cuts.

C.3.9.11 Treatment of HIV/AIDS

Currently patients with HIV/AIDS may benefit from antiretroviral drugs (ARVs). Although ARVs do not treat HIV/AIDS, the drugs improve the quality of life, and reduce opportunistic infections and mortality. The CHWs should encourage all patients with HIV/AIDS to see health workers at health facilities in order for them to be assessed for possible commencement of ARVs. The health workers will examine the patient and conduct laboratory tests to determine if the patient is eligible for ARVs. Treatment with ARVs is lifetime. ARV therapy requires a long-term commitment from the patient. Adherence is the most important factor in successful ARV therapy. Correct and consistent use is required for the drugs to be effective and the effect to last.

The CHWs must encourage the patients to take all the drugs as advised by the health workers. Once patients start responding to ARVs they have mild or no reported side effects; improved clinical status; improved growth, no new AIDS defining illness or fewer inter-current illnesses.

C.3.10 Family Planning

Abstracted and adapted from “Safe Motherhood Action Group (SMAG) Training Manual Guide for Facilitators,” MoH with support from UNICEF and WHO. Pages 64-65. Full manual available from MoH.

Family planning is essential to promoting safe motherhood. It is the cornerstone in preventing unplanned pregnancy. It allows women and families to plan how many children to have and when to have them. Spacing children at least two years apart helps the mother’s body to recover from previous pregnancies and to prevent complications during future pregnancy and childbirth.

C.3.10.1 Benefits of Family Planning

- *Women are less likely to have anaemia*
- *A mother has time between pregnancies to improve her nutrition status and remain healthy*
- *Less risk of complications during pregnancy, resulting in a healthier mother and baby*
- *Less risk of abortion from unplanned pregnancy*
- *Existing children have a greater chance of survival*

C.3.10.2 Family Planning Methods in Zambia

- *Oral contraceptive pills*
- *Condoms – male and female*
- *Injectable (Depo Provera, Noristerat)*
- *Implant (Jadelle)*
- *Intrauterine contraceptive device (IUCD)*
- *Lactation amenorrhoea (LAM)*
- *Natural family planning*

The FIRST step in planning a family is to know your HIV status by getting tested. Couples in which one or both partners are HIV+ face the same fertility choices as any other couple.

- *Have a child now, OR*
- *Have a child later, OR*
- *Avoid pregnancy altogether*

BUT, if a woman is HIV+, pregnancy may be more difficult on her body, and there is a risk that her baby could be infected with HIV during pregnancy, delivery or breastfeeding.

Couples should discuss their choices with each other, with health care providers, and with people who have been through a similar experience.



There is no right or wrong choice. A couple should get all the information they need to make the decision that is right for them as a couple. The couple should make the decision together, and support each other in that decision.



If a couple wished to have a child later, they should make sure the woman's body is strong enough to carry a pregnancy. This is very important to protect the health of the mother and her child. A woman should let her body recover from a pregnancy by waiting a few years before becoming pregnant again. Sometimes, she may also have to delay her first pregnancy until she is old enough (at least 18 years or older) and her body is ready to have a baby.

Women can safely use many family planning methods to delay pregnancy. Family planning methods help a woman live a healthy life in which she is in control of her own fertility.



Women should discuss the various family planning methods with their partners

and choose a method together. Both should be comfortable with the method of their choice. A woman's body needs time to get used to each method. After some time, if she is not satisfied with the method, she can switch and try another one. She should be sure to discuss this with her health care provider first, as she could risk becoming pregnant when she switches methods.

The following methods provide **DOUBLE PROTECTION** because they prevent pregnancy **AND** protect against sexually transmitted infections including HIV:

Abstinence (avoiding sex altogether) is not something married couples often choose to do.

If a couple chooses to avoid sex altogether, they must both agree to this and support each other to live with this choice.

Condoms (two types)

- *Male condom*
- *Female condom*

Male and female condoms should **NOT** be used at the same time and a new condom must be used correctly **EVERY** time one has sex.



The following methods prevent pregnancy **ONLY**, but are safe to use **WITH** condoms for **DOUBLE PROTECTION**. One should use a condom **EVERY** time one

has sex to protect against sexually transmitted infections including HIV.

Injectable Depo Provera

An injection given to a woman that prevents pregnancy for 3 months

A new injection must be given EVERY 3 months



Family Planning (Contraceptive) Pill

A pill that must be taken by a woman EVERY day, or as directed by the instructions on the packet

A missed pill must be taken as soon as possible

A woman must have the next month's supply of pills ready before the current month's supply runs out"

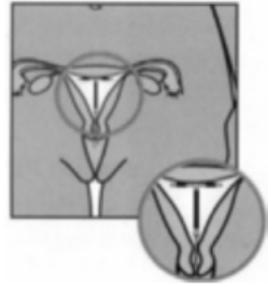


Jadelle

2 small, thin and flexible rods inserted into a woman's upper arm to prevent pregnancy for up to 5 years

Intrauterine Device (IUD)

Small plastic and copper device inserted into a woman's womb to prevent pregnancy for up to 10 years.



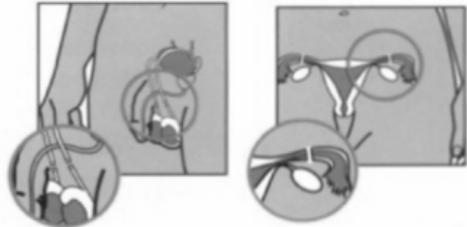
If a couple wishes to have a baby, the IUD can be removed ANY time, and the woman can become pregnant as soon as it is removed.

Permanent Methods of Preventing Pregnancy

If a couple wishes to avoid pregnancy altogether; that is, couples that are SURE they do NOT want to have a baby can continue using the family planning methods described on the previous pages, OR go for a more permanent method.

Vasectomy and Female Sterilization (Tubal Ligation)

These are methods that prevent pregnancy ONLY, but are safe to use WITH condoms for DOUBLE PROTECTION. Condoms should be used EVERY time a couple has sex to protect against sexually transmitted infections including HIV.



C.3.11 Abortion and Post Abortion Care

Abstracted and adapted from "Safe Motherhood Action Group (SMAG) Training Manual Guide for Facilitators,"

C.3.11.1 Common terms related to abortion defined:

Abortion is the termination of pregnancy before seven months of pregnancy. It can either be spontaneous or induced.

Induced abortion is when the pregnancy is purposefully ended. When it is induced outside of a medical facility it is considered an “unsafe abortion.”

Spontaneous abortion is when the body expels the pregnancy on its own. This is also called a “miscarriage.”

Unsafe abortion: Although abortion is legal in Zambia, many women and girls have unsafe abortions conducted by traditional healers, TBAs, health care providers “on the side,” or on their own. Problems from unsafe abortions include infection, hemorrhage, infertility, fistula, disability and death.

Safe abortion: Abortion, especially in the early stages of a pregnancy, is a very safe procedure when it is performed by a trained health care provider.

Post abortion care is the care given to a woman after a miscarriage/abortion.

Signs of Possible Miscarriage/Abortion

- *Missed period*
- *Vaginal bleeding with blood clots*
- *No foetal movements in pregnancy above 28 weeks*
- *Lower abdominal pain and/or backache*
- *Fever*
- *Foul smelling vaginal discharge*

All women who have had a miscarriage/abortion should be immediately referred to a health facility. SMAG members should arrange for transport.

After the woman returns from receiving PAC, the SMAG member should provide her with support and information such as:

- *Hygiene*
 - o *Change pads/cloth every 4-6 hours*
 - o *Wash the genital area daily with clean water*
- *Nutrition*
 - o *Eat a mixed diet*
- *Rest*
 - o *Get plenty of rest and avoid physical activity*
- *Avoid sexual activity for 6 weeks*
- *Learn about and practice family planning.*

C.3.12 Pregnant and Breastfeeding Mothers: Caffeine, Smoking and Alcohol

The following information is abstracted from “Healthy Eating during Pregnancy and Breastfeeding Booklet for Mothers”, 2011. © World Health Organization, Regional Office for Europe. WHO states that this document may nevertheless be freely reviewed, abstracted, reproduced or translated into any other language (but not for sale or for use in conjunction with commercial purposes) provided that full acknowledgement is given to the source.

Perhaps you just learned that you are pregnant? Your baby may not even seem real yet. However the choices you make and what you eat now and every day you are pregnant or breastfeeding can affect your health and the health of your baby.

It is your choice:

- *what you eat*
- *whether you drink alcohol and/or smoke*
- *how much your weight may change*
- *how often you see your doctor*

Pregnancy is a very important period. It is a time to think about your lifestyle, habits and diet and how they affect you and your future child. It is a time to consider if you wish to adopt healthy habits that will be beneficial to you and your baby both now and in the future.

It is never too late to make the right choices. When you are expecting a baby or breastfeeding a baby, nutritious foods are very important for you and the baby: Pregnancy and lactation place extra demands on your body. To meet these demands you need to think about what is best to eat and drink. Good nutrition in pregnancy helps you to stay healthy and energetic and to prepare yourself for taking care of you, your new baby and the rest of the family. Through your milk your baby eats everything you eat. Thus, the best way of giving your baby a healthy diet is for you to eat a healthy diet.

The placenta carries life to your baby

The placenta brings important things, such as oxygen and nutrients, to your baby and it removes the waste products that your baby produces while in your womb. However the placenta cannot stop harmful substances such as alcohol and nicotine (*from smoking*), crossing from you to your baby.

Healthy diet - what does it mean?

A healthy diet is one that is based mainly on plant foods. Therefore it is important to eat a lot of vegetables, fruits, bread, potatoes, pasta, cereals, beans, and lentils accompanied by only relatively small amounts of low fat milk, cheeses, kefir and yogurts; fish, lean red meat, and poultry. Whenever possible try to get locally grown vegetables and fruits, especially when they are in season.

These can be less expensive, more nutrient dense, fresh and safe from contamination.

From about the 3rd month of pregnancy you need ONLY an extra 200-300 kcal per day in addition to the diet you ate before you became pregnant. This small extra amount can be achieved, by eating for example 2-3 slices of bread extra (or 1 glass of milk and 1-2 slices of bread extra) per day.

Some substances may harm your baby

Alcohol. Try not to drink alcohol during pregnancy. Alcohol crosses the placenta and can lead to physical, growth and mental problems in some babies. It is especially important not to drink alcohol at the time of conception and during the first 3 months of pregnancy when the embryo is most vulnerable to the toxic effects of alcohol.

Smoking. Try not to smoke during pregnancy or at least try to reduce smoking substantially. Mothers who are heavy smokers are at much higher risk of having low-birth-weight babies. Smoking can also be a cause of premature birth, miscarriage and stillbirth and may impair your child's growth and development. Remember: it is never too late to stop or at least reduce smoking or drinking. Your baby will benefit from each alcoholic drink or cigarette you give up.

Caffeine. Effects of caffeine on the foetus are not well established yet. Tea, cocoa and cola-type drinks contain about the same amount of caffeine while coffee contains

about twice as much caffeine. Try to limit your coffee intake to 3-4 cups a day. Remember also, that tea and coffee tend to impair your ability to absorb iron from foods, such as beans and cereals, and iron supplements.

The principles of healthy nutrition recommended for pregnancy apply also during breastfeeding. Remember:

- *Alcohol can pass into the breast milk, so do not drink or at least restrict alcohol intake during lactation;*
- *There is no evidence of any beneficial effect of alcohol on breast milk production;*
- *Smoking may decrease your ability to produce breast milk and thus affect the growth of your baby, and smoking also decreases the vitamin C content in breast milk;*
- *Try not to harm the lungs of your new-born child - never smoke in baby's room;*
- *Caffeine can pass into the breast milk and cause hyperactivity and sleeping problems in your baby - try not to drink too much coffee, tea and cola drinks (recommendations are the same as for pregnancy);*
- *Many medications can also pass into breast milk - check with your doctor before taking any (however, taking most medications is not a contraindication to breastfeeding).*

C.4 Good Nutrition to Support Successful 1st 1000 Most Critical Days

C.4.1 Nutrition during Pregnancy

Abstracted and adapted (including some illustrations) from “Nutrition Handbook for Community Mobilisers,” Government of Nepal, Government of Spain, FAO, 2009. Pages 9-13, 17, 19-22.

Functions of food

Foods are necessary to make the body function well. In particular, they:

- *provide energy*
- *help the growth and repair of the body*
- *protect the body against illness.*

Most foods have more than one function.



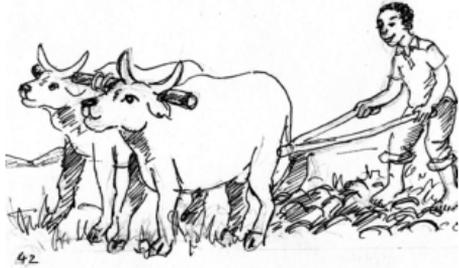
All foods provide energy but some provide more than others. Most foods help the body to grow and repair and protect the body against illness. Some foods are particularly good at this.

Staple foods (cereals and starchy roots) mainly provide energy. Cereals also help body growth and repair.

Vegetables and fruits mainly protect the body against illness.

Legumes, oilseeds and nuts mainly help to grow and repair the body. They also help to protect the body against illness. Oilseeds, nuts and groundnuts provide extra energy, too.

Animal foods (e.g. milk, eggs, meat, fish, offal) mainly help to grow and repair the body. They also provide energy and protect against illness.



Fat and oils mainly provide energy. If added to vegetables, they improve the protective function of vegetables. Red palm oil also protects the body against illness.

Sugar and sugary foods only provide energy.

Health Eating during Pregnancy

A woman needs to eat a variety of foods every day so that the body gets enough energy and everything it needs to be active, to grow and be protected against illness.

A Healthy Diet

A healthy diet has a variety of foods from different food groups. A healthy diet and well-balanced diet is important

especially for pregnant and breastfeeding women because it:

- *Keeps the body and mind healthy*
- *Gives the body energy to be active and function well*
- *Helps the body to grow and repair itself*
- *Helps the body to fight infections and illness*
- *Makes pregnant women produce healthy babies.*
- *Makes birth easier*
- *Helps them to breastfeed*

Staple foods:

- *Cereals: e.g. maize meal, millet, sorghum, wheat flour, rice*
- *Starchy foods: e.g. fresh cassava, cassava flour, potato, sweet potato, yam, plantain*

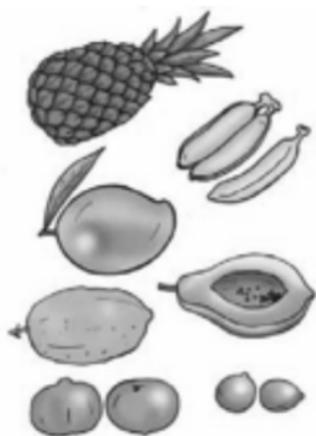


Legumes, oilseeds and nuts

- *Legumes: e.g. cowpea, pigeon pea, kidney bean, lentil, chickpea, groundnut*
- *Oilseeds: e.g. soya bean pumpkin, sunflower seed, sesame, melon seed*
- *Nuts: e.g. groundnut, cashew, bambara nut,*

Vegetables and fruits

- *Vegetables: e.g. tomato, pumpkin, carrot, spinach and other leaves, sweet pepper, eggplant*
- *Fruits: e.g. mango, pawpaw, passion fruit, orange, pineapple, banana, guava, baobab, masau, lemon, ngai, masuku, tusongole, other locally available fruit*



Fats and oils

- *Fats: e.g. butter, margarine, fat from meat*
- *Oils: e.g. coconut oil, sunflower oil, groundnut oil, red palm oil, soya bean oil, oilseeds*

Animal foods

- *Meat, offal, poultry and fish: e.g. beef, goat, sheep, pork, liver and other offal, chicken, fresh or dried or canned fish*
- *Milk, eggs and dairy products: e.g. fresh cow milk, fresh goat milk, eggs, sour milk, yoghurt, cheese*



Sugars

- *sugar cane, honey, jam*

Sugar can improve the energy content and taste of foods, but eating sugary foods (like sweets, candies, sodas, jam, sweet cakes, biscuits) regularly and in large amounts is not healthy.

Eat a variety of foods in the right proportions

Too much, as well as too little, food is bad for the body. A healthy, balanced diet has the right proportions of good quality foods.

The plate shows the proportions of the different food groups to be eaten during the day.

Make sure a pregnant woman has at least 2-3 meals per day.

Portions of the different foods types in the diet

- *Staples are the biggest portion of the plate. They should be the main component of the diet.*
- *Vegetables and fruits are about one-third of the plate. One should have plenty of them with meals or as snacks in between meals.*
- *Meat, eggs, fish, dairy products, legumes and oilseeds make up a smaller part of the plate. Where possible one should eat at least ONE of these every day:*
 - o *an animal product*
 - o *or fish*
 - o *Or legumes.*
- *Fats and oils are a small part of the plate. They should be added to vegetables and meals in small*

amounts (e.g. 3-4 tablespoons per day per person).

- *Sugars and sugary foods are the smallest part of the plate. They should be eaten in moderation.*
- *Pregnant women should drink plenty of water (e.g. 8 cups a day).*

Getting the best from food

- *Eating fruits with every meal improves iron absorption.*
- *Adding a little fat (oil or butter) increases absorption of vitamins (e.g. Vitamin A).*
- *Use of iodized salt is important as a source of iodine.*
- *Drinking tea or coffee within 1-2 hours after a meal reduces iron absorption it should be avoided.*

WARNING! Pregnant women should avoid drinking alcohol. It is not part of a healthy diet.

Pregnant women should eat a colourful diet

A healthy diet has a lot of colours. Especially colourful are vegetables and fruits.

- *Red: e.g. Tomato, red pepper, red plums, red watermelon, beets*
- *Orange: e.g. Carrots, mangoes, oranges, papaya, pumpkin, sweet potato*
- *Yellow: e.g. grapefruit, lemon, pineapple, yellow pepper*
- *Green: e.g. Avocados, green beans, rape, leeks, peas, spinach*
- *White: e.g. Bananas, garlic, potatoes*

NOTE: See also Section on Recipes for Nutritious Meals

made with local foods.

Healthy snacks include fruits, vegetables, boiled eggs, sour milk, bread, sweet potatoes, boiled or roasted maize cobs, fried fish, bean cakes, nuts and oilseeds.

When a woman is pregnant

- *Her body needs more energy than usual, particularly towards the end of the pregnancy. She should eat an extra nutritious snack during the day.*
- *She should take iron and folic acid tablets, regularly. Her body needs more iron and folic acid during pregnancy.*



If she is breastfeeding

- *Her body needs even more energy when breastfeeding than during pregnancy because she has to feed two – herself and her baby.*
- *She should eat more at each meal or have meals more frequently, or eat more nutritious healthy snacks during the day.*
- *She may be given vitamin A capsules to take immediately after birth. They protect the mother and her baby against illness.*

Other important tips

A woman should:

- *WAIT at least one year between pregnancies, even better, 2 to 3 years. After pregnancy and breastfeeding, her body needs time to recover and rebuild strength. If her body is not strong and healthy, she is at higher risk of miscarriages and of giving birth to a sick or underweight baby.*
- *EAT WELL between pregnancies to rebuild her body.*
- *TAKE NOTE! It is better for a woman not to have a baby when she is too young (e.g. under 16 years) or too old (e.g. over 35 years). It is dangerous for both mother and baby.*
- *DEAL PROMPTLY with breastfeeding problems (e.g. sore nipples, swollen breasts, thrush in the baby's mouth).*

C.4.2 Infant and Young Child Feeding

Abstracted, adapted and reformatted from “Infant and Young Child Feeding Counselling: An Integrated Course”, Participant’s Manual (2008), Ministry of Health and National Food and Nutrition Commission, with support from: USAID, IYCN, UNICEF, WHO. Pages 7, 11, 13-16, 18-21, 27, 47, 48, 77, 82, 83, 89-95, and 97. Materials with similar but expanded information are available from the website of the WHO.

C.4.2.1 Introduction to Healthy Infant and Young Child Feeding

Breastfeeding is an unequalled way of providing ideal

food for the healthy growth and development of infants. As a global public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Zambia has adopted this recommendation.

Exclusive breastfeeding means giving a baby only breast milk for 6 months, and no other liquids or solids, not even water unless medically indicated. Mothers need skilled practical help from people like yourself, who can help to build mothers' confidence, improve feeding technique and prevent or resolve breastfeeding problems, if they are to succeed in breastfeeding exclusively.

After six months of age, all babies require other foods to complement breast milk – we call these complementary foods. When complementary foods are introduced breastfeeding should still continue for up to two years of age or beyond. The traditional understanding of weaning has focused on the process of stopping to breastfeed. In complementary feeding however, the focus is to emphasize the importance of both continuing to breastfeed and giving other foods.

Complementary feeds should be:

- *Timely – meaning that they are introduced when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding*
- *Adequate – meaning that they provide sufficient*

energy, protein and micronutrients to meet a growing child's nutritional needs

- *Safe – meaning that they are hygienically stored and prepared and fed with clean hands using clean utensils and not bottles and teats*
- *Properly fed – meaning that they are given in response to a child's signals of hunger and that meal frequency and feeding methods are suitable for the child's age.*

C.4.2.2 Why Breastfeeding is Important

The figure below summarizes the main advantages of breastfeeding. It is useful to think of the advantages of both breast milk (listed on the left) and breastfeeding (listed on the right).

Nutrients in human and animal milks

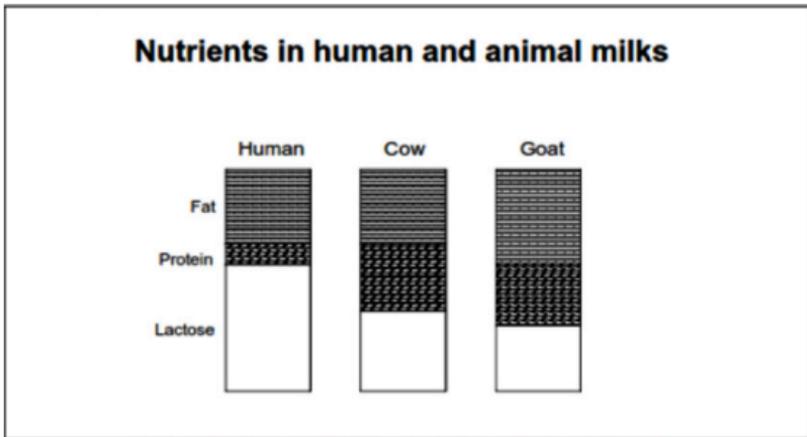
Formula milks are made from a variety of products, including animal milks, soya bean, and vegetable oils. Although they have been adjusted so that they are more like human milk, they are still far from perfect for babies.

Advantages of breastfeeding		
Breast milk <ul style="list-style-type: none">• Perfect nutrients• Easily digested; efficiently used• Protects against infection		Breastfeeding <ul style="list-style-type: none">• Helps bonding and development• Helps delay a new pregnancy• Protects mothers' health• Costs less than artificial feeding

In order to understand the composition of formula milk we need to understand the differences between animal and human milk and how animal milks need to be modified to produce formula milk.

The chart below compares the nutrients in breast milk with the nutrients in fresh cow's and goat's milk. All the milks contain fat which provides energy, protein for growth and a milk sugar called lactose which also provides energy.

The animal milk contains more protein than human milk. It is difficult for a baby's immature kidneys to excrete the extra waste from the protein in animal milks.



Human milk also contains essential fatty acids that are needed for a baby's growing brain and eyes, and for healthy blood vessels. These fatty acids are not present in animal milks, but may have been added to formula milk. Artificially fed babies may develop intolerance to protein from animal milk. They may develop diarrhoea, abdominal

pain, rashes and other symptoms when they have feeds that contain the different kinds of protein.

Breast milk contains white blood cells, and a number of anti-infective factors, which help to protect a baby against many infections. Breastfeeding protects babies against diarrhoeal and respiratory illness and also ear infections, meningitis and urinary tract infections.

When a mother develops an infection (1), white cells in her body become active, and make antibodies against the infection to protect her (2). Some of these white cells go to her breasts and make antibodies (3) which are secreted in her breast milk to protect her baby (4).

So a baby should not be separated from his mother when she has an infection, because her breast milk protects him against the infection.

Variations in the composition of breast milk

Colostrum is the breast milk that women produce in the first few days after delivery. It is thick and yellowish or clear in colour and in little quantities. It contains more protein than mature milk.

Colostrum contains more antibodies and other anti-infective proteins than mature milk. It contains more white blood cells than mature milk. Colostrum helps to prevent the bacterial infections that are a danger to newborn babies and provides the first immunisation against

many of the diseases that a baby meets after delivery.

Colostrum is ready in the breasts when a baby is born. Babies should not be given any drinks or foods before they start breastfeeding. Artificial feeds given before a baby has colostrum are likely to cause allergy and infection.

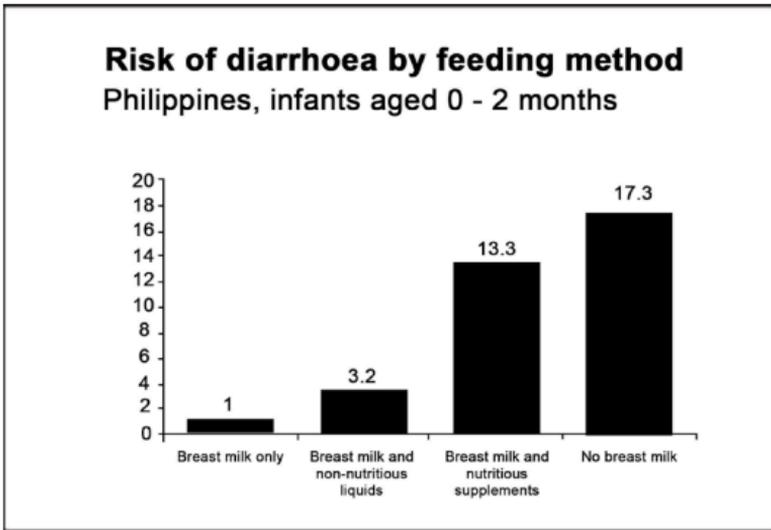
Colostrum	
Property	Importance
• Antibody rich	- protects against allergy & infection
• Many white cells	- protects against infection
• Purgative	- clears meconium
	- helps to prevent jaundice
• Growth factors	- helps intestine to mature
	- prevents allergy, intolerance
• Rich in Vitamin A	- reduces severity of infection

Mature milk is the breast milk that is produced after a few days. The quantity becomes larger, and the breasts feel full, hard and heavy. Some people call this the breast milk 'coming in'. Mature milk comprises foremilk and hindmilk.

Foremilk is the milk that is produced early in a feed. It looks thinner than hindmilk. It is produced in larger amounts, and provides plenty of protein, lactose, and other nutrients. Because a baby gets large amounts of foremilk, he gets all the water that he needs from it. Babies do not need other drinks of water before they are six months old, even in a hot climate. If they satisfy their thirst on water,

they may take less breast milk.

Hindmilk is the milk that is produced later in a feed. It looks whiter than foremilk, because it contains more fat. This fat provides much of the energy of a breastfeed. This is an important reason not to take a baby off a breast too quickly. The baby should be allowed to continue until he has had all that he wants. Breastfeeding protects a baby against diarrhoea. The chart below shows the main findings of a study from the Philippines, comparing how often babies fed in different ways get diarrhoea. The bar on the left is for babies who were exclusively breastfeeding. It is small, because very few exclusively breastfed babies get diarrhoea.



The bar on the right is for artificially fed babies, who received no breast milk. This column is 17 times taller, because these babies were 17 times more likely to get

diarrhoea than babies fed only on breast milk. Some of the babies were given breast milk and other feeds or fluids. These babies were more likely to have diarrhoea than exclusively breastfed babies, but less likely than babies who received no breast milk at all. Artificially fed babies get diarrhoea more often partly because artificial feeds lack anti-infective factors, and partly because artificial feeds are often contaminated with harmful bacteria. Breastfeeding also protects against respiratory illness and other infections, e.g. ear infections, meningitis and urinary tract infections. Mortality from pneumonia is increased in babies who are not exclusively breastfed.

Psychological benefits of breastfeeding

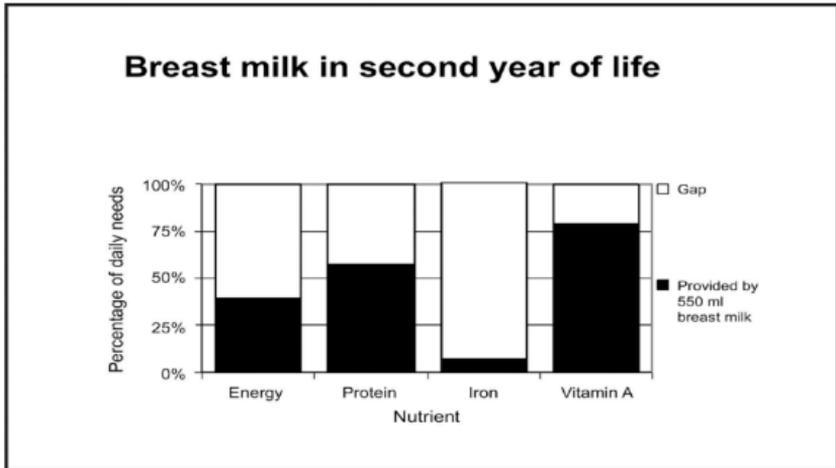
Breastfeeding helps a mother and baby to form a close, loving relationship, which makes mothers feel deeply satisfied emotionally. Close contact from immediately after delivery helps this relationship to develop. This process is called bonding.

Babies tend to cry less if they are breastfed and may be more emotionally secure. Some studies suggest that breastfeeding may help a child to develop intellectually. Low-birth-weight babies fed breast milk in the first weeks of life perform better on intelligence tests in later childhood than children who are artificially fed.

Breast milk in the second year of life

For the first six months of life, exclusive breastfeeding can

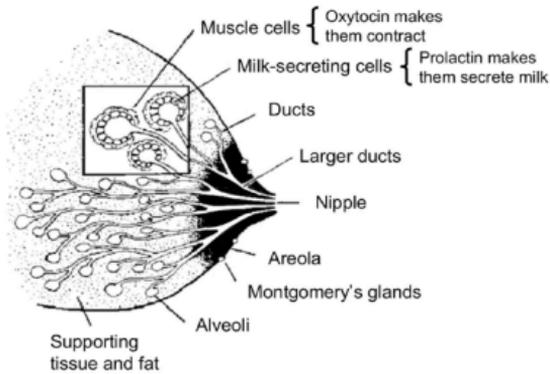
provide all the nutrients and water that a baby needs. From the age of six months, breast milk is no longer sufficient by itself. However, breast milk continues to be an important source of energy and high quality nutrients beyond six months of age.



C.4.2.3 How Breastfeeding Works

The dark skin around the nipples is called the areola (see figure below). In the areola are small glands called Montgomery's glands which secrete an oily fluid to keep the skin healthy. Inside the breast are the alveoli, which are very small sacs made of milk-secreting cells. There are millions of alveoli the diagram shows only a few. The box shows three of the alveoli enlarged. A hormone called prolactin makes these cells produce milk.

Anatomy of the breast



Around the alveoli are muscle cells, which contract and squeeze out the milk. A hormone called oxytocin makes the muscle cells contract. Small tubes, or ducts, carry milk from the alveoli to the outside. Milk is stored in the alveoli and small ducts between feeds.

The larger ducts beneath the areola dilate during feeding and hold the breast milk temporarily during the feed.

The secretory alveoli and ducts are surrounded by supporting tissue, and fat. It is the fat and other tissue which give the breast its shape, and which makes most of the difference between large and small breasts. Small breasts and large breasts both contain about the same amount of gland tissue, so they can both make plenty of milk.

When a baby suckles at the breast, sensory impulses go from the nipple to the brain. In response, the pituitary gland at the base of the brain secretes prolactin. Prolactin goes in the blood to the breast, and makes the milk-secreting cells produce milk. The more a baby suckles the more milk the breasts produce.

Oxytocin is produced more quickly than prolactin. It makes the milk in the breast flow for this feed. Oxytocin can start working before a baby suckles, when a mother learns to expect a feed. If the oxytocin reflex does not work well, the baby may have difficulty in getting the milk. It may seem as if the breasts have stopped producing milk. However, the breasts are producing milk, but it is not flowing out.

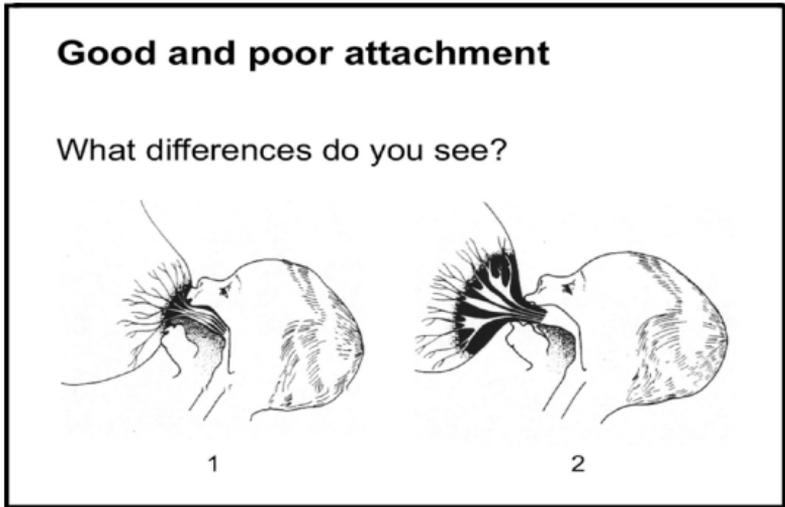
Control of breast milk production within the breast

There is a substance in breast milk which can reduce or inhibit milk production. If a lot of milk is left in a breast, the inhibitor stops the cells from secreting any more. This helps to protect the breast from the harmful effects of being too full. It is obviously necessary if a baby dies or stops breastfeeding for some other reason. If breast milk is removed, by suckling or expression, the inhibitor is also removed. Then the breast makes more milk.

This helps one to understand why if a baby stops suckling from one breast, that breast stops making milk. If a baby suckles more from one breast, that breast makes more milk and becomes larger than the other.

It also helps one to understand why for a breast to continue to make milk, the milk must be removed. If a baby cannot suckle from one or both breasts, the breast milk must be removed by expression to enable production to continue.

C.4.2.4 Attachment to the Breast



The 4 key points of attachment are:

1. More areola above baby's top lip than below bottom lip
2. Baby's mouth wide open
3. Lower lip turned outwards
4. Baby's chin touches breast

Results of poor attachment

If a baby is poorly attached (see figure below) and he 'nipple sucks', it is painful for his mother. Poor attachment is the

most important cause of sore nipples. As the baby sucks hard to try to get the milk, he pulls the nipple in and out. This makes the nipple skin rub against his mouth. If a baby continues to suck in this way, he can damage the nipple skin and cause cracks (also known as fissures). As the baby does not remove breast milk effectively the breasts may become engorged, the baby may be unsatisfied and cry a lot. Eventually, if breast milk is not removed the breasts may make less milk. A baby may fail to gain weight and the mother may feel she is a breastfeeding failure.

b. A baby well attached to his mother's breast	b. A baby poorly attached to his mother's breast
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A well-attached baby to the breast

To prevent this all mothers need skilled help to position and attach their babies. Babies should not be given feeding bottles, especially before breastfeeding is established.

How to support her breast:

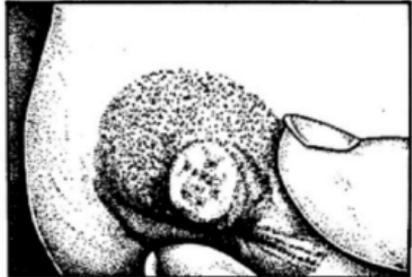
- *With her fingers against her chest wall below her breast*
- *With her first finger supporting the breast*
- *With her thumb above*

The four key points are:

- *Baby's head and body in line*
- *Baby held close to mother's body*
- *Baby's whole body supported*
- *Baby approaches breast, nose to nipple*

a. Resting her fingers on her chest wall so that her first finger forms a support at the base of the breast

b. Holding her breast too near the nipple



His mouth needs to be wide open (see figure) to take a large mouthful of breast; she should not move herself or her breast to her baby. She should aim her baby's lower lip below her nipple, so that his chin will touch her breast.

Mothers can breastfeed in many different positions.

Lying down

Lying down in a comfortable, relaxed position. It is better if she is not 'propped up'

Fig. 8.4 A mother breastfeeding her baby lying down



on her elbow, as this can make it difficult for the baby to attach to the breast. Exactly the same **four key points** are important, as for a mother who is sitting. She can support her baby with her lower arm. She can support her breast if necessary with her upper arm. If she does not support her breast, she can hold her baby with her upper arm.

Other positions in which a mother can breastfeed

- the underarm position (football)
- holding the baby with the arm opposite the breast

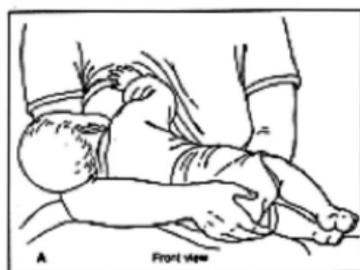


FIGURE 9-9. Madonna (cradle) position. A. Front view. B. Side view.



FIGURE 9-10. Football position. A. Modified clutch position. B. Clutch hold.

C.4.2.5 Common Breastfeeding Difficulties

'Not Enough Milk'

One of the commonest reasons for a mother to stop breastfeeding is that she thinks she does not have enough milk. Almost all mothers can produce enough breast milk for one or even two babies. Usually, even when a mother thinks that she does not have enough breast milk, her baby is in fact getting all that he needs.

Sometimes a baby does not get enough breast milk. But it is usually because he is not suckling enough, or not suckling effectively (see 'How breastfeeding works'). It is rarely because his mother cannot produce enough. So it is important to think not about how much milk a mother can produce, but about how much milk a baby is getting.

Reliable signs that a baby is not getting enough milk

- Poor weight gain, less than 500 grams per month.
- Small amount of concentrated urine.

For the first six months of life, a baby should gain at least 500 g in weight each month. One kilogram is not necessary, and not usual. If a baby does not gain 500 g in a month he is not gaining enough weight.

An exclusively breastfed baby who is getting enough milk usually passes dilute urine at least 6-8 times in 24 hours. If a baby is having other drinks, for example water, as well as breast milk, you cannot be sure he is getting enough milk if

he is passing lots of urine.

There are several possible signs that a baby is not getting enough milk. Although these signs may worry a mother, there may be other reasons for them, so they are not reliable. For example, a baby may cry often because he has colic, although he might be getting plenty of milk. If a baby passes plenty of urine it usually means that he is getting enough breast milk.

Crying baby

Many mothers start unnecessary foods or fluids because they think that their baby 'cries too much'. They think that their babies are hungry, and that they do not have enough milk. These additional foods and drinks do not make a baby cry less. Sometimes a baby cries more.

A baby who cries a lot can upset the relationship between him and his mother, and can cause tension among other members of the family. An important way to help a breastfeeding mother is to counsel her about her baby's crying.

C.4.2.6 Causes of Crying

Hunger due to growth spurt

A baby seems very hungry for a few days, possibly because he is growing faster than before. He demands to be fed very often. This is commonest at the ages of about two

weeks, six weeks and three months, but can occur at other times. If he suckles often for a few days, the breast milk supply increases, and he breastfeeds less often again.

Table 4: Reasons why babies cry

✍ Discomfort	(dirty, hot, cold)
✍ Tiredness	(too many visitors)
✍ Illness or pain	(changed pattern of crying)
✍ Hunger	(not getting enough milk, growth spurt)
✍ Mother's food	(any food, sometimes cow's milk)
✍ Drugs mother takes	(caffeine, cigarettes, other drugs)
✍ Colic	
✍ 'High needs' babies	

Mother's food

Sometimes a mother notices that her baby is upset when she eats a particular food. This is because substances from the food pass into her milk. It can happen with any food, and there are no special foods to advise mothers to avoid, unless she notices a problem.

Colic

Some babies cry a lot without one of the above causes. Sometimes the crying has a clear pattern. The baby cries continuously at certain times of day, often in the evening. He may pull up his legs as if he has abdominal pain. He may appear to want to suckle, but it is very difficult to comfort him. Babies who cry in this way may have a very

active gut, or wind, but the cause is not clear. This is called 'colic'. Colicky babies usually grow well, and the crying usually becomes less after the baby is three months old.

Holding baby along your forearm



Holding baby round his abdomen, on your lap



Father holding the baby against his chest



Some different ways to hold a colicky baby

'High needs' babies

Some babies cry more than others, and they need to be held and carried more. In communities where mothers carry their babies with them, crying is less common than in communities where mothers like to put their babies down to leave them, or where they put them to sleep in separate cots.

Causes of breast refusal	
Illness, pain or sedation	Infection Brain damage Pain from bruise (vacuum, forceps) Blocked nose Sore mouth (thrush, teething)
Difficulty with breastfeeding technique	Use of bottles and pacifiers whilst breastfeeding Not getting much milk (e.g. poor attachment) Pressure on back of head when positioning Mother shaking breast Restricting length of feeds Difficulty coordinating suckle
Change which upsets baby (especially aged 3-12 months)	Separation from mother (e.g. if mother returns to work) New carer or too many carers Change in the family routine Mother ill Mother has breast problem e.g. mastitis Change in smell of mother
Apparent refusal	New-born - rooting Age 4-8 months - distraction Above one year - self-weaning

Helping a mother and baby to breastfeed again

In many situations there may be no treatment, so giving the mother relevant information and suggestions is very important:

- *Keep her baby close - no other carers*
- *Give plenty of skin-to-skin contact at all times, not just at feeding times*
- *Sleep with her baby*
- *Ask other people to help in other ways.*
- *Offer her breast whenever her baby is willing to suckle*
- *When her baby is sleepy, or after a cup feed*
- *When she feels her ejection reflex working.*
- *Help her baby to take the breast*
- *Express breast milk into his mouth*
- *Position him so that he can attach easily to the breast – try different positions*
- *Avoid pressing the back of his head or shaking her breast*
- *Feed her baby by cup*
- *Give her own expressed breast milk if possible; if necessary give artificial feeds*
- *Avoid using bottles, teats, pacifiers*

Breast size and breastfeeding

Many mothers worry about the size of their breasts. Women with small breasts often worry that they cannot produce enough milk. Differences in the sizes of breasts

are mostly due to the amount of fat, and not the amount of tissue that produces milk. It is important to reassure women that they can produce enough milk, whatever the size of their breasts.

Different breast shapes

There are many different shapes and sizes of breast. Babies can breastfeed from almost all of them.

C.4.2.7 Expressing Breast Milk

There are many situations in which expressing breast milk is useful and important to enable a mother to initiate or continue breastfeeding.

Expressing milk is useful to:

- *Leave breast milk for a baby when his mother goes out or goes to work*
- *Feed a low-birth-weight baby who cannot breastfeed*
- *Feed a sick baby, who cannot suckle enough*
- *Keep up the supply of breast milk when a mother or baby is ill*
- *Prevent leaking when a mother is away from her baby*
- *Help a baby to attach to a full breast*
- *To help with breast health conditions, e.g. engorgement*
- *To transition to another method of feeding or to heat treat breast milk*

All mothers should learn how to express their milk, so that they know what to do if the need arises. Certainly all those who care for breastfeeding mothers should be able to teach mothers how to express their milk.

Many mothers are able to express plenty of breast milk using rather strange techniques. If a mother's technique works for her, let her do it that way. Breast milk can be stored for about eight hours at room temperature or up to 24 hours in a refrigerator.

Stimulating the oxytocin reflex

The oxytocin reflex may not work as well when a mother expresses as it does when a baby suckles. A mother needs to know how to help her oxytocin reflex, or she may find it difficult to express her milk. Help or advise her to:

- *Sit quietly and privately or with a supportive friend. Some mothers can express easily in a group of other mothers who are also expressing for their babies.*
- *Hold her baby with skin-to-skin contact if possible.*
- *She can hold her baby on her lap while she expresses. If this is not possible, she can look at the baby. If this is not possible, sometimes even looking at a photograph of her baby helps.*
- *Take a warm soothing drink. The drink should not be coffee.*
- *Warm her breasts. For example, she can apply a warm compress, or warm water, or have a warm*

shower.

- *Stimulate her nipples. She can gently pull or roll her nipples with her fingers.*
- *Massage or stroke her breasts lightly. Some women find that it helps if they stroke the breast gently with finger tips or with a comb. Some women find that it helps to gently roll their closed fist over the breast towards the nipple.*

Express breast milk by hand

Hand expression is the most useful way to express milk. It needs no appliance, so a woman can do it anywhere, at any time. A woman should express her own breast milk. The breasts are easily hurt if another person tries.

How to select and prepare a container for expressing breast milk

☒ Choose a cup, glass, jug or jar with a wide mouth.
☒ Wash the cup in soap and water (She can do this the day before).
☒ Pour boiling water into the cup, and leave it for a few minutes. Boiling water will kill most of the germs.
☒ When ready to express milk, pour the water out of the cup.

How to express breast milk

- *Place finger and thumb each side of the areola and press inwards towards the chest wall (see figure).*
- *Press behind the nipple and areola between your finger and thumb.*

- *Press from the sides to empty all segments*

How often a mother should express her milk depends on the reason for expressing the milk. Usually she should express as often as the baby would breastfeed.

Reasons to express breast milk

- *To establish lactation, to feed a low-birth-weight (LBW) or sick new-born she should start to express milk on the first day, as soon as possible. She may only express a few drops of colostrum at first, but it helps breast milk production to begin, in the same way that a baby suckling soon after delivery helps breast milk production to begin. She should express as much as she can as often as her baby would breastfeed. This should be at least every three hours, including during the night. If she expresses only a few times, or if there are long intervals between expressions, she may not be able to produce enough milk.*
- *To keep up her milk supply to feed a sick baby: She should express at least every three hours.*
- *To build up her milk supply, if it seems to be decreasing after a few weeks: Express very often for a few days (every 2 hours or even every hour), and at least every three hours during the night.*
- *To leave milk for a baby while she is out at work: Express as much as possible before she goes to work, to leave for her baby. It is also very important to express while at work to help keep up her supply.*

- *To relieve symptoms, such as engorgement, or leaking at work: Express only as much as is necessary.*

C.4.2.8 Cup-Feeding

The advantages of cup-feeding

- *Cups are easy to clean with soap and water, if boiling is not possible.*
- *Cups are less likely than bottles to be carried around for a long time, giving bacteria time to breed.*
- *Cup-feeding is associated with less risk of diarrhoea, ear infections and tooth decay.*
- *A cup cannot be left beside a baby, for the baby to feed himself. The person who feeds a baby by cup has to hold the baby and look at him and give him some of the contact that he needs.*
- *A cup does not interfere with suckling at the breast.*
- *A cup enables a baby to control his own intake (refer to Counselling Card 9 on cup feeding)*

How to feed a baby by cup

- *Wash your hands.*
- *Hold the baby sitting upright or semi-upright on your lap.*
- *Place the estimated amount of milk for one feed into the cup.*
- *Hold the small cup of milk to*



the baby's lips.

- *Tip the cup so that the milk just reaches the baby's lips.*
- *The cup rests lightly on the baby's lower lip, and the edges of the cup touch the outer part of the baby's upper lip.*
- *The baby becomes alert, and opens his mouth and eyes.*
- *A low-birth-weight (LBW) baby starts to take the milk into his mouth with his tongue.*
- *A full term or older baby sucks the milk, spilling some of it.*
- *DO NOT POUR the milk into the baby's mouth. Just hold the cup to his lips and let him take it himself.*
- *When the baby has had enough, he closes his mouth and will not take any more. If he has not taken the calculated amount, he may take more next time, or you may need to feed him more often.*
- *Measure his intake over 24 hours - not just at each feed*

Amount of milk to give to babies

Babies who weigh 2.5 kg or more: 150 ml milk per kg body weight per day. Divide the total into eight feeds, and give them every three hours.

Babies who weigh less than 2.5 kg (low-birth-weight): Start with 60 ml/ kg body weight. Increase the total volume by 20 ml per kg per day, until the baby is taking a total of 200 ml per kg per day. Divide the total into 8-12 feeds, to feed

every 2-3 hours. Continue until the baby weighs 1800 g or more, and is fully breastfeeding.

Check the baby's 24-hour intake. The size of individual feeds may vary.

The amount of milk that a baby takes at each feed varies with all methods of feeding. Let the baby decide when he has taken enough. If a baby takes a very small feed, offer extra at the next feed, or give the next feed early, especially if the baby shows signs of hunger. If a mother produces only a small amount of breast milk, be sure to give it all to her baby. Help her to feel that this small amount is valuable, especially to prevent infection. This helps her confidence, and will help her to produce more milk.

Low-birth-weight (LBW) babies need only very small volumes during the early days. If the mother can express even a small amount of colostrum, it is often all that her baby needs.

C.4.2.9 Health Education to Support and Promote Breastfeeding

Antenatal preparation for breastfeeding

It is important to talk to all women about breastfeeding when they come to an antenatal clinic. Show that you support breastfeeding, and that you want to help them. It is especially important to talk to young mothers who are having their first baby. They are the ones who are most

likely to need help.

There are some things that you can discuss with a group of mothers together, in an antenatal class. There are other things that it is usually better to discuss with mothers individually.

Rooming-in

In Zambia “rooming-in” and “bedding-in” are used synonymously as they mean having a mother and a baby kept in one room or bed for 24 hours per day. There are no restrictions for the mother to be with the baby especially when the baby or mother is admitted in the hospital.



Rooming in or bedding in enables a mother to respond to her baby and feed him whenever he is hungry. This helps in the following ways:

- *Both bonding and breastfeeding.*
- *Babies cry less so there is less temptation to give bottle feeds.*
- *Mothers become confident about breastfeeding.*
- *Breastfeeding continues longer after the mother leaves hospital.*

All healthy babies benefit from being near their mother,

rooming-in or bedding-in. Mothers who are HIV positive do not need to be separated from their babies. General mother-to-child contact does not transmit HIV. 'Bedding-in' allows a mother to rest while breastfeeding.

Advantages of breastfeeding on demand

Breastfeeding on demand means breastfeeding whenever the baby or mother wants, with no restriction on the length or frequency of feeds.

The advantages are:

- *There is earlier passage of meconium.*
- *The baby gains weight faster.*
- *Breast milk 'comes in' sooner and there is a larger volume of milk intake on day 3.*
- *There are fewer difficulties such as engorgement.*
- *There is less incidence of jaundice.*

Sucking and feeding from both breasts

Let a baby suckle as long as he wants, provided he is well attached. Some babies take all the breast milk they want in a few minutes; other babies take half an hour to get the same amount of milk, especially in the first week or two. They are all behaving normally.

Let a baby finish feeding on the first breast, to get the fat rich hindmilk. Then offer the second breast, which he may or may not want. It is not necessary to feed from both

breasts at each feed. If a baby does not want the second breast, his mother can offer that side first next time, so that both breasts get the same amount of stimulation.

Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants

Teats, bottles and pacifiers can carry infection and are not needed, even for the non-breastfeeding low-birth weight infant.

If a hungry baby is given a pacifier instead of a feed, he may not grow well.

Babies can be encouraged to suck on the mother's clean finger or other body areas other than the nipple, if not breastfeeding.

Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic

The key to best breastfeeding practices is continued day-to-day support for the breastfeeding mother within her home and community.

Those who support breastfeeding mothers in the community do not have to be medically trained personnel.

C.4.3 HIV and Infant Feeding

Abstracted, adapted and reformatted from “Infant and Young Child Feeding Counselling: An Integrated Course”, Participant’s Manual, 2008, Ministry of Health and National Food and Nutrition Commission, with support from: USAID, IYCN, UNICEF, WHO. Pages 100-108, 140-143,158, and 170-172. Only portions of the information from that publication are provided here.

The epidemic of HIV and AIDS is a major problem in many countries. A very sad aspect of the epidemic is the number of young children who are infected. This is one cause of the increasing number of child deaths.

It is important to remember that the best way to prevent infection of children is to help their fathers and mothers to avoid becoming infected in the first place, and to avoid infecting each other. Men’s responsibility for protecting their families must be emphasized.

People infected with HIV feel well at first and usually do not know they are infected. They may remain healthy for many years as the body produces antibodies to fight HIV.

But the antibodies are not very effective. The virus lives inside the immune cells and slowly destroys them. When these cells are destroyed, the body becomes less able to fight infections. The person becomes ill and after a time develops AIDS. Eventually he or she dies.

A special blood test can be done to see if people have HIV antibodies in their blood. A positive test means that the person is infected with HIV. This is called HIV positive or seropositive.

Once people have the virus in their body, they can pass the virus to other people. HIV is passed from an infected man or woman to another person through:

- Exchange of HIV-infected body fluids such as semen, vaginal fluid or blood during unprotected sexual intercourse
- HIV-infected blood transfusions or contaminated needles.
- HIV can also pass from an infected woman to her child during pregnancy, at the time of birth or through breastfeeding. This is called mother-to-child transmission of HIV or MTCT.

In Zambia, the opt out policy for HIV testing in pregnancy is followed. This means that every pregnant woman will undergo an HIV test as part of their antenatal care, unless she refuses.

As earlier noted, there is a risk that some pregnant women will pass on HIV infection to their babies during pregnancy, delivery or during breastfeeding. Most of the infection risk from mother to baby will take place during delivery. The more HIV the mother has in her body, the bigger the risk that she will pass it on to her baby. This is the case when the mother is newly infected with HIV or has AIDS.

Other conditions that will increase the chances of the mother passing HIV on to her baby are sores or infections of the breasts and sores in the baby's mouth. Exclusive breastfeeding is recommended for HIV-infected women for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) for them and their infants before that time.

C.4.3.1 Risk of Mother-to-Child Transmission of HIV

Not all babies born to HIV-infected mothers become infected with HIV. About two-thirds of infants born to HIV-infected mothers will not be infected, even with no intervention, such as anti-retroviral prophylaxis or caesarean section. About 5-20% of infants born to HIV-infected mothers will get the virus through breastfeeding. The risk continues as long as the mother breastfeeds. This is more or less constant over time.

Exclusive breastfeeding means feeding an infant only on breast milk with no solids or fluids not even water unless medically indicated for the first six months of life. Therefore, exclusive breastfeeding for the first six months of life carries the lowest risk of HIV transmission. On the other hand mixed feeding carries the highest risk of transmitting HIV from mother to child. Mixed feeding is feeding the baby on breast milk and other milks or foods during the first six months of life. If exclusive breastfeeding for the first six months of life is practiced, the risk of HIV transmission through breastfeeding lowers

to approximately 4%.

If pregnant women are not tested, you cannot predict which babies will be infected. So, if a mother does not know her HIV status, she should be encouraged to breastfeed. She should also be assisted to protect herself against infection with HIV.

Even among women who know they are HIV positive, not all their infants are likely to be infected through breastfeeding. So there are risks of HIV transmission if a mother who is HIV positive decides to breastfeed her infant. However, there are also risks if a mother decides not to breastfeed. In some situations, the risk of illness and death from not breastfeeding may be greater than the risk of HIV infection through breastfeeding.

Recent infection with HIV

If a woman becomes infected with HIV during pregnancy or while breastfeeding, she has higher levels of virus in her blood, and her infant is more likely to be infected. It is especially important to prevent an HIV negative woman from becoming infected at this time because then both the woman and her baby are at risk.

All men need to know that unprotected extramarital sex exposes them to infection with HIV. They may then infect their partners, and their baby too will be at high risk, if the infection occurs during pregnancy or while breastfeeding.

Advanced maternal AIDS

If the mother is ill with HIV-related disease or AIDS and is not being treated with drugs for her own health, she has more viruses in her body and transmission to the baby is more likely.

Duration of breastfeeding

The virus can be transmitted at any time during breastfeeding. Generally, it is evident that the longer the duration of breastfeeding, the greater the risk of transmission of HIV from the mother to the child.

Exclusive breastfeeding or mixed feeding

There is some evidence that the risk of transmission is greater if an infant is given any other foods or drinks at the same time as breastfeeding. The risk may be less if breastfeeding is exclusive. Other foods or drinks may cause diarrhoea and damage the gut, which might make it easier for the virus to enter the baby's body.

Condition of the breast

Nipple fissure (particularly if the nipple is bleeding), mastitis or breast abscess may increase the risk of HIV transmission through breastfeeding. Good breastfeeding technique helps to prevent these conditions, and may also reduce transmission of HIV.

Condition of the baby's mouth

Mouth sores or thrush in the infant may make it easier for the virus to get into the baby through the damaged skin.

C.4.3.2 Approaches to Prevent Mother-to-Child Transmission

Antiretroviral drugs (ARV) are used to reduce the amount of HIV in the body. It has been shown that if a short course of ARVs is given during pregnancy and at the time of delivery, the risk of transmission at that time can be reduced by about half. There are several different short ARV regimens, which can be used in different ways. Infants may also be given soon given ARVs birth or within 72 hours after birth.

Reducing HIV transmission to pregnant women, mothers and their children, including transmission by breastfeeding, should be part of a comprehensive approach both to HIV prevention, care and support, and to antenatal, perinatal and postnatal care and support. Those women who are HIV negative or of unknown HIV status should be encouraged and supported to breastfeed their children.

Prevention of HIV transmission during breastfeeding should be considered in a broad context taking into account the need to promote breastfeeding of infants and young children in the general population. Breastfeeding is a key strategy for child survival.

C.4.3.3 Infant Feeding Recommendations for HIV Positive Women

Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is Acceptable, Feasible, Affordable, Sustainable and Safe (AFASS). The avoidance of breastfeeding can be harmful for babies, especially where the AFASS criteria is not met. Replacement feeding strategies should therefore only be used if a woman knows that she is HIV-positive, has been counselled and meets the AFASS criteria.

The most appropriate infant feeding option for an HIV-infected mother should depend on her individual circumstances, including her health status and the local situation, but should take greater consideration of the health services available and the counselling support she is likely to receive.

Exclusive breastfeeding is recommended for HIV infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time.

Breastfeeding mothers of infants known to be HIV infected should be encouraged to continue breastfeeding.

When HIV-infected mothers choose not to breastfeed from birth or to stop breastfeeding later, they should be provided with specific guidance and support for at least the first two years of the child's life to ensure a nutritionally

adequate and safe diet is provided for the child.

Programmes should strive to improve conditions that will make replacement feeding safer for HIV- infected mothers and families.

All HIV-infected mothers should receive counselling, which includes provision of general information about the risks and benefits of various infant feeding options, and specific guidance in selecting the option most likely to be suitable for their situation. Whatever her decision, the health worker must follow up and continue to offer IYCF counselling and support especially at key points when decisions will be made.

Schedule for follow-up and support should include the antenatal period, delivery process and after delivery (6 hours, 6 days, 6 weeks, and thereafter every month until the baby is 24 months). At these points data should be collected on the respective tools used for antenatal care, delivery, post natal care and children's clinic (cards, registers, activity sheets).

The Zambia recommendations for Infant and Young Child Feeding (IYCF) in the Context of HIV were revised in 2007 based on the 2006 WHO Consensus Statement on HIV and infant feeding.

For Infant and Young Child Feeding in the General Population

In Zambia, breastfeeding should continue to be protected, promoted and supported.

For mothers who are HIV negative, or who are of unknown status, exclusive breastfeeding for 6 months and thereafter, continued breastfeeding up to 24 months or beyond with timely, adequate and safe complementary feeding is recommended.

All pregnant women should routinely be tested for HIV.

Infant feeding options (0-6 months) when a mother is HIV positive

There are only two main infant feeding options when the mother is HIV positive. These are:

Exclusive Breastfeeding

This means giving a baby only breast milk, and no other liquids or solids, not even water unless medically indicated. This should be for the first six months of life. This means that exclusive breastfeeding is recommended for HIV-infected women for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) for them and their infants before that time. The transition from breastfeeding should be within 2 to 3 days to 3 weeks (transition period). Abrupt weaning is not recommended.

Feeding the infant (0-6 months) after tested with PCR (Early Infant Diagnosis)

Breastfeeding mothers of infants and young children who are known to be HIV infected should be encouraged to continue breastfeeding.

If an infant tests HIV negative and is breastfeeding, counsel the mother and reassess AFASS (Acceptable, Feasible, Affordable, Sustainable and Safe)

If the infant's HIV status is unknown, encourage mother to use earlier chosen option pending results.

Feeding of infants born to HIV positive mothers after 6 months

All HIV Infected mothers should receive ARV interventions (i.e. full ART or prophylaxis) and breastfeed for at least 12 months. If a mother decides to stop breastfeeding at 12 months or at any time, then she should ensure that a nutritionally adequate and safe diet is provided for growth and development of the child.

C.4.3.4 Complementary Feeding

This means giving other foods in addition to breastfeeding. This should start after the first 6 completed months.

At six months, continuation of breastfeeding with additional appropriate complementary foods is recommended, while

the mother and baby continue to be regularly assessed.

The transition from complete stop of breastfeeding should be within 2 to 3 days to 3 weeks (transition period). Gradual stoppage of breastfeeding is recommended.

Complementary foods must be nutritious and should be given in adequate amounts so that the child can continue to grow. Feeding includes more than just the foods provided. It also includes how the food is prepared and fed to the child (texture, hygiene, supervised, from separate plate, etc.).

Complementary feeding recommendations

In the context of HIV, complementary feeding applies to both those breastfed and the non-breastfed.

Complementary feeding for breastfed infants (6-23 months)

- *6-8 months: 2-3 meals per day plus frequent breastfeeds (Depending on the child's appetite 1-2 snacks may be offered)*
- *9-11 months: 3-4 meals per day plus breastfeeds (Depending on the child's appetite 1-2 snacks may be offered)*
- *12-23 months: 3-4 meals per day plus breastfeeds (Depending on the child's appetite 1-2 snacks may be offered)*

Complementary feeding for non-breastfed infants and young children

Children over six months of age who are not receiving breast milk need 1-2 cups of milk (where one cup is equal to 250 mls) and an extra 1-2 meals per day in addition to the amounts of food recommended for those that are breastfed.

Infant feeding follow-up

Whatever the feeding decision of the mother, health workers should follow-up all HIV positive mothers and their exposed infants, and continue to offer infant feeding counselling and support, particularly at key points when feeding decisions may be reconsidered.

Feeding the sick child

Feeding a sick child is critical. HIV positive children are more likely to fall sick frequently. Sick children need to eat small frequent meals to enhance recovery. Breastfed infants and young children should continue breastfeeding during the period of sickness.

A mother who is HIV positive may decide that breastfeeding is her best option; she should be supported to establish and maintain it.

Advantages and disadvantages of exclusive breastfeeding for HIV-infected mother

Advantages:

- ✍ Breast milk is the perfect food for babies and protects them from many diseases, especially diarrhoea and pneumonia. Exclusive breastfeeding reduces the risk of dying from these diseases.
- ✍ Breast milk gives babies all of the nutrition and water they need. Breastfed babies do not need any other liquid or food.
- ✍ Breast milk is free, always available, and does not need any special preparation.
- ✍ Exclusive breastfeeding for the first few months may lower the risk of passing HIV, compared to mixed feeding.
- ✍ Many women breastfeed, so people will not ask why mothers are breastfeeding.
- ✍ Exclusive breastfeeding helps mothers recover from childbirth and protects them from getting pregnant again too soon.

Disadvantages:

- ✍ As long as the mother breastfeeds, her baby is exposed to HIV.
- ✍ It may be difficult to carryout if the mother gets very sick.

C.4.3.5 Hygienic Preparation of Feeds

A baby who is not breastfed is at increased risk of illness for two reasons:

- *Replacement feeds may be contaminated with organisms that can cause infection.*
- *The baby lacks the protection provided by the breast milk.*

After six months of age all children require complementary feeds. Clean, safe preparation and feeding of complementary foods are essential to reduce the risk of contamination and the illnesses that it causes.

Five keys to safer food

Keep clean

- ✗ Wash your hands before handling food and often during food preparation.
- ✗ Wash your hands after going to the toilet, changing the baby or in contact with animals.
- ✗ Wash very clean all surfaces and equipment used for food preparation or serving.
- ✗ Protect kitchen areas and food from insects, pests and other animals.

Separate raw and cooked foods

- ✗ Separate raw meat, poultry and fish from other foods.
- ✗ Use separate equipment and utensils such as knives and cutting boards for handling raw foods.
- ✗ Store foods in covered containers to avoid contact between raw and prepared foods.

Cook thoroughly

- ✗ Cook food thoroughly, especially meat, poultry, eggs and fish.
- ✗ Bring foods like soups and stews to boiling point. For meat and poultry, make sure juices are clear not pink.
- ✗ Reheat cooked food thoroughly. Bring to the boil or heat until too hot to touch. Stir while re-heating.

Keep food at safe temperatures

- ✗ Do not leave cooked food at room temperature for more than 2 hours.
- ✗ Do not store food too long, even in a refrigerator.
- ✗ Do not thaw frozen food at room temperature.
- ✗ Food for infants and young children should ideally be freshly prepared and not stored at all after cooking.

Use safe water and raw materials

- ✗ Use safe water or treat it to make it safe.
- ✗ Choose fresh and wholesome foods.
- ✗ Use pasteurized milk.
- ✗ Wash fruits and vegetables in safe water, especially if eaten raw.
- ✗ *Do not use food beyond its expiry date.*

C.4.4 Summary of International Code of Marketing of Breast Milk Substitutes

Abstracted, adapted and reformatted from “Infant and Young Child Feeding Counselling: An Integrated Course”, Participant’s Manual, 2008, Ministry of Health and National Food and Nutrition Commission, with support from: USAID, IYCN, UNICEF, WHO. Pages 170-172. Only portions of the information from that publication are provided here.

In 1981, the World Health Assembly (WHA) adopted The International Code of Marketing of Breast Milk Substitutes, which aims to regulate the promotion and sale of formula. This Code is a minimum requirement to protect breastfeeding. Zambia is a signatory to the 1981 WHA Resolution on marketing of breast milk substitutes and the voluntary Code of Ethics of Marketing of Breast Milk Substitutes which was adopted by the WHA in 1982. The Code is a code of **marketing**. It does not ban infant formula or bottles, or punish people who bottle feed. The Code allows baby foods to be sold everywhere, and it allows every country to make its own specific rules.

In Zambia, in 2006, the code regulations were adopted as a component of the Food and Drug Act. This is now mandatory.

The Code covers all breast milk substitutes – including infant formula, any other milks or foods, including water and teas and cereal foods which are sometimes marketed

as suitable for infants under six months of age; and also feeding bottles and teats.

C.4.4.1 Summary of Zambian Regulations Regarding the Code of Marketing of Breast Milk Substitutes

In Zambia a manufacturer or a distributor may NOT advertise breast milk substitutes and other designated products. This includes:

- *No promotion*
- *No sample to pregnant women*
- *No sale enticement in form of prizes, gifts, etc.*
- *No dispensing to pregnant women, mothers, etc.*
- *Manufacturer or distributor shall not offer financial or material gift to pregnant women, mothers or infants and their families or health care facilities*
- *Health Care Facility is not to be used for promoting breast milk substitutes and other designated products*
- *No promotions at facility*
- *No displays at facility*
- *No distribution of materials and equipment Including note pads, pen, calendars, posters, growth charts and toys*
- *Prohibitions for manufacturer and distributor and or their agents include:*
 - o *No gifts in cash or kind to health worker*
 - o *No salary, wages, other incomes*
 - o *No donations or selling less than 80%*

- o *No sponsoring of events aimed at pregnant women, mothers of infants or their families*
- *Prohibitions for health workers and proprietors include:*
 - o *No display of materials within facility*
 - o *No acceptance of gifts, benefits, etc. from manufacturer or distributors*
 - o *No health worker to give gift of a designated product*
 - o *No acceptance of scholarship*

Power of Relevant Authority to give donation:

Relevant Authority – Food & Drugs Board under Act on condition that there:

- *Medical condition*
- *Orphaned infants, orphanages, disasters, relief operations*
- *Supply as long as infant needs them*
- *Marketing Personnel:*
 - o *Shall not gain access to target audience*
 - o *Shall not instruct target population in a matter of nutrition or feeding of infants*
 - o *Shall not solicit target population to use a designated product*

Examination for screening information and educational materials:

(The following should be explained):

- *Importance of breastfeeding*
- *Interference of artificial feeding*
- *Health hazards of bottle feeding*
- *Importance of introducing complementary foods at six months*
- *Labelling of infant formula designated products*
- *Labels not to include photography, drawing, graphic representation other than the method of preparation*

More information should be provided:

- *Breast milk is the best for your baby*
- *Follow cleaning and sterilisation instructions carefully*
- *Health hazards warnings of inappropriate preparation*
- *Age at which product is recommended*

Breast milk substitutes to be of recognised standard:

- *Food and Drugs Act*
- *The Standard Act*
- *Codex Alimentarius Commission*
- *Codex Code of hygienic Practices for foods for Infants and Children*

C.4.4.2 Reporting Violations of the Code

Those who observe any violations of the legislation should inform their supervisor, an environmental health officer, District Health Office (DHMT) or the MOH. It is important

that all facilities comply with ALL the provisions of the legislation.

C.4.4.3 The Code and Persons Living with HIV

The Code is still relevant, and it fully covers HIV positive mothers. It protects and supports breastfeeding as well as regulates the marketing of breast milk substitutes. If breastfeeding is not protected for mothers who are HIV positive, there is high risk of children suffering from malnutrition and/or dying from diseases caused by poor hygiene (diarrhoea). It further reduces “spill over” to mothers who are HIV negative or who have not been tested. The code also makes sure that the breast milk substitutes conform to standards which are internationally and nationally accepted thus protecting mothers and children using these products.

C.4.5 Complementary Feeding of Children 6-24 Months of Age

Abstracted and adapted from the “Participant’s Manual of Infant and Young Child Feeding Counselling: An Integrated Course”, (Ministry of Health, 2008). It has also been reformatted to fit the FWRG. The full publication is available from the Ministry of Health and from the National Food and Nutrition Commission. Materials with similar but expanded information are available from the website of the WHO.

C.4.5.1 Improving Complementary Feeding

The time from six months of age until two years is also crucial in the child's growth and development. A definition of complementary feeding is "giving other foods in addition to breast milk." Additional foods and liquids are called complementary foods, as they are additional or complementary to breastfeeding, rather than adequate on their own as the diet. Complementary foods must be nutritious foods and in adequate amounts so the child can continue to grow.

Improved complementary feeding is a major means by which to prevent child stunting during the first two years of life. Community level Field workers from each sector as well as members of the community and families have roles to play in promoting, advising, and counselling on effective complementary feeding. These roles include advising on correct practices, and helping assure families grow or buy and preserve sufficient quantities of different types of food needed for highly nutritious meals. They include better organization of self help and community activities that support food insecure families and those needing help to be able to properly feed their young children.

All Field workers should obtain basic information and some details on complementary feeding. These subsections provide this, drawing mainly from various parts of Ministry of Health publications that were developed to train Community Health Workers (CHWs) on how to counsel

families in maternal, infant and young child feeding and care.

CHWs who have received such training should take the lead in many of the community level actions that support effective complementary feeding during the 1st 1000 MCDs.

Incorrect feeding practices are among the major causes of malnutrition in Zambia for children under the age of 5 years.

- *Children should be breastfed exclusively from birth up to 6 months of age and thereafter be introduced to other foods.*
- *At six months of age, the baby has grown up and the nutrients in the mother's milk are not enough.*
- *Complementary feeding is the introduction of other foods to the baby.*
- *Start the baby on light foods and then increase the thickness slowly to help the baby's body to learn to digest the new food.*
- *Feed the baby frequently, at least three times if the child is breastfeeding or five times if the baby is not breastfeeding. The baby has a small stomach which can only take a little food at a time.*

During the period of complementary feeding, the young child gradually becomes accustomed to eating family foods, though breastfeeding continues to be an important source of nutrients and protective factors until the child is

at least two years old.

Ensure that the baby's food is clean.

C.4.5.2 Recommended Feeding Practices for Children from 6 Months Up to 12 Months

- *Continue breastfeeding at least 8 times a day (both day and night).*
- *Feed complementary foods at least 3 times a day if the baby is breastfed and 5 times a day if the baby is not breastfed.*
- *Give about 3/4 cups food (150-200 mls) per meal.*
- *The meal should be thick porridge enriched with sugar, oil, pounded groundnuts, soya flour, milk, sour milk, beans, kapenta, dry caterpillars, mashed green leafy vegetables or avocado.*

OR

- *Nshima (or rice or mashed potatoes) with mashed relish that is cooked in oil or groundnuts.*
- *The soup by itself is not enough.*
- *Between the main meals, give other foods such as mashed banana, pawpaw, avocado, mango or orange juice, milk, bread, munkoyo, chibwantu, chikanda, mashed pumpkins, beans, cassava or boiled sweet potatoes.*
- *Enrich cassava, sweet potatoes and pumpkin with pounded groundnuts or sugar, milk or oil.*
- *Where possible, mash these foods and feed the child.*

NOTE: See Section on Recipes for Complementary Feeding Pages 387-427

C.4.5.3 Recommended Feeding Practices for Children from 12 Months Up to 2 Years

- *Continue breastfeeding as often as child wants.*
- *Feed the child with the food which the rest of the family is eating 3 times a day. Give 2 snacks in between the main meals. Serve at least one cup of the family food (e.g. nshima with mashed relish) per meal.*

NOTE: See Section on Recipes for Complementary Feeding Pages 387-427

C.4.5.4. Recommended Feeding Practices for Children 2 Years or Older

- *Feed family meals such as nshima with relish at least 3 times a day.*
- *Give fruits (such as banana, orange, mango, pawpaw, guava), sump, fried sweet potatoes, bread or rice with sugar or oil, 2 times a day between family meals*
- *Locally available foods that can be used for complementary feeding. Examples of some locally available foods that can be used for complementary feeding are: -*
 - o *Maize meal for porridge or nshima: Maize, millet, sorghum and cassava.*
- *Foods added to porridge: Milk, sugar, cooking oil, mashed or pounded relish such as beans, fish, kapenta, beef or green leafy vegetables.*

- *5 Foods given in between main meals: Fruits such as bananas, mangoes, oranges, mashed beans boiled or fried cassava or sweet potatoes, or chikanda.*
- *Fluids that can be given to children: Water, chibwantu, munkoyo, milk and fruit juices (mango and oranges etc).*

NOTE: See Part C Section on Nutritious Recipes

C.4.5.5 How to Feed a Child Who is Not Feeling Well during or after Illness

- *If the child is still breastfeeding, give the breast more often, for a longer time, day and night.*
- *Give the child small feeds more often than usual.*
- *Give the child soft foods and foods that they like. Try not to feed the child with the same food.*
- *Encourage the child and assist them to eat.*
- *Increase the amount of food and encourage the child to eat as much as possible for at least one week after the illness is over*

NOTE: See Section on Recipes for what to feed a child with different illnesses.

C.4.5.6 Sustaining Breastfeeding

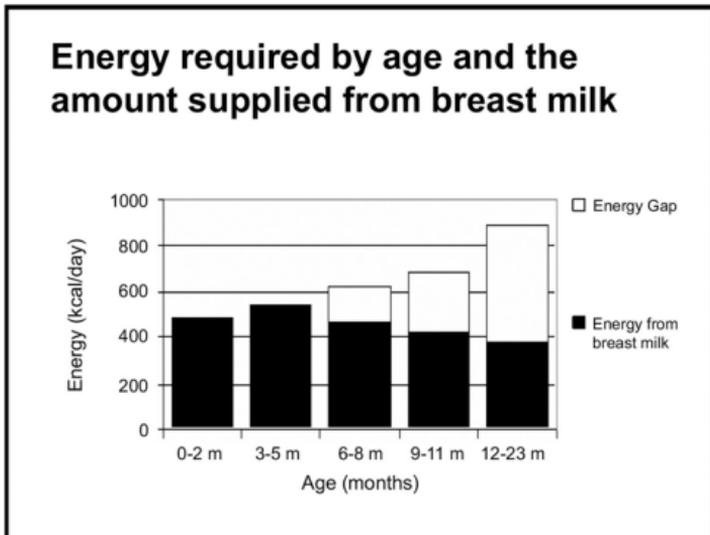
Breast milk alone is able to provide all the nutrients that a baby needs in the first six months of life. From 6-12 months, breastfeeding continues to provide half or more of the child's nutritional needs, and from 12-24 months, at least one-third of their nutritional needs. As well as nutrition, breastfeeding continues to provide protection

from many illnesses for the child and provides closeness and contact that helps psychological development.

Key Complementary Feeding Message 1:

Breastfeeding for two years or longer helps a child to develop and grow strong and healthy.

Our body uses food for energy to keep alive, to grow, to fight infection, to move around and be active. Food is like the wood for the fire – if we do not have enough good wood, the fire does not provide good heat or energy. In the same way, if young children do not have enough good food, they will not have the energy to grow and be active.



Energy Gap

On this graph, each column represents the total energy needed at that age. The columns become taller to indicate that more energy is needed as the child becomes older, bigger and more active. The dark part shows how much of this energy is supplied by breast milk.

C.4.5.7 The Optimal Age to Start Complementary Feeding

From about six months onwards, there is a gap between the total energy needs and the energy provided by breast milk. The gap increases as the child gets bigger. Therefore, for most babies, six months of age is a good time to start complementary foods. Complementary feeding from six completed months helps a child to grow well and be active and content.

Key Complementary Feeding Message 2:

Starting other foods in addition to breast milk at six completed months helps a child to grow well.

At six completed months, babies need to learn to eat thick porridge, puree and mashed foods as these foods fill the energy gap more than liquids. At six completed months of age it becomes easier to feed thick porridge, puree and mashed food because babies:

- *Show interest in other people eating and reach for food*
- *Like to put things in their mouths*
- *Can control their tongues better to move food*

around their mouths

- *Start to make up and down ‘munching’ movements with their jaws.*

In addition, at this age, babies’ digestive systems are mature enough to begin to digest a range of foods.

Adding complementary foods **too soon** (before six months) may:

- take the place of breast milk, making it difficult to meet the child’s nutritional needs
- result in a diet that is low in nutrients if thin, watery soups and porridges are used because these are easy for babies to eat
- increase the risk of illness because less of the protective factors in breast milk are consumed
- increase the risk of diarrhoea because the complementary foods may not be as clean or as easy to digest as breast milk
- increase the risk of wheezing and other allergic conditions because the baby cannot yet digest and absorb non-human protein well
- increase the mother’s risk of another pregnancy if breastfeeding is less frequent

Most babies do not need complementary foods before six months of age. If the baby is less than six months old, counsel the mother on how to breastfeed exclusively in a way that helps the baby to get enough breast milk. If the baby is not receiving breast milk, continue using adequate replacement milk feeding until six months of age rather than add complementary foods early.

Starting complementary foods **too late** is also a risk because:

- the child does not receive the extra food required to meet his/her growing needs
- the child grows and develops slower
- might not receive the nutrients to avoid malnutrition and deficiencies such as anaemia from lack of iron.

C.4.5.8 Foods to Fill Energy Gap

All foods provide some energy. However, every community has at least one staple or main food. People generally eat large amounts of these staples and they provide much of the energy needed. Staples also provide some protein and other nutrients, but they cannot provide all the nutrients needed on their own. The staple must be eaten with other foods for a child to get enough nutrients.

Fats and Oils

- ✍ Oils and fats are concentrated sources of energy. A little oil or fat, such as one-half teaspoon, added to the child's bowl of food, gives extra energy without adding much volume. The addition of fatty/oily foods also makes thicker porridge or other staple softer and easier to eat.
- ✍ Fats and oils can also be used for frying foods, or spread on foods such as bread. The fat or oil should be fresh as it can go bad with storage.
- ✍ If a large amount of oil is added, the child may become full before they have eaten all the food. This means they may get the energy from the oil but less of the other nutrients because they eat less food overall.
- ✍ If a child is growing well, extra oil is usually not needed. The child who takes too much oil or fried foods can become overweight.
- ✍ Sugar and honey are also energy-rich and can be added to foods in small quantities to increase the energy concentration. However, these foods do not contain any other nutrients.
- ✍ Caregivers need to watch that sugary foods do not replace other foods in the diet. For example, sweets, sweet biscuits and sugary drinks used instead of a meal for a young child.
- ✍ Essential fatty acids are needed for a child's growing brain and eyes, and for healthy blood vessels. These essential fatty acids are present in breast milk (see Session 2).
- ✍ For children over six months old, who are not breastfed, good sources of essential fatty acids are fish, avocado, nut pastes and vegetable oil. Animal-source foods also provide essential fatty acids (see Session 30).

It is important that you know what the main staples that families eat in your area are. Then you can help them to use these foods for feeding their young children.

The stomach of a young child is small. At eight months

of age the stomach can hold about 200 mls at one time. Thin foods and liquids fill it quickly before the energy requirement is met.

The consistency or thickness of foods makes a big difference to how well that food meets the young child's energy needs. Foods of a thick consistency help to fill the energy gap.

Key Complementary Feeding Message 3:

Foods that are thick enough to stay in the spoon give more energy to the child.

Just right



Ways to Enrich a Child's Complementary Foods

Foods can be made more energy and nutrient rich in a number of ways:

- ✍ For a porridge or other staple
 - Prepare with less water and make a thicker porridge as we just saw. Do not make the food thin and runny.
 - Roast cereal grains before grinding them into flour. Roasted flour does not thicken so much, so less water is needed to make porridge.
- ✍ For a soup or stew
 - Take out a mixture of the solid pieces in the soup or stew such as beans, pumpkin leaves, bean leaves and meat. Mash this to a thick puree and feed to the child instead of the liquid part of the soup.
- ✍ Add energy or nutrient rich food to the porridge, soup or stew to enrich it. This enriching is particularly important if the soup is mostly liquid with few beans, vegetables or other foods in it
 - Replace some (or all) of the cooking water with fresh or soured milk, goat milk, or cream.
 - Add a spoonful of milk powder after cooking.
 - Mix legume, (bean, cowpeas, Bambara nut) flour with the mealie meal before cooking.
 - Stir in a paste made from nuts or seeds such as groundnut paste (peanut butter) or pumpkin seed paste.
 - Add a spoonful of margarine, butter, red palm oil (chikondya).

Key Complementary Feeding Message 4:

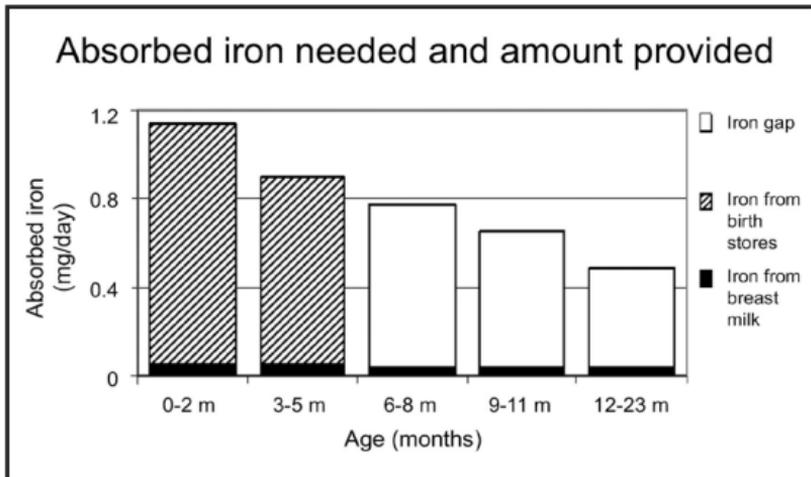
Foods from animals are especially good for children, to help them grow strong and healthy.

C.4.5.9 Filling the Iron Gap

Another nutrient gap to be filled is for iron. The young child needs iron to make new blood, to assist in growth and development and to help the body to fight infections.

In this graph, the top of each column represents the amount of absorbed iron that is needed per day by the child. A full term baby is born with good stores of iron to cover their needs for the first six months (This is the striped area).

The black area along the bottom of the columns shows us that there is some iron provided by breast milk all the time breastfeeding continues.



The young child grows faster in the first year than in the second year. This is why the need for iron is higher when the child is younger.

These iron stores are used up over this first six months, so after that time we see a gap between the child's needs and what they receive from breast milk. This gap needs to be filled by complementary foods. (The white area – this is the gap). It can be hard for children to meet their iron needs without a variety of animal foods in their diet. Some children may need supplements if they do not eat enough iron containing foods or if they have particularly high needs for iron.

Zinc is another nutrient that helps children to grow and stay healthy. It is usually found in the same foods as iron, so we assume if they are eating foods rich in iron they are also receiving zinc.

How the Field worker can help:

- To identify local foods and food preparations that are rich sources of iron
- To assist families to use these iron rich foods to feed their young children.

The importance of animal-source foods

Foods from animals, the flesh (meat) and organs/offal such as liver, heart and blood, as well as milk, yoghurt, cheese and eggs are rich sources of many nutrients. The flesh (meat) and organs/offal such as liver, heart and blood, as

well as milk, yoghurt, cheese and eggs are rich sources of many nutrients. The meat and organs of animals, birds and fish (including kapenta), as well as foods prepared with blood, are the best sources of iron and zinc. Liver is not only a good source of iron but also vitamin A. Animal-source foods should be eaten daily or as often as possible. This is especially important for the non-breastfed child.

Foods from animals such as milk and eggs are good for children because they are high in protein and other nutrients. However, milk and milk products, such as cheese and yoghurt, are not good sources of iron.

Milk fat (cream) contains vitamin A so foods made from whole milk are good sources of vitamin A. Foods made from milk (whole milk or skimmed or powdered) and any food containing bones, such as pounded dried fish, are good sources of calcium to help bones to grow strong. Egg yolk is another store of nutrients and a rich source of vitamin A.

In Zambia vitamin A supplementation programmes are conducted at children's clinics and during child health week (CHWk).

Key Complementary Feeding Message 5:

Peas, beans, lentils and nuts and seeds are good for children.

Legumes or pulses such as groundnuts, beans, cowpeas,

and peas as well as other nuts and seeds, are good sources of protein. Legumes are a source of iron as well.

Eating a variety of foods at the same meal can improve the way the body uses the nutrients. For example, combining a cereal with a legume (example: nshima and beans), or adding a milk product or egg to the legume (example: maize meal with milk).

The amount of iron that a child absorbs from food depends on:

- ✍ the amount of iron in the food
- ✍ the type of iron (iron from meat and fish is better absorbed than iron from plants and eggs)
- ✍ the types of other foods present in the same meal (some *increase* iron absorption and others *reduce* absorption)
- ✍ whether the child has anaemia (more iron is absorbed if anaemic).

Eating these foods at the same meal increases the amount of iron absorbed from eggs and plant foods such as cereals, pulses, seeds, and vegetables:

- ✍ foods rich in vitamin C such as tomato, broccoli, guava, mango, pineapple, pawpaw, orange, lemon and other citrus fruits
- ✍ small amounts of the meat or offal of animals, birds, fish and other sea foods.

Iron absorption is decreased by

- ✍ drinking teas and coffee
- ✍ foods high in fibre such as bran
- ✍ foods rich in calcium

Some ways of preparing legumes, nuts and seeds to make them easier for the child to eat and digest:

- *Soak beans before cooking and throw away the soaking water.*
- *Remove skins by soaking raw seeds and then rubbing*

the skins off before cooking.

- *Boil beans then sieve to remove coarse skins.*
- *Roast nuts and seeds and pound to a paste.*
- *Add beans/lentils to soups or stews.*
- *Mash cooked beans well.*

As well as pulses, dark green leaves such pumpkin leaves, amaranthus and sweet potato leaves are also a source of iron. However, it is not enough that a food has iron in it, the iron must also be in a form that the child can absorb.

Key Complementary Feeding Message 6:

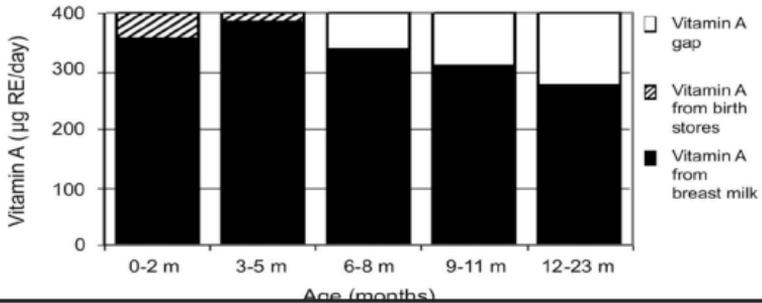
Dark green leaves and yellow coloured fruit and vegetables help a child have healthy eyes and fewer infections.

C.4.5.10 Foods that Can Fill the Vitamin A Gap

Another important nutrient is vitamin A, which is needed for healthy eyes and skin and to help the body fight infections.

Gap for vitamin A

Vitamin A needed and amount provided



Again, on this graph the top of each column represents the amount of vitamin A that the child needs each day. Breast milk supplies a large part of the vitamin needed provided the child continues to receive breast milk and the mother's diet is not deficient in vitamin A. As the young child grows, there is a gap for vitamin A that needs to be filled by complementary foods.

Good foods to fill this gap are dark green vegetables such as pumpkin leaves, amaranthus, rape, spinach and sweet potato and yellow coloured vegetables and fruits such as carrots, pumpkins, yellow sweet potatoes, pawpaw and mangoes. Other sources of vitamin A that we mentioned already were:

- *Liver from animals*
- *Milk and foods made from milk such as butter, cheese and yoghurt*
- *Egg yolks*
- *Margarine, dried milk powder and other foods fortified with vitamin A.*

- *Unbleached red palm oil (chikodya) is also rich in vitamin A.*

Vitamin A can be stored in a child's body for a few months. Encourage families to feed foods rich in vitamin A as often as possible when these foods are available, ideally every day. A variety of vegetables and fruits in the child's diet help to meet many nutrient needs.

FWs need to be aware of the products that are available in the area. If the Field workers know about the products, they can discuss with an individual family if these products are useful for their child or not.

Fortified complementary foods

- ✍ Water is good for thirst. A variety of pure fruit juices can be used also. Too much fruit juice may cause diarrhoea and may reduce the child's appetite for foods.
- ✍ Drinks that contain a lot of sugar may actually make the child thirstier as their body has to deal with the extra sugar. If packaged juice drinks are available in your area, find out which ones are pure juices and which ones have added sugar. Fizzy drinks (sodas) are not suitable for young children.
- ✍ Teas and coffee reduce the iron that is absorbed from foods. If they are given, they should not be given at the same time as food or within two hours before or after food.
- ✍ Sometimes a child is thirsty during a meal. A small drink will satisfy the thirst and they may then eat more of their meal.
- ✍ Drinks should not replace foods or breastfeeding. If a drink is given with a meal, give only small amounts and leave most until the end of the meal. Drinks can fill up the child's stomach so that they do not have room for foods.
- ✍ Remember that children who are not receiving breast milk need special attention and special recommendations. A non-breastfed child aged 6-24 months of age needs approximately 4-6 cups of water per day in a hot climate. This water can be incorporated into porridges or stews, but clean water should also be offered to the child several times a day to ensure that the infant's thirst is satisfied.

C.4.5.11 Fortified Complementary Foods

In some countries, there are low priced processed complementary foods such as iron fortified flour and fortified baby cereals that are made locally. These are usually convenient and nutritious and families can be made aware of them.

C.4.5.12 Fluid Needs of Young Children

The baby who is exclusively breastfeeding receives all the liquid he needs in the breast milk. When other foods are added to the diet, the baby may need extra fluids. Offer fluids when the child seems thirsty. Extra fluid is needed if the child has a fever or diarrhoea.

C.4.5.13 Quantity, Variety and Frequency of Feeding

The importance of using a mixture or variety of foods

Most adults and older children eat a mixture of foods at mealtime. In the same way, it is important for young children to eat a mix of good complementary foods. When you build on the usual food preparations in a household, it is easier for families to feed their young children a diet with nutritious complementary foods. The gaps for iron and for energy may be the hardest to fill.

Animal-source foods are special foods for children. These

foods should be eaten every day or as often as possible. If foods fortified with iron are available, these could be used to help fill the iron gap. If an iron rich food is not available, you as the health worker may need to recommend using a micronutrient supplement to ensure he gets sufficient iron and other micronutrients.

To give more energy foods, families can give some extra foods between meals that are easy to prepare. These extra foods are in addition to the meals – they should not replace them. These extra foods are often called “snacks.” However, they should not be confused with foods such as sweets, crisps or other processed foods, which may include the term “snack” foods in their name.

Good snacks provide both energy and nutrients. Sour milk, yoghurt and other milk products; bread or biscuits spread with butter; margarine, nut paste or honey, fruit, bean cakes, cooked potatoes, are all good snacks.

Key Complementary Feeding Message 7:

A growing child needs three meals plus snacks per day: give a good variety of foods.

Suggest that families try each day to give a dark-green vegetable such as pumpkin leaves, amaranthus rape, spinach and sweet potato or yellow coloured fruit or vegetable such as carrots, pumpkins, yellow sweet potatoes, pawpaw and mangoes and an animal-source food in addition to the staple food.

Amount of complementary food to be offered

When a child starts to eat complementary foods, he needs time to get accustomed to the new taste and texture of the foods. A child needs to learn the skill of eating. Encourage families to start with 2-3 small spoonfuls of the food twice a day.

Key Complementary Feeding Message 8:

A growing child needs increasing amounts of food.

As the child gets older, the amount of food offered increases. Give as much as the child will eat with active encouragement.

Age	Texture	Frequency	Amount of food an average child will usually eat at each meal ¹
6-8 months	Start with thick porridge, well mashed foods continue with mashed family foods	2-3 meals per day plus frequent breastfeeds Depending on the child's appetite 1-2 snacks may be offered	Start with 2-3 tablespoonfuls per feed increasing gradually to ½ of a 250 ml cup
9-11 months	Finely chopped or mashed foods, and foods that baby can pick up	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	1/2 of a 250 ml cup/bowl
12-23 months	Family foods, chopped or mashed if necessary	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	3/4 to 1 of a 250 ml cup/bowl
If baby is not breastfed, give in addition: 1-2 cups of milk per day, and 1-2 extra meals per day.			

C.4.5.14 Feeding Care Effect on A Child's Food Intake

A child needs food, health and care to grow and develop. Even when food and health care are limited, good care giving can help make best use of these limited resources.

“Care” refers to the behaviours and practices of the caregivers and family that provide the food, health care, stimulation and emotional support necessary for the child's healthy growth and development.

An important time to use good care practices is at mealtimes – when helping young children to eat.

Assist children to eat, being sensitive to their cues or signals.

A child needs to learn how to eat, to try new food tastes and textures. A child needs to learn to chew, move food around the mouth and to swallow food. The child needs to learn how to get food effectively into the mouth, how to use a spoon and how to drink from a cup.

Families tend to feed their young children in one of three different ways:

One way is high control of the feeding by the caregiver who decides when and how much the child eats. This may include force-feeding.

Another feeding style is that the children are left to feed themselves. The caregiver believes that the child will eat if hungry. The caregiver may also believe when the child stops eating that they have had enough to eat.

The third style is feeding in response to the child's cues or signals using encouragement and praise.

Feed slowly and patiently, encourage but do not force. Talk to children during feeding with eye to eye contact.

Feeding times are periods of learning and love. Children

may eat better if feeding times are happy. Feed when the child is alert and happy. If the child is sleepy or over-hungry and upset, he may not eat well. Regular mealtimes and the focus on eating without distractions, may also help a child learn to eat.

Key Complementary Feeding Message 9:

A young child needs to learn to eat: encourage and give help... with lots of patience.

Responsive feeding techniques

- ✍ Respond positively to the child with smiles, eye contact and encouraging words
- ✍ Feed the child slowly and patiently with good humour
- ✍ Try different food combinations, tastes and textures to encourage eating
- ✍ Wait when the child stops eating and then offer again
- ✍ Give finger foods that the child can feed him/herself
- ✍ Minimize distractions if the child loses interest easily
- ✍ Stay with the child through the meal and be attentive.

C.4.5.15 Feeding During Illness and Low-Birth-Weight Babies

During infections, the child needs more energy and nutrients to fight the infection. If they do not get extra food, their fat and muscle tissue is used as fuel. This is why they lose weight, look thin and stop growing.

The goal in feeding a child during and after illness is to have

him return to the growth he had before illness.

Sick children often need extra drinks and food during illness – for example if they have fever or diarrhoea. A sick child may prefer breastfeeding to eating other foods. Do not withhold food from a sick child.

Key Complementary Feeding Message 10:

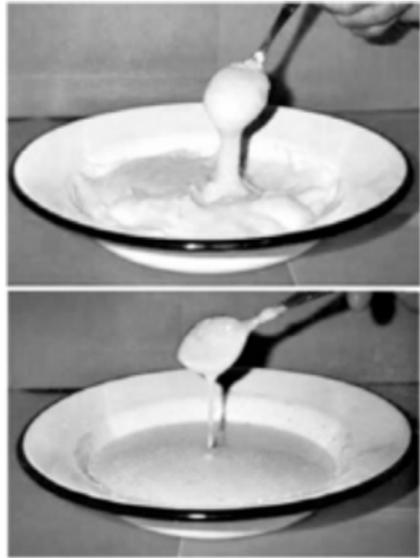
Encourage the child to drink and eat during illness and provide extra food after illness to help a child recover quickly.

A child's appetite may be poor during illness. Even with encouragement to eat, the child may not eat well. The child's appetite usually increases after the illness so it is important to continue to give extra attention to feeding after the illness. This is a good time for families to give extra food so that lost weight is quickly regained. This allows 'catch-up' growth. Young children need extra food until they have regained all their lost weight and are growing at a healthy rate

Summary of key and additional messages for families on complementary feeding:

- *A growing child needs 3 meals plus snacks: give a variety of foods*
- *A growing child needs increasing amounts of food*
- *A young child needs to learn to eat: encourage and give help... with lots of patience*

- *Number of meals for child 6–8 months: 3 meals*
- *Amount of food: food for child 6-8 months: gradually increase to approximately 1/3 cup at each meal*
- *Number of meals for child 9-23 months: 3 meals and 1-2 snacks*
- *Amount of food for child 9-11 months:*



- *approximately 3/4 cup at each meal*
- *Amount of food for child 12-23 months: approximately a full cup at each meal*
- *Foods that are thick enough to stay in the spoon give more energy to the child*
- *Animal-source foods should be eaten by the child daily*
- *Animal-source foods are especially good for children to help them grow strong and lively*
- *Try to give dairy products daily*
- *If meat is not eaten, pulses or nuts should be eaten daily, with an iron enhancer such as a vitamin C rich food*
- *A dark-green or yellow vegetable or yellow fruit should be eaten daily*
- *Vitamin and mineral supplements may be needed if child's needs are not met by food intake*

- *Peas, beans, lentils, nuts and seeds are good for children*
- *Dark-green leaves and yellow coloured fruits and vegetables help the child to have healthy eyes and fewer infections*
- *The child should continue to eat and drink during illness and recovery*
- *Encourage the child to drink and eat during illness and provide extra food after illness to help them recover quickly*

Feeding the child who is sick

- ✍ *Encourage the child to drink and to eat – with lots of patience*
- ✍ *Feed small amounts frequently*
- ✍ *Give foods that the child likes*
- ✍ *Give a variety of nutrient-rich foods*
- ✍ *Continue to breastfeed – often ill children breastfeed more frequently*

C.4.6 Micronutrients

Abstracted and adapted (including some illustrations) from “Nutrition Handbook for Community Mobilisers,” Government of Nepal, Government of Spain, FAO, 2009. Pages 16-17 for Iron, 13-14 for Iodine, and 19.

C.4.6.1 Vitamin A keeps the body healthy

The body needs vitamin A because the vitamin:

- *protects against illness*
- *helps the body to recover more quickly from illness*
- *helps to keep eyes healthy*

- *helps to keep the skin, gut and lungs healthy.*

Vitamin A is needed for growth and to help fight and reduce morbidity and mortality, especially in children with measles, diarrhoea, and malnutrition. It also prevents blindness and helps to maintain a healthy mucous membrane and skin. Vitamin A supplementation of young children is recommended in Zambia because of widespread vitamin A deficiency. Vitamin A supplementation is one of the most cost effective and important public health interventions.

As well as for routine preventive supplementation, vitamin A is also administered as part of the treatment of:

- *Malnourished children*
- *Children with measles*
- *Children with persistent diarrhoea (lasting two weeks or more)*
- *Children with night blindness.*

People who do not eat enough vitamin A are more likely to become ill and die. Children especially are at high risk. Thousands of children die every year because of lack of vitamin A.

The first signs of vitamin A deficiency are night blindness, dry eyes and eye infections. Vitamin A can be found in a variety of animal and plant foods.

Animal foods that have plenty of vitamin A:

- *Liver and kidney*
- *Eggs and milk*
- *Butter and cheese*
- *Whole dried fish (including liver)*
- *The body can easily use vitamin A from animal foods.*



Plant foods that have plenty of vitamin A

- *Orange and yellow vegetables, (carrots, pumpkin, orange and yellow sweet potatoes)*
- *Green leafy vegetables, (spinach, amaranthus, kale)*
- *Orange and yellow fruits, ripe mangoes, ripe pawpaws), carrots*
- *Fresh red palm oil*



To get more vitamin A from plant foods, cook them (if possible) and add some fat or oil. The darker the green vegetables are, the more vitamin A they have. Some fats and oils that increase vitamin A absorption are butter and margarine, vegetable oil, groundnut or sunflower oil.

For babies under 6 months the best source of vitamin A is breast milk, if the mother has enough vitamin A.

In areas with vitamin A deficiency, health workers advise supplements for breastfeeding women and children.

Vitamin A supplements should be given to young children above six months.

High dosages of vitamin A supplements should not be given to women during pregnancy because they might harm the unborn baby.

For Women:

To get enough vitamin A, they should eat at least one vitamin A rich food per day, e.g.:

- *1 tablespoon of red palm oil, 1 medium size mango, 1 egg-sized piece of liver, 1 medium size small pawpaw, 1 medium size yellow sweet potato or 1.5 cups of green leafy vegetables.*
- *Vitamin A rich vegetables should be cooked with some oil to help the body make use of the vitamin.*

Children 6 months and older should be given plenty of vitamin A rich foods to prevent illness, night blindness and save lives.

C.4.6.2 Iodine Is Important for Brain Development and Proper Body Function

Iodine helps the brain and body function properly. It is essential to the healthy development of unborn babies and young children. It helps pregnant women to deliver healthy babies.

A sign of a serious lack of iodine in the diet is the swelling

of the front neck, called goitre.

Everybody needs iodine in their diet to stay healthy and prevent goitre

In particular, pregnant women, breastfeeding women and young children, especially in the 1st 1000 MCDs period need enough iodine to make sure the child develops well mentally and physically.

Iodine is found in iodized salt, sea-fish and seafood. In areas where it is hard to get sea-fish and seafood, iodized salt is an important part of every diet.

- *For babies under 6 months, the best source of iodine is breast milk.*
- *Encourage the families to always use iodized salt when cooking and eating family meals and to:*
 - o *Make sure the salt they buy carries the label iodized*
 - o *Add iodized salt to food on the table or when it is nearly cooked. Do not cook iodized salt too long; it destroys the iodine.*

Do not use a lot of salt

Too much salt is not good for your heart and blood pressure.

Use herbs, spices, garlic and onions to flavour foods instead of too much salt.

C.4.6.3 Deworming (Pregnancy)

All pregnant women should be given deworming tablets (mebendazole) once in the second or third trimester. Worms prevent the body of a pregnant woman from absorbing the nutrients in the food she eats.

Women should be given 500 mg every six months, BUT NOT during the first trimester (1st three months) of pregnancy.

Children from the age of 1 year (12 months) should receive deworming tablets every six months

C.4.6.4 Extra Iron Is Needed during Pregnancy and in Children 6-24 Months of Age

- *Iron keeps the body strong and helps children learn*
- *Iron strengthens the blood.*
- *Iron builds muscles and brain.*
- *Iron helps the body to work properly.*

A lack of iron in the diet causes anaemia, which makes people tired and breathless. A well-balanced diet with a variety of foods provides enough iron. Iron is found in these animal foods: Liver, blood and other offal

- *Flesh of animals, birds and fish, especially red meat, eggs*

Iron is also found in some plant foods:

- *Whole grain cereals (e.g. Maize, millet, sorghum, wheat)*
- *Legumes (e.g. Beans, peas, lentils)*
- *Dark green leafy vegetables (e.g. Spinach, amaranthus, pumpkin leaves, kale).*

Iron from plant foods can be better used by the body if it is eaten with animal foods or fruits.

Good fruits to eat with iron rich plant foods are orange, mango, guava, pawpaw and lemon.

Women need more iron

Women and older girls should have more iron rich foods than men because they lose iron during menstruation.

During pregnancy, anaemia can cause problems during delivery and hinders the healthy development of the child. For this reason, pregnant women are often advised to take iron tablets.

Pregnant women should get advice from local health care centres and may receive iron tablets.

FWs should encourage women to:

- *Eat a variety of foods every day, including iron rich foods.*
- *Eat fruits with or after meals to make better use of the iron in the food.*

- *Not drink tea or coffee until 1 or 2 hours after a meal because it reduces the absorption of the iron in vegetables that were eaten during the meal.*



- *Make sure that the women and older girls in households eat plenty of iron rich foods.*
- *Make sure families give iron rich foods to children 6 months and older.*

Normal weight babies under 6 months receive iron from the mother at birth and breast milk should provide the iron they need. However, after six months infants need additional iron as their brains and bodies continue to grow and rapidly develop.

C.4.6.5 Iron Supplementation (Pregnancy)

Abstracted and adapted from “SMAG Training Manual Guide for Facilitators”, MoH, 2010, produced with support from HSSP, HCP, UN, NFNC, UTH, UNZA, and Africare. Page 47.

At all FANC visits, women should be given iron and folic acid supplement tablets. These tablets help protect the pregnant woman from common diseases and iron deficiency anemia and help the baby to grow and develop

well. Iron tablets increase haemoglobin (red blood cells) in

Giving Iron and Folic acid tablets

1 Iron tablet= 200 mg; 1 Folic acid tablet = 5 µg

Recommended Dosages for Supplements of Iron (Ferrous and Folic Acid)		
All Women		Women with anaemia
	1 tab each	1 tab ferrous sulphate 3 times a day, 1 tab folic acid
In pregnancy	Throughout pregnancy	3 months
Postpartum and post abortion	3 months	3 months

Folic acid tablets

Folic acid protects the baby from abnormalities that occur during development early in pregnancy (first month), that are related to formation of the baby's spinal cord.

Iron

Help the pregnant woman to have enough blood
Increase blood in the body and reduce anaemia

Some women taking iron tablets may get nausea (feeling of vomiting), constipation or diarrhoea. This is normal and harmless. To avoid these problems, the pregnant woman should:

- *Take iron tablets with food to reduce the nausea*
- *Drink plenty of water*
- *Eat plenty of fresh fruits, vegetables, and other fruits to improve digestion*

It is normal for women on iron tablets to have dark faeces and dark urine. This colour is harmless. Faeces and urine will go back to the normal colour when the woman stops taking the iron tablets.

C.4.6.6 Micronutrient Powders - Home Fortification of Complementary Foods

The following information was abstracted from proposals and documentation of initial research and operational trials on the use of MNP in Zambia in 2012-2013.

Broad scale introduction of Micronutrient Powders (MNP) is expected to come into practice in Zambia depending on the results of this work. Support for the initial work was from UNICEF and Irish AID.

Home fortification is an innovation aimed at improving diet quality of nutritionally vulnerable groups, such as young children. The term Micronutrient Powders (MNP) refers

to dry powder with micronutrients that can be added to any semi-solid or solid food that is ready for consumption. Home fortification with MNP aims to ensure that the diet, i.e. complementary foods and breast milk combined, meets the nutrient needs of young children.

Home fortification is recommended where complementary foods do not provide enough essential micronutrients – particularly iron. This occurs where one or more of the following apply:

- *Dietary diversity is low (due to limited availability or affordability);*
- *Complementary foods prepared for the small child have insufficient micronutrient content and density (for example, watery porridges and foods with too low micronutrient content);*
- *The bioavailability of micronutrients is poor due to absorption inhibitors in the diet (fibre, phytate, tannin), which is especially the case in plant-source based meals.*

These conditions are widespread in Zambia, where the diet is predominantly based on staple foods, contains few animal-source and fortified foods, and where tea consumption is common.

Home fortification allows micronutrient intake in young

children to be increased in the home. This leads to an improvement of micronutrient status, and can therefore improve child health, including reduced morbidity and mortality, improved growth, cognition, appetite and other functional outcomes.

Home fortification of food with MNP containing iron is strongly recommended by the World Health Organization to improve iron status and reduce anaemia in children 6-23 months (WHO, 2011). This innovative approach was developed to overcome the operational constraints of iron supplementation with tablets or syrups in young children and has been demonstrated to be effective and efficacious in preventing and treating anaemia in young children.

MNP also provides an opportunity for promoting appropriate complementary feeding practices when combined with an Infant and Young Child Feeding (IYCF) programme. Widespread use of MNP have the potential to contribute to improved nutritional status of children 6-23 months a critical period of the 1st 1000 MCDs for growth and development.

The MNP formulation that was tested contained 15 micronutrients including iron, zinc, vitamins A, C, D, B group vitamins, folic acid and iodine in the recommended nutrient intakes for the target age group. The objective is to control and prevent micronutrient deficiencies.

The formulation of Micronutrient Powders takes into account:

- *The recommended daily micronutrient requirements for children 6-23 months*
- *The availability from other sources including on-going nutrition programmes*
- *The upper level of individual micronutrients.*

The MNP formula can therefore be safely provided to children that receive bi-annual high dose vitamin A, or consume iodized salt.

C.5 Infant and Young Child Feeding: Counselling Cards for Community Health Workers

Abstracted, adapted and reformatted from “Community Infant and Young Child Feeding Counselling Cards, NFNC and MOH with support from UNICEF, WHO, IYCN-USAID, 2010.

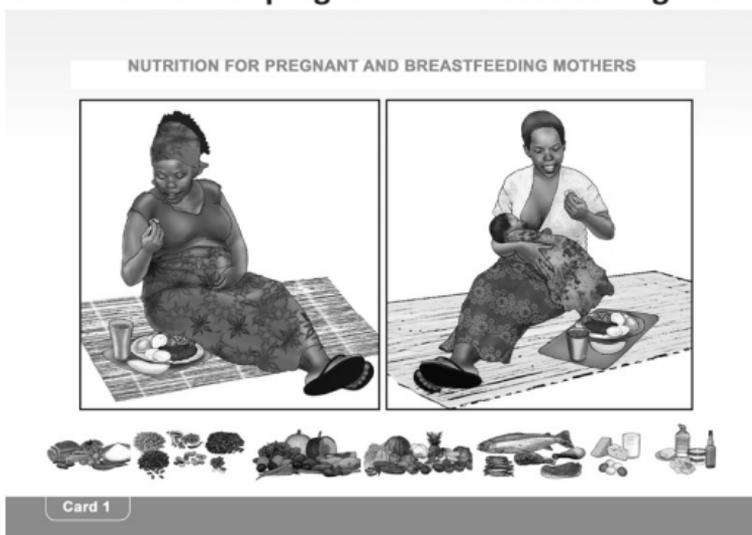
The NFNC and MoH developed counselling cards intended to help field workers interact with communities on Infant and Young Child Feeding (IYCF).

Each IYCF counselling card includes questions that can be asked during one on one and group counselling sessions. This subsection of the FWRG abstracts the questions, information and a small black and white version of the artwork on each card.

Please note that this subsection of the FWRG is not intended to substitute for the actual large colour

counselling cards nor should their inclusion in this FWRG be viewed as sufficient to foster the effective interactive counselling on IYCN that Community Health Workers are trained to achieve. The information provided here is intended to familiarize Field workers from all sectors with the types of questions and information that are viewed as important for mothers in order to effectively improve their nutrition, and nutrition and health of young children during the 1st 1000 MCDs.

Card 1: Nutrition for pregnant and breastfeeding mothers



Card 1: Counselling Card Questions

- *What do you see in the picture?*
- *What foods and drinks are good for pregnant and breastfeeding mothers?*

Key messages

- *Good nutrition is important during pregnancy*
- *A pregnant woman needs to know the importance of breastfeeding before, during and after delivery*
- *When a woman is pregnant or breastfeeding, her body needs extra food each day because she is also providing the energy and nutrition that her growing baby needs.*
- *During pregnancy, a woman should eat one extra small meal or snack each day.*
- *During breastfeeding, a woman should eat two extra small meals or snacks each day.*
- *She needs to eat a variety of locally available foods.*
- *A mother should be encouraged to eat more food even during illness.*

Card 2: Initiating breastfeeding immediately after birth in the hospital or at home



Card 2

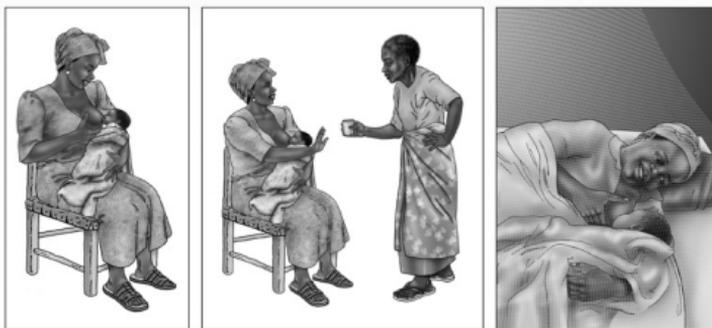
Card 2: Counselling Card Questions

- *What do you see in the picture?*
- *What does a pregnant woman need to know about breastfeeding?*
- *What is the best food for a new-born baby?*
- *When should a mother start breastfeeding?*

Key messages

- *The first thick creamy milk (called colostrum) is very good for your baby. It's like your baby's first immunisation and protects your baby from illness.*
- *If you start breastfeeding immediately it will help you to produce enough milk to feed your baby.*
- *Breast milk is the best first food for your baby for the first six months of life. Babies do not need any other foods or liquids during this time, not even water.*

Card 3: Exclusive breastfeeding for the first six months of life.



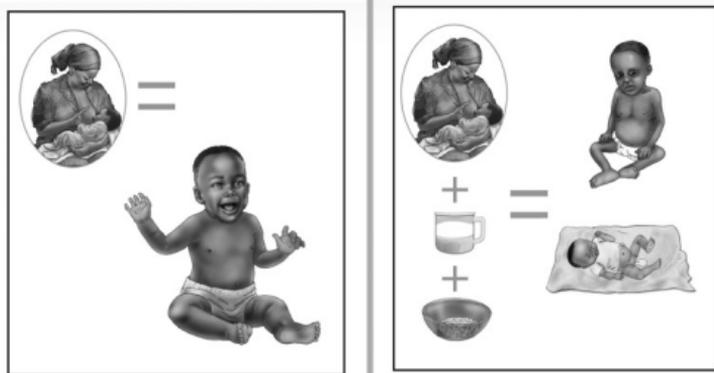
Card 3: Counselling Card Questions

- *What do you see in the picture?*
- *What is the best food for baby in the first six months?*
- *What are the benefits of giving only breast milk?*

Key messages

- *Breast milk alone is the best food for the baby during the first six months; it helps the baby to grow strong and healthy.*
- *A baby does not need any other foods or liquids at this time, not even water, tea, sugar water, gripe water, other animal milks, infant formula, or porridge.*
- *Giving other foods or liquids during the first six months of life can make the baby sick and is dangerous to health and growth.*
- *Even during very hot weather, breast milk can satisfy the baby's thirst.*

Card 4: Advantages of exclusive breastfeeding during the first six months



Card 4

Card 4: Counselling Card Questions

- *What do you see in the picture?*
- *What are the benefits of exclusive breastfeeding for 6 months?*

Key messages

- *Breast milk is the perfect food for babies; it has everything a baby needs.*
- *Babies who take only breast milk grow well, fall sick less often, and perform better in school.*
- *Breast milk protects against illnesses.*
- *Breast milk is free, clean, safe and always readily available.*
- *Breastfeeding enhances bonding between baby and mother.*

- *Exclusive breastfeeding helps to space children by delaying the next pregnancy.*
- *Breastfeeding reduces the risk of breast, ovarian and other reproductive system cancers.*

Card 5: Breastfeeding infant day and night at least 8 to 12 times in 24 hours



Card 5: Counselling Card Questions

- *What do you see in the picture?*
- *How often should you breastfeed your baby?*
- *Can women make enough milk to give only breast milk for the first six months?*
- *What are signs that a baby wants to breastfeed?*

Key messages

- *Breastfeed your baby whenever he or she wants during the day and night.*
- *Breastfeed your baby often, at least 8 to 12 times, day and night to make lots of breast milk.*
- *Your breasts make as much milk as your baby takes. If your baby takes more, your breasts make more. If you do not breastfeed as often, your breasts make less.*
- *Let your baby suckle as long as she or he wants.*
- *Finish feeding your baby from one breast before giving milk from the other breast.*
- *There are a many signs that show a baby wants to breastfeed:*
 - o *Restlessness*
 - o *Opening mouth and turning head from side to side*
 - o *Putting tongue in and out*
 - o *Sucking on fingers or fists*
 - o *Begin breastfeeding BEFORE a baby starts crying. Crying is a late sign of hunger.*
 - o *If you are having problems breastfeeding, ask the IYCF counsellor for advice.*

Card 6: How to attach the baby to the breast



Card 6

Card 6: Counselling Card Questions

- *What do you see in the picture?*
- *How should a baby be attached to the breast?*

Key messages

- *Start with the baby's nose opposite your nipple, so that the baby has to reach up to the nipple.*
- *Touch the baby's lower lip with the nipple. Wait until the baby's mouth opens wide and then quickly move the baby towards the breast.*
- *Aim the baby's lower lip well below the nipple so that the nipple goes to the top of the baby's mouth and the baby's chin touches the breast.*
- *The baby's lower lip should be turned outwards.*
- *More black part of the breast should be seen during breastfeeding.*

Effective suckling

- *To suckle well, a baby needs to be well attached to the breast.*
- *The baby's mouth should be open wide, so that she or he can take in plenty of the areola and not just the nipple.*
- *The baby should be held close to the breast.*
- *The baby takes slow deep suckles, sometimes pausing.*
- *You may be able to see or hear your baby swallowing after one or two suckles.*
- *Suckling is comfortable and pain free for you.*
- *Babies taking less breast milk will lose out on the benefits mentioned before and you will make less breast milk.*

Card 7: Breastfeeding positions



Cradle



Cross Cradle



Side Lying



Under Arm



Under Arm



Cross Position

Card 7

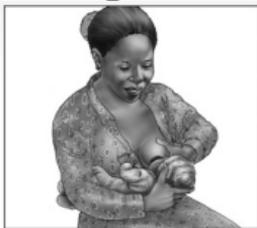
Card 7: Counselling Card Questions

- *What do you see in the picture?*
- *What are the benefits of good positioning of the baby at the breast during breastfeeding?*

Key messages

- *Good positioning helps both you and your young baby to be comfortable during breastfeeding*
- *Good positioning helps to ensure that your baby suckles well and helps you to produce a good supply of breast milk.*
- *Good positioning helps to prevent sore and cracked nipples.*
- *The four key points to remember about positioning your baby are: straight, facing you, close and supported.*

Card 8: Feeding a low birth-weight baby



Card 8

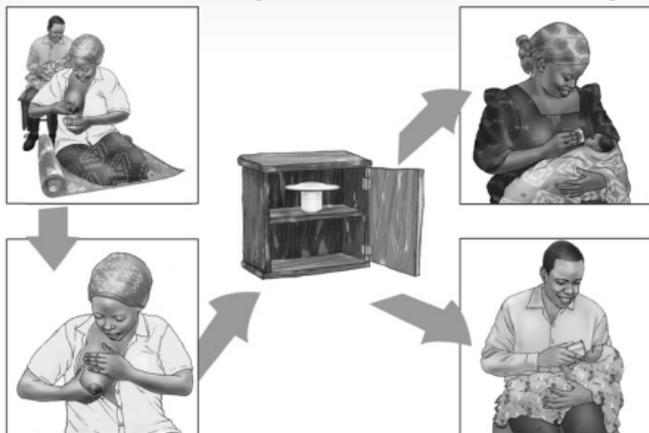
Card 8: Counselling Card Questions

- *What do you see in the picture?*
- *What positions are good for breastfeeding low birth weight babies?*

Key messages

- *The cross cradle and under arm positions are good positions for feeding a low birth weight baby because they allow you to have better control of the attachment of the baby's mouth on the nipple.*
- *The baby should be put on the breast frequently to get him/her used to the breast and to keep the milk flowing.*
- *In kangaroo position, the baby is placed in direct skin-to-skin contact between the mother's breasts. The baby should be held in place using a cloth that supports the baby's whole body and the cloth should be tied around the mother's chest.*

Card 9: How to hand express breast milk and cup feed



Card 9

Card 9: Counselling Card Questions

- *What do you see in the picture?*
- *When should you express breast milk for your baby?*
- *How do you express breast milk?*
- *How do you feed your baby expressed breast milk?*
- *What is the importance of male involvement in the expression of breast milk and cup feeding?*

Key messages

- *If you have to be away from your baby for some hours*
- *If your baby is weak or taking longer than usual to learn to suckle, for example because of inverted nipples*
- *To keep up the supply of breast milk when you or your baby is ill*

- *To relieve engorgement or blocked duct.*

To express milk follow these steps:

- *Wash hands with soap and water and prepare a clean container*
- *Press the areola behind the nipple between the fingers and thumb then express the milk in the wide container*
- *Then repeat both sides again (20-30 minutes total)*
- *Give baby expressed breast milk from a cup. Bring cup to the baby's lower lip and allow baby to take small amounts of milk. Do not pour milk into the baby's mouth.*
- *Partners can also help their wives in cup feeding the baby*

Card 10: When you are separated from your baby



Card 10

Card 10: Counselling Card Questions

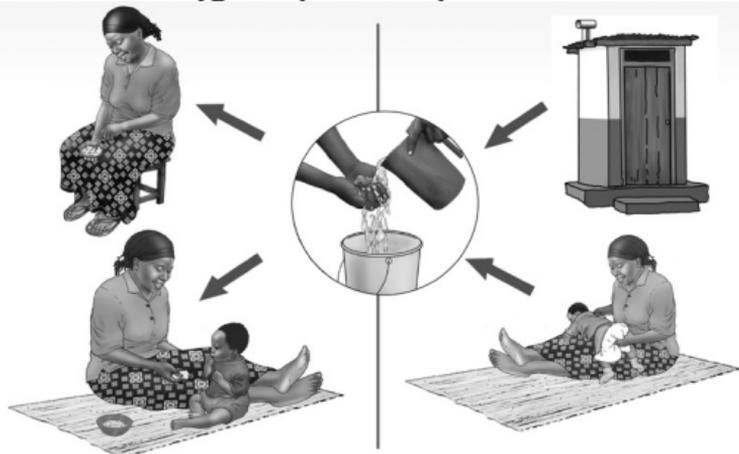
- *What do you see in the picture?*
- *When do mothers express breast milk?*
- *Who should cup feed the baby when mother is away?*

Key messages

If separated from your baby because of work or social responsibilities, there are some things you can do to continue to provide breast milk to your baby

- *Take extra time for the feeds before separation from baby and when you return home*
- *Express and store breast milk before you leave your home so that the care giver can feed your baby while you are away.*
- *If possible, the baby should be brought to the place of work so that he/she can breastfeed*

Card 11: Good hygiene practices prevent disease



Card 11

Card 11: Counselling Card Questions

- *What do you see in the picture?*
- *When is it important to wash your hands?*

Key messages

- *Wash your hands with soap (or ash) and running water before preparing food, before eating, and before feeding young children.*
- *Wash your child's hands with soap (or ash) and running water before he or she eats.*
- *Wash your hands with soap (or ash) and running, clean, and safe water after using the latrine or cleaning your baby's bottom.*
- *Feed your young child using clean hands, clean utensils and clean cups. Do not use feeding bottles, as this may cause your child to get diarrhoea.*

- *Wash all utensils with clean and safe water and soap.*
- *Always give freshly prepared foods to your child*
- *Food can be kept longer when it is in a dry form and tightly covered in containers.*

Card 12: Starting complementary foods after 6 months with continued breastfeeding



Card 12

Card 12: Counselling Card Questions

- *What do you see in the picture?*
- *When do babies need other foods in addition to breast milk?*
- *How can you feed your baby food in a clean safe way?*

Key messages

- *Continue breastfeeding your baby day and night.*

- *At 6 months, your baby begins to need other foods in addition to breast milk.*
- *Continue to breastfeed until your baby is two years or older.*
- *Help your baby to eat, but do not force feed.*
- *Give your baby foods that are from different food groups (legumes, animal source, staples, vegetables and fruits) often and in small amounts*

Points to note

- *Store food in a covered, clean container and give it to your baby within 2 hours after cooking (if you don't have a refrigerator).*
- *Wash your own and baby's hands with running, clean, and safe water before food preparation and eating, and after using toilet and changing baby's nappies.*
- *Use clean surface and utensils to prepare and serve food; use clean cups and bowls to feed children.*
- *Treat and keep drinking water in clean covered containers.*

Card 13: Types of foods and amounts to be fed from 6 to 9 months



Card 13

Card 13: Counselling Card Questions

- *What do you see in the picture?*
- *How should you feed your 6 month old?*
- *What foods do you have at home that you could feed your baby?*

Key messages

- *Continue breastfeeding your baby whenever he or she wants, day and night.*
- *Breast milk continues to be very important for your baby. Breastfeed until your baby is two years or older.*
- *Start to give soft food (porridge, mashed banana or mashed potato, family foods) at 6 months of age, 2 to 3 times a day.*

- Continue breastfeeding until your baby is two years or older.
- From 9 months onwards, feed your child 4 times a day (3 meals and 1 snack).
- Give your young child 3/4 of a 250 ml cup/bowl at each feed.
- By 9 months the young child should be able to begin eating finger foods such as pieces of ripe mango and pawpaw, banana and vegetables.
- Include a food from each food group in at least one meal per day or as often as possible.
- Add small amounts of oil or margarine to your baby's food. Animal milks (goat, cow, etc.) are healthy for your baby.
- Give your baby his or her own plate to make sure she or he eats all the food given

Card 15: Types of foods and amounts to be fed from 12 to 24 months



Card 15

Card 15: Counselling Card Questions

- *What do you see in the picture?*
- *How should you feed your 12 to 24 month old child?*
- *What foods do you have at home that you could feed your child?*

Key messages

- *Continue breastfeeding your child until he/she is two years old.*
- *From 12 months onwards, feed your child 5 times a day (3 meals and 2 snacks).*
- *Give your young child one 250 ml cup/bowl at each feed.*
- *Cut the food into small pieces so the child can easily chew and swallow.*
- *By 12 months other solid foods and family meals can be given as many times as possible each day.*
- *Try to include a food from each food group in at least one meal per day or as often as possible.*
- *Add small amounts of oil or margarine to your baby's food. Animal milks (goat, cow, etc.) are also useful sources of nutrients.*
- *Children eat more slowly than adults, so put the child's portion of the meal in his or her own bowl.*

Card 16: Food variety



Card 16

Card 16: Counselling Card Questions

- *What do you see in the picture?*
- *What are the benefits of breastfeeding the baby for 2 years or beyond?*
- *What kinds of complementary foods can be given to the child after 6 completed months?*

Key Message

- *Continue to breastfeed the child for two years or beyond and give a variety of complementary foods to your young child.*

Card 17: Feeding a sick child less than 6 months old



Card 17

Card 17: Counselling Card Questions

- *What do you see in the picture?*
- *How should you feed your baby if he or she falls ill?*
- *Can mothers who fall ill still breastfeed?*

Key messages

- *If your baby falls sick, continue to breastfeed often. Even if your baby has diarrhoea, it is important to keep breastfeeding.*
- *Breastfeeding more during illness will help your baby to fight the sickness and not lose weight and provides comfort to a sick baby.*
- *If your baby is too weak to suckle, express breast milk to give to the baby, either by cup or by expressing directly into the baby's mouth. This will help you keep up making milk for your baby and*

prevent breast problems (engorgement).

- *Mother should be encouraged to eat more food even during illness to maintain their own health and to produce more milk for the baby.*

Card 18: Feeding the sick child more than 6 months old



Card18

Card 18: Counselling Card Questions

- *What do you see in the picture?*
- *How should you feed your baby if he or she falls ill?*
- *Can a child who falls ill still breastfeed and be given complementary foods?*

Key messages

- *Breastfeed more often and offer additional food to your child.*
- *Take time to patiently encourage your sick child to eat; he/she may be less hungry than usual because of illness.*

- *Feed your child nutritious food in small quantities more often.*
- *When your child has recovered, give him/her one additional meal of solid food each day during the next two weeks.*
- *Breastfeed more frequently during two weeks after recovery.*

Card 19: Visit a health centre regularly to make sure your baby is growing strong and healthy



Card 19

Card 19: Counselling Card Questions

- *What do you see in the picture?*
- *How often should a mother take her child to the health facility or health post for check-ups?*
- *What are the benefits of taking your child to the health facility or health post for check-ups?*

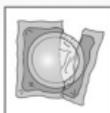
Key messages

- *Parents or caretakers should take their child every month to the health centre to check the baby's health and monitor his/her growth until the baby is 5 years old.*
- *In addition to weighing the baby and a brief examination, the baby may receive important immunisations needed to protect the baby from dangerous diseases.*
- *As a parent, you can also ask questions or seek advice from a health worker on how to solve any health problems with your child.*
- *Parents or caretakers should take their child for routine immunisation, vitamin A supplementation, deworming and growth monitoring until they are 5 years of age.*
- *If you are HIV positive, your child can be tested at 6 weeks of age so that you can know if they are infected with HIV and they can begin to receive treatment and care.*

Card 20: Optimal family planning



Kukozola lupila beamusiziyalilo camukakantu
Bhambana kumbika kutarurira kupa
zabwino na kutayira zidzidzi



Tapila Makabondoni
ajabirawa azokangitu



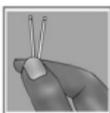
Kulimya mwana



Manyelô (Depo-Provera)
akanyya kumbika



Mapili asikanywa
akanyya kumbika



Tapila tsakubika shuboko
akanyya kumbika



Kukozola lupila beamusiziyalilo
camukakantu



Kukozola lupila
beamusiziyalilo



Tapila tsikwa musiziyalilo
camukakantu

Card 20

Card 20: Counselling Card Questions

- *What do you see in the picture?*
- *What are the benefits of using family planning methods?*

Key messages

- *Optimal family planning improves health and survival of both child and mother*
- *Optimal family planning allows you to breastfeed your child longer and care for each child.*
- *Optimal family planning allows your body to recover from the previous pregnancy.*
- *Optimal family planning means having your children 3 to 5 years apart.*

Card 21: An HIV infected mother not taking preventive measures

Card 21

If a woman is HIV infected...

What is the risk of HIV passing to her baby when **NO** preventive actions are taken?



Out of 100 babies born to HIV-infected women:



The majority of babies (about 75) are not infected with HIV, but should be protected.



Most babies (about 25) become infected with HIV during pregnancy, labour and birth.



Other babies (about 10) are infected with HIV through breastfeeding.

**Protect your baby –
get tested and know your HIV status!**

Card 21: Counselling Card Questions

- *What do you see in the picture?*
- *What is the risk of HIV passing to the baby when NO preventive measures are taken?*

Key messages

- *Preventive measures to be taken are: mother taking ARVs both during pregnancy and during breastfeeding and exclusive breastfeeding the baby for the first 6 months.*
- *Not all babies born to women with HIV become infected with HIV.*
- *If no preventive measures are taken, out of 100 babies born from HIV infected mothers, 37 of the mothers will pass HIV to their babies.*
- *Always refer these mothers to the health facility for further medical advice*

Card 22: An HIV infected mother taking preventive measures

Card 22

If a woman is HIV infected...

What is the risk of HIV passing to her baby if both take ARVs and practise exclusive breastfeeding during the first 6 months?



Out of 100 babies born to HIV infected women who take ARVs:



The majority of babies (95 or more) are not infected with HIV



Most of these babies (less than 2) become infected with HIV during pregnancy, labour and birth.



Breastfeeding babies (less than 3) can become infected. Exclusive and safer breast-feeding reduces the risk.

**Protect your baby –
get tested and know your HIV status!**

Card 22: Counselling Card Questions

- *What do you see in the picture?*
- *What is the risk of HIV passing to the baby when preventive measures are taken?*

Key messages

- *Preventive measures to be taken are: mother should take ARVs both during pregnancy and during breastfeeding and exclusively breastfeed the baby for the first 6 months.*
- *Not all babies born to women with HIV become infected with HIV.*
- *If no preventive measures are taken, out of 100 babies born from HIV infected mothers, 15 of them will pass HIV to their babies.*
- *Always refer these mothers to the health facility for further medical advice*
- *Continue breastfeeding until at least 12 months*

Card 23: Feeding options for babies born of HIV infected mothers



Card 7

Card 23: Counselling Card Questions

- *What do you see in the picture?*
- *What are feeding options for babies born of HIV infected mothers?*

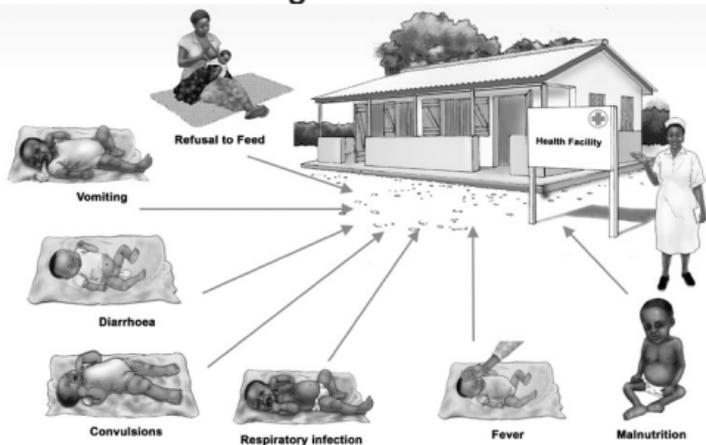
Key messages

- *Exclusive breastfeeding for the first 6 months and continued breastfeeding up to 12 months if the baby is tested negative at 6 weeks and 1 year. Weaning at 12 months should occur gradually over 4 weeks. Mother and baby should not stop ARVs until after all breastfeeding has stopped.*
- *Exclusive breastfeeding for the first 6 months and continued breastfeeding up to 24 months or beyond if the baby is tested positive for HIV at six weeks and*

1 year.

- *Complementary feeding to be started at 6 completed months of exclusive feeding.*
- *Always refer the mother who wishes not to breastfeed her baby to the health facility for medical advice.*
- *Weaning at 12 months should occur gradually over four weeks.*

Card 24: When to bring the child to the health facility



Card 24

Card 24: Counselling Card Questions

- *What do you see in the picture?*
- *When is it important to bring the child to the health facility?*

Key messages

Take the child immediately to the health facility for

medical advice if any of the following symptoms are present:

- *Refusal to breastfeed and being very weak*
- *Vomiting everything the child eats and drink*
- *Convulsions: rapid and repeated contractions of the body, shaking*
- *Child is breathing much more quickly than usual, with difficulty or gasping for air and with a prolonged cough.*
- *Child has diarrhoea (3 loose stools in a day) for 2 days or more and/or blood in stool, sunken eyes.*
- *Child has a fever (possible risk of malaria)*

C.6. Growth Monitoring and Promotion (GMP)

The following section draws on information from “Children’s Clinic Procedures Manual,” NFNC and MoH , that was produced with support from the World Health Organisation, USAID, and UNICEF. Pages 5-14. The section also draws information from “Trainers Guide for Course on Growth Assessment and IYCF Counselling”, WHO and UNICEF. Pages 1-2,36,90,96-99,106,182-200,206-208,210-212,230-236.

Additional points are added that draw from drafts developed for the 1st 1000 MCDs National Program, particularly related to community based Growth Monitoring and Promotion.

Field workers from each Ministry should consult local health and MCDMCH officers to learn the types of GM&P being carried out in their location and how they can participate in these activities that are most important for families to succeed in protecting their children from stunting during the 1st 1000 MCDs.

C.6.1 What is GMP?

Growth monitoring is the regular assessment of the child’s growth through measuring weight, height or mid-upper arm circumference. Weight is the most commonly used as

it is easy to use to monitor growth of children aged below 2 years.

Growth promotion is the set of actions taken to improve the health of the child once the status of the child has been assessed. This involves both the child who has been identified to be growing well and has no illness (to encourage practicing the positive behaviours) and the child found with either weight gain problems and or an illness (for corrective action).

C.6.2 Why GMP Is Important

More than one-third of under-five children are malnourished - whether stunted, wasted or deficient in vitamin A, iron or other micronutrients. Malnutrition contributes to about one third of the 8.1 million deaths each year among young children in developing countries. On the other hand, inappropriate feeding is probably contributing to increased overweight/obesity in childhood. When children are weighed regularly and problems are detected early, carers can take action faster to help the child grow well again and to prevent the child's health from getting worse. It is more difficult to help the child recover when malnutrition becomes severe.

GMP is an entry point for integration of other activities that promote other health survival strategies for children, such as those provided through Maternal and Child Health (MCH). GMP is also a vehicle for delivering services such as

information on improved feeding practices for infants and young children, immunisations, safe water and sanitation, malaria and family planning and also for sensitizing the communities on home gardening, community development activities and access to social protection services.

Growth Monitoring and Promotion is a useful tool in ensuring the health and growth of children is improved in communities. This reference guide helps frontline workers understand the important role of growth monitoring and promotion.

Inadequate knowledge about key child nutrition skills such as how to breastfeed, the appropriate complementary foods to give, and good feeding practices, are often a greater determinant of malnutrition than the availability of food.

GMP skills are part of health provider training including Community Health Workers. They learn these skills in order to better work with mothers/caregivers towards achieving the complementary aims of appropriate IYCF and healthy child growth.

In addition to learning how to measure and assess growth they also learn counselling skills and use counselling cards (see examples in previous section) as an extremely important component of their work in GMP.

As part of GMP, health providers should be able to assess breastfeeding and complementary feeding, measure

children, plot measurements on growth charts, and interpret growth indicators and counsel and support Zambian mothers and families to carry out the healthy feeding practices.

GMP also involves providing mothers and families with young children demonstrations, new ideas, useful information on how to access services and reminders on what they should be doing to protect their children during the 1st 1000 MCDs. For counselling, special training and skills are required, but all field workers can help and contribute to promoting growth among all the mothers and families with young children that come to Growth Monitoring and Promotion Sessions.

C.6.3 Components of GMP

- *Regular weighing of children and plotting the weight on the children's clinic card (under-five cards).*
- *Deciding whether or not the child has adequate growth.*
- *Finding out about the child's health and feeding.*
- *Using the information on the child's health, growth, and feeding to decide what action to take.*
- *Counselling on the care and feeding of the child,*
- *Referring the child to appropriate services where necessary (including for HIV/AIDS counseling).*
- *Deciding on follow-up to find out how the child is responding to the actions taken.*

C.6.4 Why focus on 0 to 2 Years?

There are several reasons why you should concentrate on weighing the children younger than two years old in your community. Children below two years of age have special needs for feeding and care and also grow very rapidly. By regularly weighing these children, you can quickly see if their growth is slowing down and can help the mother or carer find out what the problem is and take steps to prevent malnutrition. In addition, during this age a child slowly moves from breast milk to other foods, which may cause feeding problems. It is important to quickly and effectively identify and solve those problems. Finally, if you were to regularly weigh children of all ages, you would have so many children to weigh that you might find it very difficult to find the time to counsel the mothers of children who are having problems.

C.6.5 Key Activities of GMP

All growth assessments should be accompanied by information and activities related to promoting the growth of the child (and preventing stunting and other forms of malnutrition). Growth promotion information and activities should target all families and women with young children – especially those with children who are in the 1st 1000 MCDs period.

If a child has a growth problem or trend towards one, the health care provider should talk with the mother or other caregivers to determine the causes. It is then critically

important to take action to address the causes of poor growth.

Growth assessments must be supported by appropriate information, services and programmes that solve problems found and prevent problems of child growth from occurring. GMP coupled to these services and programmes in several sectors should be effective in improving child health and preventing stunting during the 1st 1000 MCDs.

In circumstances such as extreme poverty or emergencies, growth assessment is often used to identify acutely malnourished children who need urgent intervention such as therapeutic feeding to prevent death.

- *Children with severe forms of undernutrition should be referred for specialized care. Those children with uncomplicated severe acute malnutrition are managed as outpatients at selected health facilities in Zambia.*
- *Children with obesity should be referred for medical assessment and specialized management if these services are available.*
- *Non-severe problems can be managed through counselling, including age-appropriate advice on feeding and physical activity.*

C.6.6 Strengthening GMP in the National 1st 1000 MCDs Programme

An important activity of the national 1st 1000 MCDs Programme is to strengthen and expand the use of community based GMP including activities that may involve community level use of the simple tapes used to measure mid-upper arm circumference (MUAC) where there is a shortage of scales.

In such activities, the focus is on “preventing” poor nutrition and “reinforcing good nutritional practices” as well as identifying any children who are malnourished or at risk of becoming so. During community based GMP that rely in some instances on MUAC measurements to assess child nutrition, any child found to be outside acceptable limits on the MUAC tape should be sent to the nearest health facility for further assessment.

For the families with children showing normal MUAC measurements, community based GMP activities give importance to providing information, and reinforcing successful progress on child nutrition. Included should be educational activities. This is where the other sector Field Workers can assist and this is where demonstrations on farming/home gardening, cooking, etc. can be conducted.

In addition to recording and assessing a child’s growth from birth up to five years of age, the child’s under-five clinic card includes recommendations on child feeding and care that is a useful reference for parents, other caregivers, health care providers and all Field workers.

While there are detailed manuals on how to use and combine each type of child growth measurement, this FWRG focuses on assessing and plotting of weight for age on the clinic card provided to all families with a new child and on the activities that can surround these assessments that promote growth at community level using not only Health Workers but also Field Workers from other sectors and members of the community.

C.6.7 Key Points in Use of the Weight for Age Growth Chart

When the points representing the child's weight are plotted on a growth chart, it is important to understand the meaning for a single point and for combinations of the plotted marks.

The curved lines on growth charts represent a child's growth status. The line labelled "0" on each chart represents the average growth (weight for age). The other curved lines indicate the distance from the average. These are numbered positively (1, 2, 3) or negatively (-1, -2, -3). In general, a plotted point representing a child's weight at a specific age that is far from the average in either direction (for example, close to the 3 or -3) may represent a growth problem.

Measuring Child Weight Using a Solar Powered Scale

The health care provider, and/or FWs should be able to use anthropometry equipment to weigh and measure length/height of a child. Below are details of how to weigh a child and measure length/height:

Place the scale on a flat, hard surface. The solar panel should be in good light.

The mother would undress the baby. To turn the scale, cover the solar panel for a second (literally one second). Wait until the number 0.0 appears.

Ask the mother to remove her shoes. Then ask her to step on the scale and stand still. Ask her to remain on the scale even after her weight appears, until you have finished weighing the baby.

After the mother's weight is displayed, tare the scale by covering the solar panel for only a second and then waiting for the number 0.0 to appear along with a figure of a mother and baby.

Gently hand the baby to the mother. In a moment, the baby's weight will appear.

NOTE: if the scale takes a long time to show 0.0 or a weight, it may not have enough light. Reposition the scale so that the solar panel is under the most direct light available.

NOTE: if a mother is very heavy (such as more than 100 kg) and the baby is light (such as less than 2.5 kg), the baby's weight may not register on the scale. In such cases, have a lighter person hold the baby on the scale.

C.6.7.1 Interpreting a Weight for Age Growth Chart

It is important to know that one set of measurements gives a good picture of growth status but may not be enough. Multiple measurements of weight (and often of other indicators) are needed to allow consideration of growth. This is why GM&P should be a regular activity at community level – optimally every month – particularly during the 1st 1000 MCDs.

Trends may indicate that a child is growing consistently and well, or may show that a child has a growth problem, or that a child is at risk of a problem and should be reassessed soon.

Normally growing children follow trends that are relatively parallel to the median and curved lines (z-score lines) on the growth charts. Most children will grow so that their weights make a track, that is on or between the curved lines and roughly parallel to the median. The track of the individual child may be below or above the median.

The following situations may indicate a problem or suggest risk:

- *A child's growth line crosses a curved line and keeps going*
- *There is a sharp incline or decline in the child's growth line*
- *The child's growth line remains flat (stagnant); i.e there is no gain in weight or length/height.*

Whether or not the above situations actually represent a problem or risk depends on where the change in the growth trend began and where it is headed. For example, if a child has been ill and lost weight, a rapid gain (shown by a sharp incline on the graph) can be good and indicate catch-up growth. Similarly, for an overweight child a slightly declining or flat weight growth trend towards the median may indicate desirable “catch-down” It is very important to consider the child’s whole situation when interpreting trends on growth charts. Growth lines that cross curved lines, (not just those that are labelled on the chart) indicate possible risk.

Children who are growing and developing normally will generally be on or between -2 and +2 curved lines of a given indicator. The growth of an individual child plotted over time is expected to track fairly close to the same curved line.

A growth line that is tending towards the median is probably a good change. If it tends away from the median, this likely signals a problem or risk of a problem.

If the growth line is inclining or declining so that it may cross a curved line soon, consider whether the change may be problematic. In the example graph, if the trend in the lower growth line continues, it will soon cross the cut off line (2 z-score) that defines underweight. If a risk trend is noticed in time, it may be possible to intervene in good time to prevent a problem.

Any sharp incline or decline in child's growth line requires attention. If a child has been ill or severely under nourished, a sharp incline is expected during the re-feeding period as the child experiences "catch-up" growth. Otherwise, a sharp incline is not good, as it may signal a change in feeding practices that will result in overweight.

A sharp decline in the growth line of a normal or undernourished child indicates that a growth problem needs to be investigated and remedied.

Even if a child is overweight, he or she should not have a sharp decline in the growth line, as losing too much weight rapidly is undesirable. The overweight child should instead maintain his weight while increasing in height.

If an overweight child is losing weight over time, and the weight loss is reasonable, the child should continue to grow in height. However, if the child experiences no growth in height over time, there is a problem. This problem would be evident as a flat growth line on the height-for-age chart. A flat growth line, also called growth "stagnation," usually indicates a problem. If a child's weight stays the same over time as height or age increases, the child most likely has a problem.

For children in age groups where the growth rate is fast, as shown by steep growth curves (e.g during the first 6 months of life), even one month's stagnation in growth represents a possible problem.

C.6.7.2 Acting on Growth Assessment Results

Mothers are always very curious to know what is found when her child's growth is assessed. The first step is to inform her in a clear and sensitive way using appropriate counselling skills.

When there are positive results

If the child is growing well, the next step is to congratulate the mother and her family and to provide counselling on appropriate feeding for the child's upcoming age group. This will help ensure that the child will continue to grow well. The parents or mother can also be congratulated for making successful progress through the 1st 1000 MCDs.

When GM&P is carried out at the community setting, and a group of families is participating, GMP activities become important opportunities to provide mothers and families information. Growth promotion activities can go beyond important counselling activities to allow discussions on a variety of topics and services related to food and nutrition and the 1st 1000 MCDs. These activities target those whose children are doing well and also who are found to have children at risk. Field workers from other sectors and members of the community can help to lead these growth and IYCF promotion activities. They can be a key elements of Field worker collaboration with the community members to support 1st 1000 MCDs.

Counselling the malnourished or at risk child's family

If there is a growth problem, or a trend towards a problem, those trained in counselling should interview the mother to identify possible causes of the problem. It is still very important that the discussion stay positive. There should be no suggestions of accusing or judging the mother. Those counselling need to build the mother's trust and communicate to her that she can help the child.

Many social and environmental factors can affect a child's feeding, care, and resulting growth. That is why it is very important to determine the most important causes of a problem for a particular child before counselling. For example, if the child is wasted primarily because the family lacks food, it will not be helpful simply to advise the mother to feed the child more often. In such a situation, it would be better to guide the family to a source of assistance.

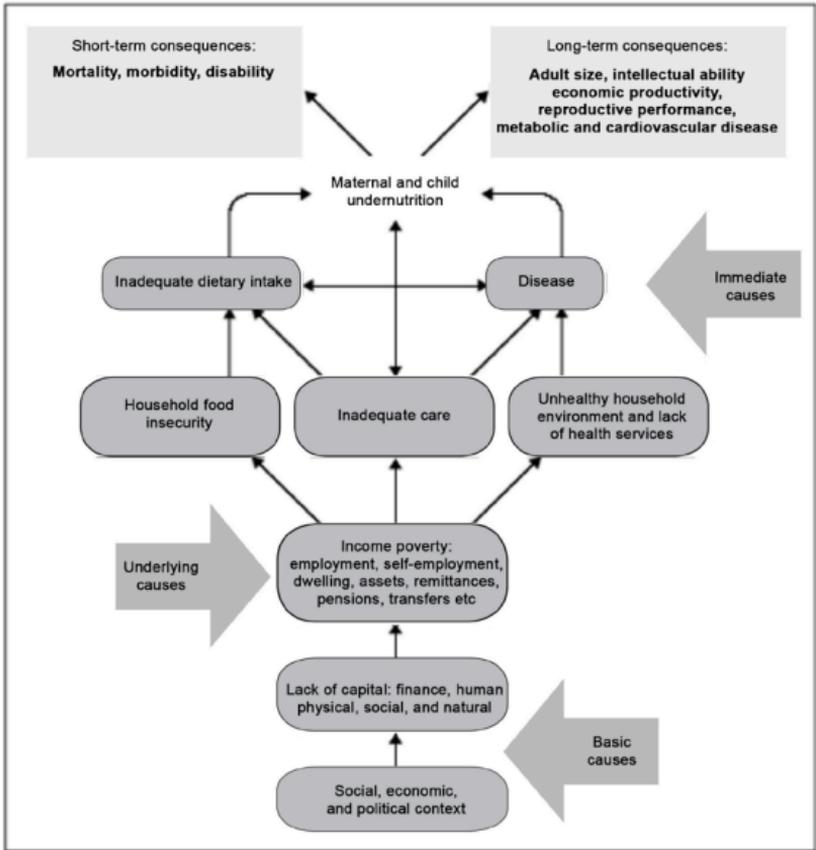
Causes of undernutrition are categorized as underlying and immediate (see chart) In order to resolve the immediate causes of undernutrition, i.e. inadequate diet and disease. It may be necessary to address causes in the home environment, such as the absence of a responsible adult to care for the child, or poor sanitation or contaminated water.

For many immediate and underlying causes of a child being at nutritional risk, the immediate and longer term solutions may well require help and participation from Field workers and services of various sectors and from other members

and/or community groups.

Causes of overweight and obesity are also typically rooted in the environment. For example, a busy family may rely on high energy convenience foods instead of taking time for leisurely, well-planned meals. Children may not be able to play outdoors safely and thus spend too much inactive time indoors. Resolving problems of overweight and obesity will require addressing root environmental causes as well as immediate dietary causes.

It is not always possible to resolve these causes, but the health care provider can help the mother to understand them and think of positive actions to take. With greater collaboration in support for families during the 1st 1000 MCDs there is a greater chance for appropriate assistance from other sectors and their FW. This points toward the usefulness and potential benefits of making community level GM&P a cross sector activity with frequent participation on the “Promotion” side by Field workers from several sectors.



Lancet 2008: Causal Pathways in Undernutrition UNICEF 1991

While counselling by trained Community Health Workers or other health care providers is taking place it is important that they agree on actions to improve the child's growth that are feasible for the mother or caregiver. If too many actions are suggested, she may forget many of them or be discouraged.

They might suggest the most important and feasible actions (two or three), and encourage the mother to bring the child back for follow-up. The follow-up visit will give the mother a chance to report success and the health care provider a chance to give additional advice as needed.

It is important to remember that change takes time and the underlying causes of poor growth are unlikely to be resolved in a single counselling session or GM&P activity. The need to follow-up and monitor the child's feeding care, and growth is critical.

Throughout the growth assessment, the mother has seen Health Care Workers recording measurements in the Growth Record and plotting and connecting points on the growth charts. She is likely to be curious about the results.

It is important that she receive an explanation of the plotted points and how they show if the child is growing as expected, or if there is any growth problem. The points and trends on each chart should be explained to her clearly and simply.

Counselling training calls for use of clear, non-medical language as much as possible. Any unfamiliar words, such as obese, should be explained to the mother. For example, obese could be explained as meaning very heavy for one's height. Words such as stunted, wasted, and obese are used on the counselling cards; therefore, those using the cards should be prepared to explain them in simple words.

C.6.8 Urgent Health Facility Referrals Based on GMP Measurements

Children with any of the following severe undernutrition problems should be referred urgently for specialized care:

- *Severely wasted (below -3 z-score weight for length or BMI for age)*
- *Clinical signs of marasmus (e.g. appears severely wasted, like skin and bones)*
- *Clinical signs of kwashiorkor (e.g. generalised oedema, thin, sparse hair, dark or cracking/peeling patches of skin)*
- *Oedema of both feet*

An undernourished child may have a current illness (such as diarrhoea) or a chronic health problem that could be contributing to undernutrition. If so, the contributing illness or problem should be treated or the child referred for appropriate treatment. If the child is suspected of a chronic health problem (such as HIV/AIDS), refer the caregiver/child for counselling or testing respectively.

Children with obesity (above 3 z-score weight-for-length/height) should be referred for medical assessment and specialized management if these services are available. Whenever a health worker refers a child, the mother should be given the reasons for the referral and importance stressed.

Health workers need to provide a referral form or note for the mother to take with her. They should also write a note in the card and show it to the mother. She needs to know when and where to take the child. If she does not have transportation she should be helped to arrange it if necessary. Follow-up is also important to ensure that the child was taken for the required urgent care or medical assessment.

Every time any Field worker is in contact with a mother with a child who is within the 1st 1000 MCDs they should try to build her confidence and praise her for what she and her baby are doing right. Give relevant information, and suggest something appropriate.

C.6.9 Steps Health Workers Use to Investigate Causes of Undernutrition

- *Find out if the child is currently ill*
- *If not ill, initiate investigation of causes*
- *Ask about any recent changes in eating and or breastfeeding*
- *Discuss age specific questions about the child's feeding*
- *Ask about recurrent illnesses*
- *Assess possible underlying social and environmental causes*
- *Jointly with the caregiver, identify causes*
- *Counsel*

While interviewing the mother you may note several

possible causes of undernutrition, for example, feeding practices that differ from the recommendations for the child's age. You may also note sanitation problems that could cause illnesses leading to undernutrition. In addition, you may note social and environmental factors that could affect the child's feeding and care.

When there are several possible causes of undernutrition, it is helpful to focus on the main causes that can be changed. After asking the questions in the interview, ask the mother's opinion of the causes, so that you know which causes she recognizes. Then summarize what you see as the main causes.

During the first part of the interview with the mother or other caregiver, you summarized the possible causes of the child's undernutrition and determine which causes seemed most applicable and important. Focusing on the main causes that the mother or caregiver recognizes as important, ask her what she thinks she could do to help the child, given the causes. Then discuss what is feasible to do and who can provide help and support. Acknowledge any difficulties in the mother's situation and encourage her to take action.

A child who is stunted, but who is in the normal range for weight-for-length/height needs a diet that will improve growth in length/height without excessive weight gain that could result in overweight or obesity. Rather than increasing their energy intake, a strategy for such children is to improve the amount and bioavailability of

micronutrients in their diet by increasing consumption of animal-source foods.

Animal-source foods are high in micronutrients and many minerals are better absorbed from meat than they are from plant-derived foods. Among vegetarian populations or where access to a micronutrient-adequate diet is limited, strategies to improve micronutrient intake include using fortified foods and vitamin and mineral powder or providing micronutrient supplements.

Improvement in the child's growth may take some time, and the rate of improvement cannot be predicted. In such instances goals should be set for a few (2 or 3) actions that the caregiver can take towards improving the child's growth. Suggest actions that can be taken within a few weeks. You can praise and encourage the caregiver when they are accomplished. Make notes of the underlying causes of undernutrition for discussion at follow-up visits, when goals may be set for additional actions to take.

If the cause of undernutrition is recent illness, the goal is to return the child to his previous, normal growth line in a reasonable amount of time, such as 3 months.

If there are other causes of the child's undernutrition, the first goal is to stop the trend towards undernutrition and eventually reverse the trend. Stress that the mother can help to achieve these goals by following the recommendations discussed.

Avoid setting any specific target for weight gain, especially for a stunted child. If the stunted child gains weight without increasing in length, he or she may become overweight. Express goals in terms of improving growth so that length and weight increase appropriately in relation to one another.

At the end of the discussions with the mother or other caregiver, it is important to set a reasonable time for the child's next visit and to set a general goal for improved growth. The next visit may be at the time that an immunisation is required or at another convenient time.

C.6.10 Role of Volunteers in GMP

Without counselling the caregivers, measuring and plotting the child's weight or MUAC measurement is not a useful exercise. That alone will not help the child grow well. There always needs to be a discussion with the caregiver about how to keep the child growing well or how to feed and take care of the child if he or she is not growing well.

Counselling is not the same as telling the caregiver what to do; it should be like a conversation with the caregiver. You should listen well to what she says and why she does things in a certain way.

Field workers in other sectors have a critical role in promoting growth. In whatever sector one is operating there are opportunities for interacting with mothers/caregivers with children below two years.

C.7 Recipes for Nutritious Meals for Women and Families during the 1st 1000 MCDs

C.7.1 Complementary Feeding Recipes

The following recipes have been adapted to fit the format of this FWRG from “Improved Complementary Foods Recipe Booklet: Family Foods for Breastfed Children in Zambia,” NFNC & GRZ (2009), supported by FAO and UNICEF. Availability from NFNC website and FAO Zambia Country Office. Please note that the recipes were developed for Luapula Province. However, they can be extended to other parts of the country. These recipes are for families and can be used as the basis for cooking demonstrations and discussions on the need for home gardens and livestock, household food and nutrition security, food preservation and processing, nutritious meals, and the overall importance of the 1st 1000 MCDs in preventing stunting among Zambian Children.

C.7.1.1. Recommended Complementary Food Recipes for the Early Dry Season (April to August)

Foods that are readily available during the early dry season include cassava, maize, rice (in some areas), pumpkins, sweet potatoes, beans, groundnuts, fish, a few indigenous vegetables and some exotic vegetables where dry season gardening is practiced.

Foods available to most households during the early dry season. Recommended complementary feeding recipes include:

- *Cassava and groundnut porridge*
- *Cassava and bean porridge*
- *Maize and groundnut porridge*
- *Maize and beans porridge*
- *Sweet potatoes and groundnut porridge*
- *Rice and groundnut porridge*



If fish is available, the groundnut or bean flour can be replaced with fish flour. This way, the child will eat a wider range of diverse foods and this is good for his/her health.

Cassava and groundnut porridge

Ingredients

- *1 cup cassava meal*
- *½ cup pounded roasted groundnuts*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *4 cups water*
- *1 light two-finger pinch of salt**
- *A little sugar to taste*



Method

1. *Mix cassava flour with pounded roasted groundnuts*
 2. *Boil 3 cups of the water*
 3. *Mix the remaining cup of water with the cassava flour-pounded groundnuts mixture and make a smooth paste*
 4. *Add the paste to the boiling water and mix well until smooth*
 5. *Add the pounded vegetables and cook for 3-4 minutes*
 6. *Add a little sugar and salt to taste and serve*
- Note***Four light two-finger pinches of salt are equivalent to 1 gram according to the community level trials undertaken in November 2004

When using pounded dried raw groundnuts:

1. *Put 3 cups water and pounded groundnuts into the pot and bring them to boil*
2. *Cook the mixture for 5 minutes*
3. *Mix the remaining cup of cold water with the cassava flour and make a smooth paste*
4. *Add the cassava flour and mix well*
5. *Add the pounded vegetables and cook for 3-4 minutes*
6. *Add a little sugar and salt to taste and serve*

Cassava and bean flour porridge

Ingredients

- *1 cup cassava meal*
- *½ cup bean flour*
- *2 teaspoons palm oil*
- *4 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

1. *Put 3 cups water and bean flour into the pot, mix well and bring them to boil*
2. *Cook the mixture for 20-25 minutes*
3. *Add salt and sugar to taste*
4. *Add palm oil*
5. *Add the cassava flour, mix well and serve*

Preparation of bean flour: Option 1

1. *Put water in a pot and bring to boil*
2. *Sort the beans and put them into the boiling water*
3. *Cook the beans until soft enough to peel (30-40 minutes)*
4. *Remove the outer skin (seed coat) and partially dry the beans*
5. *Pound, sieve and dry the flour well*

Preparation of bean flour: Option 2

If the mother's workload is heavy and there is adequate sunshine, she can do the following:

1. *Thoroughly dry or roast the beans on low heat*
2. *Pound the beans and remove as much of the outer skin as is possible*
3. *Continue pounding the crushed beans into flour and sieve*

NOTE: Cook the bean flour for 25-30 minutes before adding the cassava flour

Maize and groundnut porridge

Ingredients

- *1 cup maize meal*
- *¼ cup pounded roasted or unroasted groundnuts*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *4 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

1. *Mix maize flour with pounded groundnuts*
2. *Add water and mix into a smooth paste*
3. *Cook the maize flour/pounded groundnuts mixture and stir constantly*
4. *After reaching boiling point, cook for 15 minutes*
5. *Add the pounded vegetables*
6. *Add salt and sugar to taste*

NOTE: *The pounded groundnuts can be replaced*

with bean flour and palm oil. However the bean enriched porridge must cook for 25-30 minutes.

Sweet potato and groundnut porridge

Ingredients

- *1 cup sweet potato flour*
- *¼ cup pounded roasted groundnuts*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *1 light two-finger pinch of salt*
- *2¼ cups water*



Method

- 1. Mix sweet potato flour with roasted groundnut flour.*
- 2. Put the mixture into a pot and add water*
- 3. Bring to boil while stirring*
- 4. Simmer for 15 minutes*
- 5. Add the pounded vegetables and cook for a few minutes*

Preparation of sweet potato flour

- 1. Peel the sweet potatoes and wash*
- 2. Chip and dry*
- 3. Pound and sieve to get flour*

Rice and groundnut porridge

Ingredients

- *1 cup rice meal*
- *½ cup pounded roasted or unroasted groundnuts*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *4 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

- 1. Mix rice flour with pounded groundnuts*
- 2. Add water and mix into a smooth paste*
- 3. Cook the rice flour-pounded groundnuts mixture and stir continuously*
- 4. After reaching boiling point, cook for 15 minutes*
- 5. Add the pounded vegetables and cook for a few minutes*
- 6. Add a little salt and sugar to taste*

NOTE: The pounded groundnuts can be replaced with bean flour and palm oil. However the bean enriched porridge must cook for 25-30 minutes.

C.7.1.2 Recommended Complementary Food Recipes for the Late Dry and Early Rainy Season (September to December)

Food reserves are relatively low in most households during the late dry and early rainy seasons and the range of available foods is narrow. Households generally have cassava, fish, and some exotic vegetables where dry season gardening is practiced. Availability of indigenous vegetables improves gradually one month after the onset of rains.



Foods available to households during the late dry and early rainy seasons

Recommended complementary feeding recipes include:

- *Cassava and fish porridge*
- *Rice and fish porridge*
- *Fish soup and soft nshima*

Furthermore, mothers and caregivers are strongly urged to keep and store some groundnuts for enriching small children's complementary foods after the November planting season. This will improve the range of complementary foods given to the small child.

Maize and fish porridge

Ingredients

- *1 cup maize meal*
- *¼ cup of pounded fish (big or small fish)*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *4 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

1. *Lightly roast the dried fish for 3-5 minutes before pounding*
2. *Make the fish flour measure ¼ of a cup*
3. *Mix maize flour with pounded fish*
4. *Add water and mix into a smooth paste*
5. *Cook the maize flour-pounded fish mix while stirring*
6. *After reaching boiling point, cook for 15 minutes*
7. *Add the pounded vegetables and cook for 3-4 minutes*
8. *Add salt and sugar to taste*

NOTE: The light roasting of fish helps to reduce the fishy smell and makes the pounding easier

Cassava and fish porridge

Ingredients

- *1 cup cassava meal*
- *½ cup of pounded fish (big or small fish)*
- *2 teaspoons of palm oil or salad oil*
- *4 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

- 1. Prepare the fish flour as indicated in the maize and fish porridge recipe above*
- 2. Put 3 cups water and the fish flour into the pot and bring them to boil*
- 3. Cook the mixture for 5-10 minutes*
- 4. Add salt and sugar to taste*
- 5. Add palm oil/salad oil*
- 6. Add the cassava flour, mix well and serve*

Fish Soup

Ingredients

(To be served with soft nshima for the small child)

- *4 tablespoons of pounded fish (big or small fish)*



- 2-4 teaspoons shredded/pounded green vegetables
- 2 tablespoons of palm oil or salad oil
- 1 tomato
- ½ onion
- 1 light two-finger pinch of salt

Method

1. Prepare the fish flour as indicated in the maize and fish porridge recipe above. Cut the tomato and onion
2. Put the oil in a pot and fry the onion and tomato for 3-4 minutes
3. Add the pounded fish
4. Add the pounded vegetables and salt
5. Cook for 3-4 minutes
6. Feed the small child with the fish soup and soft *nshima*

NOTE: This recipe is well liked and provides an alternative to the cassava or maize with fish porridge

C.7.1.3 Recommended Complementary Food Recipes for the Late Rainy Season (February to March)

Food reserves start improving during the late rainy season as households start harvesting green maize, fresh beans and fresh groundnuts, pumpkins and gourds. Indigenous vegetables are also readily



available. Recommended complementary feeding recipes include:

- Fresh maize and fresh groundnut porridge
 - Cassava and fresh groundnut porridge
- NOTE:** The fresh maize can be replaced with fresh beans with palm oil or vegetable oil.

Fresh maize and fresh groundnut porridge

Ingredients

- *2 medium cobs of fresh maize*
- *¼ cup pounded fresh groundnuts (pound, dry for 60 to 90 minutes, then pound again and sieve)*
- *2-4 teaspoons shredded/pounded green leafy vegetables*
- *2½ to 3 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

- 1. Pound the fresh maize until very mushy*
- 2. Put the pounded maize in a bowl and add 1 cup of water and mix well*
- 3. Strain the mixture with a sieve and put the strained pounded maize-water mixture in a pot*
- 4. Pound the remaining maize, add another ½ cup of water and strain*

5. Add the pounded fresh groundnut flour
6. Mix well and cook the maize flour-pounded groundnut mixture while stirring
7. After reaching boiling point, cook for 15 minutes
8. If necessary, add some of the remaining water to thin it to the right consistency
9. Add the pounded vegetables
10. Add salt and sugar to taste

Option 2 for preparing the fresh maize and fresh groundnut porridge

1. Prepare the fresh maize liquid as instructed above
2. Pound shelled fresh groundnuts until you have a sticky paste
3. Put the paste in a bowl and pour $\frac{1}{2}$ cup of the water into the paste and mix well
4. Strain the mixture with a sieve into the bowl and pound again the remaining coarse groundnut particles into a smooth paste.
5. Pour another $\frac{1}{2}$ cup of water into the paste, mix well and strain.
6. Take 1 cup of the strained fresh maize liquid and $\frac{1}{4}$ cup of the strained fresh groundnut liquid and mix well in a pot
7. Cook the maize flour-pounded groundnut mixture while stirring
8. After reaching boiling point, cook for 15 minutes.
9. Add the pounded vegetables
10. Add salt and sugar to taste

NOTE: If fresh groundnuts are replaced with fresh beans, cook the porridge for 20-25 minutes

Cassava and fresh groundnut porridge

Ingredients

- *1 cup cassava flour*
- *½ cup pounded fresh groundnuts (pound, dry a bit, then pound again and sieve)*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *2½ to 3 cups water*
- *1 light two-finger pinch of salt*
- *A little sugar to taste*



Method

1. *Shell the fresh groundnuts and pound into rough granules*
2. *Dry the partially pounded groundnuts for minutes*
3. *Pound again into a flour and sieve*
4. *Put 2 cups water into a pot and add ½ cup of the fresh pounded groundnut flour*
5. *Mix well, bring the mixture to boil and cook the mixture for 5 minutes*
6. *Mix the remaining cup of cold water with the cassava flour and make a smooth paste*
7. *Add the cassava paste into the pot and mix well*
8. *Add the pounded vegetables*
9. *Add salt and sugar to taste*

NOTE: *If fresh groundnuts are replaced with fresh*

beans, the fresh beans liquid must be cooked for 20-25 minutes before adding the cassava flour

Options for processing fresh groundnuts

Option 1:

- 1. Pound the shelled fresh groundnuts until you have a sticky paste*
- 2. Put the paste in a bowl and pour ½ cup of the water into the paste and mix well*
- 3. Strain the mixture with a sieve into the cooking pot and pound again the remaining coarse groundnut particles into a smooth paste*
- 4. Pour another ½ cup of water into the paste, mix well and strain*
- 5. Boil the strained liquid for 7-10 minutes*
- 6. Mix the remaining cup of cold water with the cassava flour and make a smooth paste*
- 7. Add the cassava paste, pounded vegetables, salt and sugar into the pot and mix well as above*

Option 2:

- 1. Shell the fresh groundnuts and roast them under low heat for 10-15 minutes*
- 2. Pound the roasted groundnuts into flour and sieve*
- 3. Use the roasted groundnut flour to make groundnut porridge*

Sweet potato and groundnut porridge

Ingredients

- *3 medium size sweet potatoes*
- *½ cup pounded roasted groundnuts*
- *2-4 teaspoons shredded/ pounded green leafy vegetables*
- *1 light two-finger pinch of salt*
- *2¼ cups water*



Method

- 1. Boil 3 medium size sweet potatoes and remove the skin*
- 2. Mash the sweet potatoes into a smooth paste*
- 3. Add the pounded groundnuts*
- 4. Add the shredded vegetables*
- 5. If necessary (depending on the type of sweet potatoes)*
 - i. add little water to make the paste soft enough for the child*
- 6. Heat for 3-4 minutes while stirring constantly*

Orange fleshed sweet potato porridge

Ingredients:

- *½ cup sweet potato mash*
- *¼ cup whole maize flour*

- *pinch salt*
- *sweet potato leaves (finely chopped)*
- *1 tsp cooking oil or 1 tsp groundnuts or ½ cup milk*

Method

1. *Boil and mash sweet potato*
2. *Boil water (any amount as desired)*
3. *Mix sweet potato mash and maize flour in the ratio of 2 sweet potato mashed: 1 whole maize flour*
4. *Let the porridge simmer until it is cooked*
5. *Add a handful of pounded sweet potato leaves, milk, eggs, cooking oil or groundnut flour as desired and let it simmer*
6. *Serve whilst hot*

Mashed orange fleshed sweet potatoes with milk

Ingredients

- *2 cups water*
- *1 cup orange fleshed sweet potatoes, peeled and cubed*
- *½ cup milk*
- *1 teaspoon peanut butter*
- *Pinch of salt*

Method

1. *Boil the sweet potatoes and salt until well cooked.*
2. *Mash potatoes to fill 1 cup.*
3. *Add the milk until well mixed.*
4. *Feed mixture to the child while it is still warm.*

Variation: Add margarine if available to improve the energy value of the dish.

Banana milk custard

Ingredients

- *1 cup cow or soya bean milk*
- *1 egg yolk only*
- *2 tablespoons sugar*
- *2 teaspoon orange fleshed sweet potato flour*
- *1 banana*

Method

- 1. Bring the milk to slow boiling over low heat.*
- 2. Mash the banana and add to the boiling milk.*
- 3. Mix the egg yolk, sugar, and orange fleshed sweet potato flour together in a bowl until well blended.*
- 4. Add hot milk and banana to the eggs and sugar, mixing all the time*
- 5. Return mixture to the pan and over a low heat gently stir with a wooden spoon until thickened.*
- 6. Pour the custard into a cup and serve at once.*

Orange fleshed sweet potato juice

Ingredients

- *3 cups mashed sweet potatoes*
- *1 litre water*
- *500 g sugar*
- *2 tablespoons grated lemon rind and juice*
- *1 ½ cups orange or pineapple juice*

Method

- 1. Wash sweet potato roots, peel and dice*
- 2. Mash to a fine mixture*
- 3. Put the mashed potato over a sieve*
- 4. Pour warm water over the mashed potato*
- 5. Add grated lemon rind and juice in the sieved potato juice*
- 6. Add in orange or pineapple extracts as an essence*
- 7. Add in sugar*
- 8. Sieve to remove other debris*
- 9. Put over fire to mix and heat to just below boiling.*
- 10. Distribute and refrigerate to serve cold*

Orange fleshed sweet potato leaf juice

Ingredients

- 200 g (2 handfuls) young sweet potato leaves*
- 120 g (12 tablespoons) sugar*
- 1 tablespoon lemon juice*
- 120 ml (1/2 cup) pineapple or passion fruit juice*
- ½ tsp orange food colour*
- 2 litres water*

Method

- 1. Add sugar to water, mix and boil solution in a clean stainless pan*
- 2. Add the sweet potato leaves to the boiling sugar solution and leave for 5 min to extract nutrients then remove the leaves from the syrup*
- 3. Leave the leaf extract and sugar syrup to cool,*

then add lemon and pineapple/fruit juice to cooled extract, mix and filter

- 4. Add food colour to filtered juice and heat until near boiling point (80 to 90 C)*
- 5. Remove the juice from the heat and fill in bottles*
- 6. Cool to room temperature by lying bottles on their side on a table*
- 7. Label the bottles*

C.7.2 Recipes for Feeding Sick Children

Eating well helps to fight infections. Therefore the mother must make sure that the child eats well during illnesses. Furthermore, additional food and water are needed to replace the food and water lost during diarrhoea and vomiting. The food also helps the gut to recover and absorb water.



The sick child needs additional food and plenty of liquids. Infections often reduce appetite. They also increase the need for certain nutrients that are poorly absorbed by the gut and the body uses nutrients faster than usual when repairing the body's defence system. The mother should therefore:

- *Give her sick child small quantities of food frequently (every 1–2 hours) and encourage the child to eat more at each meal, especially if the child has no appetite*
- *Give the child soft foods and easy-to-eat foods which the child likes, but these should include energy rich and nutrient rich foods, e.g.:*
 - o *Porridges enriched with fish, eggs, poultry, meat, etc.*
 - o *Sweet potato or pumpkin and groundnuts mash or soup*
 - o *Mashed bananas, mashed mangoes and other mashed fruits, including commonly consumed local fruits*
 - o *Sweet potato or pumpkin and avocado mash*
 - o *Soft nshima with okra and pounded groundnuts relish, which is easy to swallow*
- *Add extra fat or fatty foods and/or sweet foods, such as sugar or honey, where appropriate*
- *Give the child plenty to drink (boiled and cooled water, fresh fruit juice, soup or watery porridges) every 1–2 hours*
- *Prepare foods and drinks in a clean, safe way to prevent food borne infections.*
- *Feed the child small amounts of food more frequently*
- *If still breastfeeding, the mother should breastfeed*



the child more often. She can express the milk and feed it from a small cup or spoon if the child is too ill to suckle

During recovery, the child will often get hungrier than usual and can eat more food and quickly regain the lost weight.

It is especially important that the child who is HIV+ eats a healthy and balanced diet to prevent weight loss and help him/her stay healthy longer.

He/she needs plenty of clean and safe water to drink.



Okra with groundnuts

Ingredients

- *4 fingers of okra or wild okra*
- *2 tablespoons pounded roasted or unroasted groundnuts*
- *1½ cups water*
- *pinch of soda*
- *1 light two-finger pinch of salt*

Method

- 1. Slice the okra fingers*
- 2. Put water into the pot and add a pinch of soda*
- 3. Add the sliced okra and cook for 7-10 minutes while stirring*
- 4. Add the pounded groundnuts and cook for a further 4 minutes*

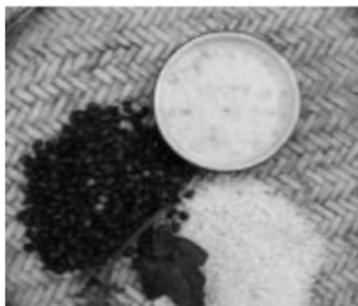
5. *Serve with soft nshima.*

NOTE: To prepare dried wild okra with groundnuts use 4 tablespoons of dried wild okra, and 2 tablespoons pounded groundnuts

Rice soup

Ingredients

- *1 cup rice*
- *4 cups water*
- *2 tablespoons pounded groundnuts*
- *2-4 teaspoons shredded/pounded green leafy vegetables*
- *1 light two-finger pinch of salt*



Method

1. *Put the rice and water in the pot and cook*
2. *Cover the pot and cook until soft.*

Options: add pounded groundnuts, grated carrots, pumpkin, sweet potato and finely chopped garlic.

NOTE: Good for coping with lack of appetite, nausea/vomiting, diarrhoea and digestive problems

Sweet potato soup

Ingredients

- *1 cup chopped sweet potatoes*
- *¾ cup water*



- *¼ cup pounded groundnuts*
- *1 light two-finger pinch of salt*

Method

1. *Peel sweet potatoes, cut them and cook in a little water until soft.*
2. *Mash sweet potatoes and add more water to make soup.*
3. *Add pounded groundnuts and bring soup to boil, stirring often and serve.*

NOTE: Good for coping with lack of appetite, nausea/vomiting. Sweet potatoes can be replaced with pumpkins

Pumpkin and avocado mash

Ingredients

- *1 cup chopped pumpkin*
- *½ cup medium avocado pear*
- *water*
- *A little sugar to taste (optional)*



Method

1. *Peel the pumpkin, cut into small pieces and cook in a little water until soft.*
2. *Mash pumpkin and add a little water to make it soft if necessary.*
3. *Add mashed avocado, mix well and warm for a few moments.*

4. *Add a little sugar to taste if necessary and serve. The pumpkin can be replaced with sweet potatoes or rice.*

NOTE: Not good for children with diarrhoea

C.7.2.1 Foods for a Child with Nausea and Vomiting

- *If the child is vomiting, give him/her small amounts of fluids like water and soups frequently. Give him/her soft foods - the child can return to solid foods when the vomiting stops.*
- *The feeling of nausea may be reduced by the smell of fresh orange or lemon peel, or drinking lemon juice in warm water, herbal tea or ginger drink.*
- *Dry and salty foods such as roasted groundnuts help to relieve nausea.*



C.7.2.2 Foods for a Child with Diarrhoea

Give the child soft, mashed, moist foods like:

- *Soft fruits and vegetables, (e.g. banana, mango, papaya, watermelon, pumpkin, gourd, carrots)*
- *Vegetable soups*
- *Fresh fruit juices*
- *Mashed sweet potatoes*

Feed the child with refined foods like white rice and refined maize meal

C.7.3 Additional Sweet Potato and Legume recipes

The following recipes were adapted from “Food Processing Utilisation, and Nutrition with a Special Focus on the Dietary Needs of People Living with HIV/AIDS” reference booklet, Food Security Pack Project (PAM 2004) Availability, PAM.

C.7.3.1 Additional Sweet Potato Recipes

Fresh sweet potato chips

Ingredients

Use two medium to large sweet potatoes.

Method

- 1. Put water in a basin*
- 2. Wash potatoes well and peel*
- 3. Chip the potatoes thinly and immerse in water to prevent browning*
- 4. Drain and remove excess water with a clean tea towel*
- 5. Fry until light brown and sprinkle with salt*
- 6. Serve hot as a snack or main meal with beans or fish*

Sweet potato with groundnuts

Ingredients

- *1 kg sweet potatoes*
- *1½ tea cups peanut butter*
- *salt to taste*

Method

1. *Wash potatoes*
2. *Peel and cut into cubes*
3. *Boil the potatoes until almost done and add salt*
4. *Add 1 cup water to the peanut butter and stir to get a light paste.*
5. *Add to the sweet potatoes and boil for 10 minutes.*
6. *Remove from fire and serve.*

Sweet potato chapatti

Ingredients

- *250 g boiled and mashed sweet potatoes*
- *250 g wheat flour*
- *4.5 g salt*
- *2 tbsp cooking oil*
- *enough water to mix*

Method

1. *Mix wheat flour and salt in a bowl, and add boiled mashed sweet potatoes*
2. *Add the oil and mix until mixture resembles fine bread crumbs*
3. *Add water little by little to make a soft dough*
4. *Mould into small balls and roll out to a large circle using a floured pastry board.*
5. *Shallow fry by rubbing a little oil on the frying pan*

- and fry chapatti, turning on either side until done*
- 6. Place chapatti in polythene bags when still warm to avoid hardening*

NOTE: Chapatti can be served as a main meal with meat or vegetables

Sweet potato fritters

Ingredients

- *300 g boiled mashed sweet potatoes*
- *200 g wheat flour*
- *25 g sugar*
- *3½ tsp baking powder*
- *2 tbsp cooking oil for the mixture.*
- *cooking oil for deep frying*

Method

- 1. Mix the dry ingredients in a bowl and rub in the oil until the mixture resembles fine bread crumbs*
- 2. Add the mashed sweet potatoes; mix and knead well. Add water a little at a time to make a soft dough then leave the dough to relax for 40 minutes*
- 3. Roll the dough on a floured board to 0.5 cm thickness and cut into desired shapes*
- 4. Deep fry in hot oil for 6-15 minutes turning them until both sides turn golden brown*
- 5. Remove the fritters and allow to cool, and serve warm*

Sweet potato biscuits

Ingredients

- 170 g mashed sweet potato
- ½ cup milk
- 4 tbsp melted butter
- 140 g wheat flour
- ½ tsp sugar (omit if to be used with meat),
- ½ tsp salt
- 2tsp baking powder

Method

1. Mix mashed potato, milk and melted butter and beat well
2. Sift and stir in the remaining ingredients and turn onto a floured board, knead lightly and roll out to ½ inch thickness
3. Cut into rounds, place on a greased baking sheet
4. Bake in a hot oven for 15-20 minutes

C.7.3.2 Additional Cowpea Recipes

Cowpeas or beans with wild okra

Ingredients

- Handful dried okra (ladies finger)
- 2 medium tomatoes
- ½ tsp cooking soda (powder)
- salt to taste
- 1 cup cooked peas

Method

1. *Pound the leaves or ladies finger to a powder.*
2. *Bring water to boil and add soda and tomatoes.*
3. *When the water boils add okra and cook for 5-10 minutes stirring all the time.*
4. *Add the cooked peas and salt and boil for 3-5 minutes.*

Fresh cowpea leaves

Ingredients

- *cowpea leaves*
- *pounded groundnuts*
- *tomatoes*
- *onion*
- *salt to taste*
- *cooking soda*

Method

1. *Wash the leaves properly to remove all soil*
2. *Put the leaves in a pot, add water, salt and soda*
3. *Boil them to softness*
4. *Add groundnuts and simmer for 10 minutes*
5. *Add the remaining ingredients and continue simmering until the groundnuts are cooked*
6. *Serve with nshima*

Dried cowpea leaves

Ingredients

- *dried cowpea leaves*
- *tomatoes*
- *onions*
- *pounded groundnuts or peanut butter*
- *salt and pepper*

Method

1. *Cook dried cowpea leaves until tender*
2. *Add chopped onions and tomatoes*
3. *Add pounded groundnuts or peanut butter*
4. *Cook for 10 minutes, stirring the mixture constantly*
5. *Add salt and pepper, serve with nshima*

Cowpea fritters

Ingredients

- *2 cups cowpeas*
- *onions*
- *cooking oil*
- *salt to taste*

Method

1. *Soak the cowpeas overnight and peel them*
2. *Wash the cowpea in cold water, drain and pound while rotating the pestle*
3. *When the mixture is soft, add onion and salt, continue pounding until it forms a foamy mixture*

4. *Heat oil in a pan and drop the mixture by tablespoonful into the oil making fritters*
5. *Fry until brown, serve hot or cold*

NOTE: Nice ripe tomatoes can also be added to the mixture.

Cowpeas with whole sorghum

Ingredients

- *½ cup cowpeas*
- *1 cup whole polished sorghum*
- *1 tbsp margarine*
- *onion*
- *salt to taste*
- *water*

Method

1. *Wash and cook the cowpeas until tender and drain the liquid*
2. *Melt margarine in a pan, add chopped onion and fry for a few minutes*
3. *Add cowpeas, sorghum and salt*
4. *Simmer until the mixture is cooked*

Cowpea relish

Ingredients

- *200 g (1/2 cup) cowpea grain*
- *1 medium onion*
- *2 medium tomatoes*
- *salt to taste*

- 2 tsp curry powder
- 3 tbsp (45 ml) cooking oil

Method

1. Soak in cold water
2. Remove the skin
3. Wash cowpeas and add other ingredients
4. Boil until soft (about 10-15 minutes)
5. Cook cowpeas without soaking until soft
6. Add other ingredients
7. Simmer for 20-30 minutes

Cubed sweet potato, pumpkin and carrots can be added to the cowpea together with other ingredients and cooked until soft.

Cowpea curry

Ingredients

- 200 g (½ cup) cowpea grain
- 3 medium sweet potatoes
- 1 medium onion
- 2 medium tomatoes
- 5 medium carrots
- salt to taste
- 2 tsp curry powder
- 3 tbsp (45 ml) cooking oil

Method

1. Soak cowpeas in cold water overnight
2. Remove the skin, wash the cowpeas and boil

3. *Dice onions and carrots, cut the tomatoes and cube the potatoes*
4. *Heat cooking oil and fry the onions until brown; add tomatoes, carrots, potatoes and curry*
5. *Continue stirring until the mixture is stable*
6. *Add to the boiling cowpeas and simmer for 20-30 minutes*

Cowpeas and pumpkin

Ingredients

- *pumpkin*
- *1 cup (400 g) cowpeas*
- *salt to taste*
- *2 tbsp (30 ml) cooking oil*

Method

1. *Clean and wash cowpeas*
2. *Boil until soft*
3. *Peel and chop pumpkin into small pieces and drop into the cowpeas*
4. *Boil until pumpkin pieces are cooked*

Cowpea sausages

(Any other legume can also be used including bambara nuts.)

Ingredients

- *2 cups wet treated legume grain*
- *½ cup cooking oil*
- *1 tsp curry*
- *1 medium onion*

- 1 medium tomato
- salt to taste
- ½ cup wheat or cassava flour

Method

1. Pound the grain to a fine pulp
2. Pound onion and mix it into the pulp together with curry and salt,
3. Add flour for binding
4. Shape and fry in cooking oil until golden brown
5. Fry remaining onion and tomato to make gravy, add the sausages and simmer for 10 minutes

NOTE: The same method can be used to make mince balls.

Cowpea cake

Ingredients

- 1/4 cup (100 g) cowpea flour
- ½ cup (200 g) wheat flour
- 2 eggs
- 4 tbsp margarine
- 4 tbsp sugar
- ½ tsp nutmeg powder
- salt to taste
- 1 tsp baking powder
- 4 tbsp (60 ml) water

Method

1. Cream margarine, salt and sugar together until smooth and frothy

2. *Break the eggs into the mixture and beat well*
3. *Mix the dry ingredients together and fold into the creamy mixture*
4. *Put in oiled cake tin or small cake pan*
5. *Bake at 175°C for 1 hour*

Cowpea burgers

Ingredients

- *3 tbsp cooking oil*
- *salt to taste*
- *1 medium onion*
- *5 garlic cloves*
- *1 cup flour*
- *1 medium tomato*
- *2 cups boiled cowpeas*
- *black pepper*
- *spring onion*
- *bread rolls*

Method

1. *Pound the wet treated cowpeas with garlic and spring onion to a fine pulp*
2. *Add the flour, salt and pepper*
3. *Make burger shapes and fry in oil*
4. *Cut tomato and onions into rings*
5. *Cut the bread roll in half and put the burger between*
6. *Serve as a snack*

C.7.3.3 Additional Soya Bean Recipes

Soya millet porridge

Ingredients

- *wet treated soya beans*
- *millet flour*

Method

1. *Dry the wet treated soya beans*
2. *Roast to a golden brown colour and pound into flour*
3. *Mix 2 parts millet flour to 1 part soya flour*
4. *Make a paste with cold water in a pot*
5. *Put water to boil and add the boiling water to the paste while stirring*
6. *Simmer for 5-10 minutes*
7. *Add sugar and serve while still hot*

Soya bean milk

(Any other legume can also be used including cowpeas.)

Ingredients

- *2 cups wet treated soya beans*
- *2 cups water*

Method

1. *Pound the soya beans to a fine pulp*
2. *Put in a bowl and add water*
3. *Squeeze through mutton cloth or fine sieve*
4. *Collect the liquid in a jar and store in a cool place away from heat*

NOTE: Use soya milk as you would ordinary milk.

Alternative to soya milk: leafy vegetables in legume “milk”

Ingredients

- *1 cup legume milk*
- *leafy vegetables*
- *1 onion*
- *1 tomato*
- *1 tsp soda*
- *salt to taste*
- *water*

Method

- 1. Wash and cut vegetables*
- 2. Add soda and water and cook until vegetables are soft*
- 3. Discard water. Add milk and salt and cook until almost done.*
- 4. Add onion and tomato and cook until well done.*

C.7.3.4 Additional Groundnut Recipes

Groundnut Sauce

Ingredients

- *½ cup finely chopped onion*
- *crushed garlic cloves*
- *1 ½ tablespoons oil*
- *½ cup boiling water*
- *1 cup peanut butter*
- *½ lemon, juice and rind*

- *1½ tbsp grated fresh ginger*
- *1 tbsp honey or sugar*
- *1½ cups milk*
- *½ tsp pepper*

Method

- 1. Fry the onions and garlic in oil until golden brown*
- 2. Add the other ingredients except milk*
- 3. Cook the sauce on medium heat until smooth*
- 4. Slowly pour in the milk while stirring gently*
- 5. Cook for a few more minutes*
- 6. Serve while still warm. A high protein sauce to eat with grains and raw or steamed vegetables*

Rice in groundnut sauce

Ingredients

- *1 cup rice*
- *¾ cup peanut butter*
- *pinch of salt*

Method

- 1. Heat water*
- 2. Wash rice and put in the water and cook until almost done*
- 3. Add salt and the peanut butter*
- 4. Prepare groundnut sauce as described above*

Groundnut pumpkin scones

Ingredients

- 300 g wheat flour
- 2 tsp baking powder
- 1 egg, beaten
- 1/2 cup (100 g) mashed pumpkin
- ½ cup raw groundnut paste
- ½ cup fresh milk
- salt to taste

Method

1. Sieve flour, salt and baking powder together
2. Beat the egg, mix with the pumpkin and groundnut paste and stir into the flour
3. If mixture is too thick, add a little milk
4. Scoop mixture into baking pan
5. Bake at 200°C for 12 minutes

Chicken with groundnuts

Ingredients

- ¾ cup cooked chicken
- ½ tea cup cooking oil
- 2 tbsp peanut butter
- 1 medium sliced onion
- 1 medium chopped tomato
- water
- salt to taste

Method

1. *Cut the clean chicken into small pieces*
2. *Fry the chicken in oil until brown, then fry onion and tomatoes*
3. *Make a light groundnut paste using the water*
4. *Add the chicken, onion, tomato and groundnut paste*
5. *Stir well until the chicken boils for 10 minutes*

Kapenta with groundnuts

Ingredients

- *½ kg dry kapenta*
- *1 cup peanut butter*
- *1 onion*
- *2 tomatoes*
- *water*
- *salt to taste*

Method

1. *Wash kapenta in hot water*
2. *Boil kapenta for 10 minutes*
3. *Add the peanut butter to the kapenta*
4. *Remove skin from the tomato, cut the tomato and onion*
5. *Add onion and tomatoes, boil for 5 minutes, and serve with nshima*

C.8 Water, Sanitation and Hygiene Supporting 1st 1000 MCDs

C.8.1 Background on Water and Sanitation in the Context of the 1st 1000 MCDs

The Water and Sanitation sector is dealt with by the departments of Environmental Health under the Ministry of Health and Public Health under the Ministry of Local Government.

Mission statement for MOH

To provide cost effective quality health services as close to the family as possible in order to ensure equity of access in health service delivery and contribute to the human and socio-economic development of the nation.

Descriptions and definitions

The National Health Strategic Plan 2011–2015 has stated that most of the disease outbreaks are as a result of poor access to safe water and sanitation.

Environmental Health is defined as factors determined by: Physical, Chemical, Biological, Social and Psychological factors in the environment. It is also the theory and practice of: Assessing, Correcting, Controlling and Preventing those factors in the environment that can potentially affect health (WHO Sofia, 1993) Environmental health involves

the control of communicable diseases, education of the community on principles of personal hygiene, safe water and sanitation facilities and medical waste management.

Public Health is an art and science of preventing disease, prolonging life and promoting physical health and efficiency through community organized efforts.

Health is a state of complete mental, physical, social wellbeing and not merely the absence of disease or infirmity.

Objectives

General: To promote and improve the health status of the communities through environmental health interventions.

Specific

- *To protect the health of consumers by ensuring high standards in the production, collection, preparation, processing, storage and consumption of food stuffs*
- *To protect the public against health hazards and fraud in the sale of food*
- *To reduce the incidence of communicable diseases by improving sanitation and water supplies*
- *To lift up the living conditions by improving home, work and recreational environment*

Activities:

- *Water and sanitation*
- *Epidemics preparedness and control*
- *Health care waste management (HCWM)*
- *Food and premises inspection*
- *Nuisance abatement*
- *Pollution control*
- *Supervisory visits/technical support*
- *Human resource development*
- *Conduct baseline data collection (environmental health survey)*
- *Vector/rodent control*
- *Implementation of malaria prevention and control activities*
- *Commemoration of eventful days*
- *General environmental health administration*

C.8.2 Water, Sanitation and Hygiene

Abstracted and adapted from “Community Health Workers ‘Integrated Care Handbook: A Reference Manual for Community Health Workers”. Fourth Edition, MoH, NFNC, 2009, with support from GRZ, USAID, HSSP, Care International, Christian Children Fund, JICA, Lusaka DHMT, Lusaka PHO, NFNC, Plan International, UNICEF, WHO.

Safe drinking water and healthful sanitation practices are essential to life. Shortage of water, inadequate sanitation and poor hygienic practices cause common diseases that

affect our daily lives. A number of studies done in Zambia suggest that less than 40% of households have access to adequate water and sanitary services. In this country, water and sanitation related problems are major causes of hospital admissions and deaths. The major diseases arising from poor water supply and sanitary conditions are diarrhoeal diseases such as dysentery, cholera, typhoid and acute diarrhoea. Other water and sanitation related diseases include worm infestations, eye and skin infections.

C.8.2.1 Water Sources

Water affects health in many ways. It may carry germs of specific diseases called, water borne diseases. Shortage of water and inadequate personal hygiene may result in increased transmission of a water borne disease.

Protected water sources are protected from the entry of disease causing germs. These include lined wells with concrete rings and fitted with windlasses or hand pumps, boreholes and springs provided with pipes and water collection boxes. Protection means preventing entry of disease causing germs.

How Water becomes contaminated (polluted, dirty, unsafe)

Water is clean when it comes from the sky as rain or out of earth as a spring. Humans and animals that come in contact with it contaminate it. Water can be contaminated by:

- *People passing urine and stool near a water source.*
- *The rain or run-overs carry the human waste into the water source if it is not protected.*
- *People wash their bodies and clothes in the water source.*
- *People put dirty containers in the water source.*
- *Animals pass urine and stool in the water or near the water source.*

How to protect water sources

Rivers and Streams: If people draw water from a river or stream for drinking and cooking they should do so up-river away from the place where they wash their clothes and bodies and away from where animals are allowed to drink. Animals should drink downstream at a distance from where people stay.

Where possible a fence should surround the place where drinking water is fetched.

NOTE: Water drawn directly from a river or stream may be polluted. If there is no other source of water the community must boil their water before drinking it if they are to remain healthy.

Springs: A spring can be protected using the following steps:

- *A ditch should be dug about 1.5 m uphill from the spring to divert water away from the catchment.*

This is to prevent the spring from being made dirty by surface or stream water.

- *A collection box should be built at the spot where the water comes out of the ground to keep the water from being fouled.*
- *The collection box should have an outlet for collecting the water.*
- *There should be a manhole cover over the collection box to limit or prevent dirt from getting into the water.*

Shallow Wells: Building a lining of concrete blocks, and providing a concrete apron and a cover well can protect a shallow well. Only one bucket and rope should be used to draw water.

Wells: A well should be situated away from pit latrines and other sources. A well should not be constructed downhill from a pit latrine.

NOTE: All sources of water should be located at least 10 metres away from pit latrines, animals or rubbish pits.

C.8.2.2 Methods for Making and Keeping Water Clean and Safe

Good quality water is described as follows:

- *It should be clear and free from suspended materials*
- *It should taste good*
- *It should not cause any harm to the person who*

drinks it.

Water can be made safe by:

- *Boiling*
- *Direct sunlight*
- *The two pot method.*

Boiling

Materials Needed: Large pot, fresh water, source of heat to boil water.

Method: Collect water in a pot, boil water for at least 5 minutes, cover and cool the water, and store water in a clean covered container. Scoop water out with a clean container to prevent contamination. Use a narrow mouthed container to prevent people from putting a contaminated cup or their hands in the water container. This means that the water must be poured. This is the best method for making and keeping water clean and safe to drink!

Direct Sunlight

Materials Needed: 6 hours of full sunlight

Method: Collect fresh water in clean covered transparent containers. Place the covered containers in direct sunlight, Keep them in direct sunlight for 6 hours.

Two pot method

Materials Needed: Clean covered container

Method: Collect fresh water in a clean covered container. Leave it to stand for 1 full day. During that time most of the dirt in the water will settle at the bottom of container. The next day transfer the clear water from the top part of the container into a narrow necked container using a clean cup or gourd. Store the water in a clean covered container. Scoop water out with a clean container (only water which has been stored from the day before is used for drinking).

NOTE: This method helps make water clear and free of visible dirt but does not kill germs that may be in the water. Boiling the water for 15 minutes after transferring it to the second container will kill the germs.

Treating water with chlorine water purification solution

Chlorine is a water treatment solution for homes. It should be used to disinfect your water for drinking, washing fruits and vegetables, and washing cooking and eating utensils. It can help prevent diarrhoea and other water borne diseases, such as cholera.

Chlorine is the cheapest way to make your water safe to drink. It is much cheaper and safer than boiling your water. Water can have germs that cause disease at any time. Even water that looks clear can have germs. Use chlorine all year long. Chlorine can be found in health centres, pharmacies,

drug stores, shops and supermarkets throughout Zambia for a very small price. Store your drinking water in a closed container (narrow mouth container) with a lid. Water stored in closed containers does not get re-contaminated as easily as water stored in open buckets.

Method: Fill your closed container with water. Measure the correct amount of chlorine for your containers by using the lid of the chlorine bottle. For a 20 litre container, fill the centre of the chlorine lid once and pour it into the container with the water. For a 5 litre container, fill the outer rim of the chlorine lid twice. For a 2.5 litre container fill the outer rim of the chlorine lid once.

After adding chlorine, shake the container and then wait for 30 minutes before drinking the water. When you want to use it, pour the water out of the water container. Do not scoop water out of the container with hands or a cup as this might re-contaminate the water.

C.8.2.3 Hand Washing Methods

Washing hands with soap and water or ash and water can prevent some illnesses. The next two sections describe hand washing methods and when to wash hands. Fingers and hands are used to do lots of things, such as preparing and eating food, scratching, etc. This



puts fingers and hands in contact with germs that can cause disease. No germs can be seen with the naked eye but they can be washed away with proper hand washing method.

Each person uses different water. The water is poured over the hands from the container.

Proper hand washing practices are important for the following reasons:

- *Germs on a person's hands particularly after a visit to the toilet are easily transferred to the person's mouth or to other people if hands are not washed.*
- *Diseases such as cholera are easily spread if hands are not washed or are poorly washed.*

When it is important to wash hands

- *After using the pit latrine or toilet (after defecating and passing urine)*
- *After handling the faeces of a child*
- *After working in the field*
- *Before handling, preparing or eating food and water*
- *Germs that cause disease can be passed on to other people when proper hand washing methods and hand washing times are not observed.*
- *To avoid getting these germs and passing them on to others hand washing is very important.*

C.8.2.4 Human Waste Disposal - Faeces

Dispose of all faeces safely, wash hands after defecation, before preparing meals and before feeding children. Disposing of human waste including children's faeces safely is important.



It is important to dispose of human waste safely because it is a source of disease. Many illnesses especially diarrhoea come from germs which are in faeces. People can swallow these germs through water, food, dirty hands or when they use dirty utensils. If faeces are left exposed where flies can come into contact with them, diseases easily spread. Flies can carry diseases from contaminated faeces to food and water.

In some communities in Zambia, people still use the bush or stream to pass stool. One responsibility of the Field worker is to improve this situation by explaining the need for and the construction of cheap simple latrines. Children as well as adults should be encouraged to use latrines.

KEY PRACTICE: Ensure and maintain a clean home environment at all times, in particular dispose of faeces (including children's faeces) safely and wash your hands with soap or ash after defecation, before preparing meals and feeding children.

Advantages of using a latrine

- *There is privacy*
- *It keeps flies and other insects away from faeces*
- *It protects the user from rain, wind, etc.*
- *It can be built or constructed from cheap and locally available materials*
- *It can be constructed by local communities with minimum help. (The CHW may ask an Environmental Health Technician or other health worker for help on how to build a latrine.)*



Types of latrines

- *Traditional pit latrine*
- *Ventilated Improved Pit latrine (VIP)*

Where to build the latrine

- *It should be downhill, away from any water source*
- *It should be on the side of the house which is sheltered from the wind*
- *It should be 10 meters away from the house and 10 metres from any well or spring or any source of water supply*

A good pit latrine should have:

- *A rectangular or square or round pit*
- *A hole big enough to allow faeces to pass through but small enough to prevent*
- *accidents (such as children falling in)*
- *A hole cover or lid to keep away flies and smells*
- *A strong floor that is easy to clean*

Ventilated Improved Pit Latrine (VIP)

- *The VIP Latrine is built much like the traditional pit latrine. A good VIP Latrine should have the following:*
 - o *A rectangular or square pit*
 - o *A hole big enough to allow faeces to pass through but small enough to prevent accidents (such as children falling in)*
 - o *A hole cover or lid to keep away flies and smells*
 - o *A strong floor that is easy to clean*
 - o *A door and a roof*
 - o *A ventilation pipe*

Difference between a VIP latrine and a traditional pit latrine

The difference between the VIP and the traditional pit latrine is that the VIP has a vent pipe which has gauze on top (see illustration above). Flies that may enter the pit of the latrine cannot escape through the hole of the latrine if it is covered. They go up the vent and are trapped by the gauze at the top of the vent. Smells also escape through the vent.

The advantages of the VIP latrine over the traditional pit latrine

- *The VIP latrine reduces or eliminate smells*
- *The VIP latrine reduces flies*

NOTE: The VIP is more expensive to build than the traditional pit latrine. It is suitable for schools, health centres and public places.

Construction of a pit latrine

- *Dig a pit 1 to 5 metres deep (and at least 2 m above the water table).*
- *In unstable soil (sand) line the pit with bricks or concrete blocks where available.*
- *Make the slab by laying logs over the pit and applying soil to cover the logs. Leave a hole in the middle. Make a concrete slab where concrete is available.*
- *Construct a “super structure” of pole and dagga over the slab. Where available make walls of bricks.*
- *Put a roof made of thatch on the structure. Where available iron sheets or asbestos sheets may be used.*

C.8.3 Management of Household Rubbish

Rubbish or refuse is any waste matter or material that is no longer useful and which should be thrown away. Common types of refuse are household sweepings, leftover food, used wrapping paper and plastic.

There are problems associated with poor refuse disposal:

- *Unwanted pests, such as rats, flies and cockroaches are attracted to refuse and breed in it if it is left in the open*
- *Refuse that is left in the open smells bad*

Common methods of household refuse disposal are:

- *Burying the refuse*
- *Burning the refuse*

Burying the refuse in refuse pits

These pits should be situated away from the house (preferably on the side of the house which is away from the wind). They should be sited 60 meters away from any water source and at least 20 meters from the kitchen or food preparation area.

One method that can be used is to dig a trench about 5 m long x 1 m deep x 1 m wide. The waste is dumped at one end of the trench and the soil used to cover it is taken from the other end. This allows the trench to be used for a longer time.

Burning the Refuse

- *It is best to burn dry refuse in a large metal container such as a 55 gallon drum*
- *Place a heavy screen on top of the drum during burning to keep ashes from flying around*

- *Drill holes (5 cm wide) around the bottom of the drum to allow air to enter the drum and therefore help the fire burn.*

C.8.4 Household Pest Control

Community Health Workers have responsibility of teaching members of the community on how to control household pests. Most of these household pests can cause diseases and some of them a mere nuisance to the members of the community.

Common household pests

- *Mosquitoes*
- *Flies*
- *Cockroaches*
- *Bedbugs*
- *Fleas*
- *Mice*
- *Rats*

C.8.4.1 Where Pests are Found and How to Control Them

Mosquitoes

Mosquitoes carry diseases. The mosquitoes breed in water. They can even breed in cans and footprints that have water in them.

How to control them:

- *Use of insecticide treated material such as bed nets and curtains.*
- *Indoor spraying with insecticide.*
- *Residual spraying of houses. The district health office can assist with this activity.*
- *Put children to bed early and ensure that they are covered by insecticide treated bed nets.*

House Flies

House flies are mostly found in warm waste, i.e. faeces or decaying vegetable matter. Their body and legs can carry germs. They can leave germs on food and spread diarrhoea.

To control house flies, destroy all breeding places by:

- *Keeping latrines clean.*
- *Burying all food wastes or covering it with soil in a compost heap.*
- *Removing all faeces (human and animal) from the compound by burying it or putting it in the latrine.*
- *All waste should be buried, burned or put into a bin. All food should be covered or kept safely.*

Cockroaches

Cockroaches breed in cracks in warm places, e.g. near the fire place, and come out at night. They leave germs on our food that can cause diarrhoea. To control them:

- *Clean the kitchen regularly.*

- *Plaster all cracks and holes in the walls.*
- *If possible, use simple insecticides found in the market and shops.*

Bedbugs

They breed in beds and also in the cracks of walls, floors and wood. They come out at night to suck blood and cause great irritation and loss of sleep. To control them, plaster cracks in the walls. To permanently remove them from bed is difficult. The CHW should consult the Environmental Health Technician (EHT) for an appropriate insecticide.

Ants

These are attracted by sugar and food left lying about. General cleanliness is essential.

Fleas

Fleas are dangerous because they are a link between rats and man and can transmit diseases such as plague. They reside on animals and bite rats. Fleas develop in rat burrows and human fleas on the floors of dirty houses that are not swept. They are caused by lack of hygiene and the presence of domestic animals, so domestic cleanliness is the best preventive measure.

FWs should liaise with the EHT for use of insecticides.

Mice and Rats

They do much damage:

- *Destroy woodwork and material.*
- *Can infect food and cause diseases.*
- *Eat grain, roots, crops, etc.*
- *Carry diseases themselves.*

They breed in refuse heaps. This is why refuse should be burned or buried. To control mice and rats:

- *Strict cleanliness is necessary.*
- *Practice good gram storage.*
- *Plaster holes in the walls and the sealing of floors.*
- *Bury food wastes.*

C.8.5 Personal and Household Hygiene

Abstracted, adapted and reformatted from “Nutrition Handbook for Community Mobilisers”, Government of Nepal, and FAO, with support from Government of Spain, and FAO. Full document available on FAO website.

Lack of hygiene and poor sanitation contributes to 88% of deaths from diarrhoeal diseases. Practicing good personal and household hygiene reduces illnesses such as diarrhoea and scabies. These diseases are transmitted by germs found in human and animal faeces that get into our skin and mouths through food, water, dirty hands, dirty utensils or dirty surfaces. Dirty environments also attracts vectors

and pests that spread germs. Households should observe good hygiene to protect family members from illness.

Good hygiene prevents diseases:

- *Many illnesses, especially diarrhoea, come from germs found in human and animal faeces. These germs are very small and are not visible to our eyes.*
- *Germs cause illness when they get into the mouth through food, water, dirty hands, dirty utensils or dirty surfaces used for preparing and serving food.*
- *Just rinsing fingers with water is not enough. To kill germs, both hands need to be rubbed with water and soap or ash.*
- *A dirty environment attracts flies, cockroaches, rats and mice which spread germs. A household needs to be kept clean to stop the spread of germs and protect all the family from illness.*



Good hygiene practices that prevent the spread of germs include:

- *Disposing safely of all faeces, ideally using a toilet or latrine*

- *Washing hands with soap (or ash) and clean water*
- *Using clean water from a safe source*
- *Disposing safely of household refuse, e.g. burning, burying, recycling, composting, etc.*
- *Keeping animal faeces away from the house, paths, wells, streams and children's play areas.*

Follow good hygiene practices to prevent illness:

- *Only use water from a safe source. Safe water sources are water pipes, tube-wells, protected dug-wells and springs. Use clean, covered containers to collect and store water. Wash your hands before collecting water.*
- *Build hand washing habits in the family. Make sure that all the family, including children, wash their hands with clean water and soap (or ashes):*
 - o *after using the toilet*
 - o *after cleaning a child's bottom (or any other contact with human excreta)*
 - o *before handling and eating food*
 - o *before feeding children (make sure they wash their hands, too)*
 - o *after contact with sick people (e.g. feeding, washing)*
 - o *after touching or handling animals.*
- *Dry hands by shaking and rubbing them together or using a clean towel that is kept only for this purpose.*
- *All the family should keep their bodies clean through regular bathing and laundering. In particular, children's faces should be washed regularly*

and thoroughly with clean water to prevent eye infections.

Keep your house and yard clean to stop the spread of germs that carry illness:

- *Dispose of all faeces safely:*
 - o *Use a toilet or latrine and keep it clean and free of flies.*
 - o *Teach small children to use a potty. Put children's faeces in the latrine.*
 - o *If it is not possible to use a toilet or latrine, the faeces should be buried immediately. Everyone should always defecate well away from houses, paths, water sources and places where children play.*
- *Keep the surrounding area of the house free from animal faeces and other waste.*
- *Put Waste in a covered bin, bury it or burn it, so it does not attract flies and other pests.*

BE CAREFUL!

Make sure there is no water where mosquitoes can breed (e.g. Ponds, containers). Outside the house, cover water barrels and turn empty containers upside down so they do not collect water.

PASS IT ON!

Train your children to practice good hygiene. For instance,

show them how and when to wash hands and how to keep the environment clean. Build daily habits.

CHECK that your children's school has proper hand washing facilities and latrines.

Keeping food safe and clean - dirty foods and drinks can cause illness:

- *Germs can reach our foods and drinks via dirty hands, flies or other insects, mice and other animals, and dirty utensils.*
- *These germs or parasites may cause food poisoning (resulting in diarrhoea and vomiting) and other sicknesses.*
- *The people most sensitive to food related sickness are young children and people who are already ill.*

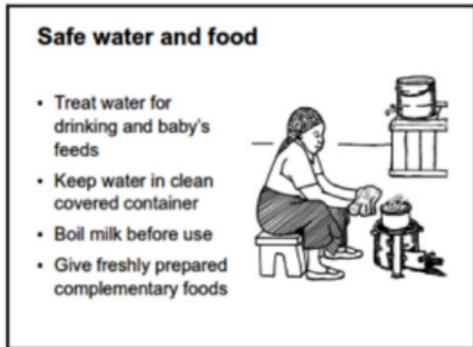


Food must be properly stored and prepared because:

- *Raw meat can contain germs and worms that can be transferred to humans.*
- *Food that is eaten raw, such as fruits and vegetables, can become contaminated by dirty hands, unclean water or flies.*
- *Germs grow fast in food that is warm and wet.*
- *Food that is kept too long can go bad and contain toxic chemicals or germs that can cause sickness.*

Use clean and safe water

- *Get water for drinking or for washing uncooked foods from a safe source, such as water pipes, tube-wells, protected dug-wells and springs.*



- *If no safe source is available, filter or boil the water (rolling boil for one minute) or use chlorine tablets before drinking or using the water.*
- *Use clean, covered containers to collect and store water.*
- *Wash your hands before collecting water.*

Store food safely

- *Buy fresh foods, such as meat or fish, on the same day you will eat them. Cover foods to protect them from insects, pests and dust.*
- *Store fresh food (especially food from animals) in a cool place (a*



refrigerator if available).

- *Keep dry foods such as flours and legumes in a dry, cool place where they are protected from insects, rats and mice, and other pests.*
- *Do not store leftover foods for more than a few hours (except in a refrigerator). Always store them covered and reheat them thoroughly until hot and steaming (bring liquid food to a rolling boil).*

Prepare food in a clean and safe way

- *Always wash hands before handling food.*
- *Keep food preparation surfaces clean. Use clean, carefully washed dishes and utensils to store, serve and eat food.*



- *Wash vegetables and fruits with clean water. If you have no clean water, peel when possible.*
- *Prevent raw meat, offal, poultry and fish from touching other foods. These foods often contain dangerous germs and worms which can easily wander to other foods. Wash surfaces touched by these raw foods with hot water and soap.*
- *Cook meat, offal, poultry and fish well. Meat should have no red juices. Hard-boil eggs. Do not eat raw or cracked eggs because they can contain dangerous germs (called salmonella) that cause food poisoning.*
- *Boil milk unless it is from a safe source. Soured and*

fermented milks may be safer than fresh milk.

- *Do not eat or use mouldy foods. They can make you very ill.*
- *Cover any wounds on hands before preparing food to avoid contaminating it.*
- *Do not spit near food or water.*

Use and store chemicals and pesticides carefully

- *Pesticides and other agricultural chemicals can seriously poison people if they get into food or water.*
- *Follow carefully the instructions for using chemicals.*
- *Never put food or water in empty containers that have been used for chemicals.*
- *Do not store chemicals close to food items and keep them out of children's reach.*
- *Wash hands after using chemicals.*
- *Wash all foods (e.g. vegetables and fruit) that could have been sprayed with pesticides or other chemicals.*

Other important tips

Train your children to do all these things.

Hygienic Preparation of Feeds

A baby who is not breastfed is at increased risk of illness for two reasons:

- *Replacement feeds may be contaminated with organisms that can cause infection.*
- *The baby lacks the protection provided by the breast milk.*

After six months of age all children require complementary feeds. Clean, safe preparation and feeding of complementary foods are essential to reduce the risk of contamination and the illnesses that it causes.

The main points to remember for clean and safe preparation of feeds are:

- *Clean hands*
- *Clean utensils*
- *Safe water*
- *Safe storage*
- *Safe water and food*

Water can be made safe for feeding babies by bringing the water to a rolling boil before use. This will kill most harmful micro-organisms. A rolling boil is when the surface of the water is moving vigorously. It only has to 'roll' for 5 to 10 minutes.

The water should then be stored in a clean, covered, container. The best kind of container has a narrow top, and a tap through which the water comes out. This prevents people from dipping their hands and cups into it.

- *If the water has been stored for more than 48 hours it is better to use it for something else, for example cooking or washing other things.*
- *If a baby is above 6 months of age, full cream fresh milk can be given as long as it is boiled.*

- *Some families keep water cool in a pottery jar, which allows evaporation of water from the surface. This method is not safe for milk.*
- *If a mother is giving complementary foods, she should prepare them freshly each time she feeds the baby, especially if they are semi-liquid.*

To clean a cup, wash it and scrub it in hot soapy water each time it is used. Dip the cup into boiling water, or pour boiling water over it just before use. An open, smooth surfaced cup is easiest to clean. Avoid tight spouts, lids or rough surfaces where milk could stick and allow bacteria to grow.

Bottles and teats are more difficult to clean than cups and you should discourage their use.

C.9 Birth Registration, Adoption, and Maternity Protection

Adapted, abstracted and reformatted from “Child Protection in Zambia”, O’Brien Kaaba, LB,LLM, 2011. Available from Children in Need Network (CHIN). Pages 8-9.

Birth registration is a delegated duty conducted by a local authority as part of an exercise of collection of statistics of births within its boundaries. This information is later forwarded to the national registration office for issuing of the birth certificates.

C.9.1 Legal Requirements: Birth and Deaths Registration Act Cap 51

“The birth of every child born and the death of every person dying in Zambia shall be registered in accordance with the provisions of this act”.

A child must be registered within 12 months from the birth of the child; on failure an affidavit has to be filled in stating reasons for non-compliance.

According to regulation, any person giving false information on the registration of the child e.g. birth place of the child shall be guilty of an offence.

C.9.1.1 How to Apply for a Birth Certificate

One of the parents must complete notice of birth form 14 and affidavit forms. A biological relative, legal guardian, person present at birth, or person in charge at the hospital can give notice in default of the parents at birth.

Attach the following:

- 1. Copies of NRC of both parents.*
- 2. Original record of birth for the child or person*
- 3. Original under-five clinic card*
- 4. If record of birth is not available, attach under-five card and general affidavit stating facts for not being in possession of the same*

If the child is 16 years and above, attach the NRC.

If the child was born out of wedlock, obtain a written consent/acknowledgement of parenthood from both parents. Complete the necessary form and submit the application/completed notice of birth with relevant attachments to the registrar of births to the respective local authority or district where the child was born, e.g. if the child was born in Nyimba district submit to Nyimba district council.

The birth registration officer at the local authority will register the birth and insert a serial number in the top left corner of the Notice.

The completed and dully signed notices of birth are sent to the office of the Registrar General for issuance of the birth certificate.

The importance of the birth certificate:

- *Required for grade 1 entry.*
- *When applying for an NRC or passport.*
- *When applying for tertiary education, e.g. College or University.*
- *When applying for employment (both local and international).*
- *When obtaining a visa for travel to countries where it is required.*
- *When registering a marriage in a foreign country.*

NOTE: University Teaching Hospital is the only government institution that can issue a duplicate record of birth for the child born there if for some reason the original cannot be produced.

C.9.2 Maternity Protection

Abstracted, adapted and reformatted from multiple sources including “From Aspiration to Reality for All”, Maternity Protection Resource Package, Module 15: Capacity Development and Training on Maternity Protection at Work, Annex 1: Sample Training Programmes, Exercises and other Useful Materials; “Towards New Forms of Reconciliation with Social Co-Responsibility”. ILO was the source of these documents and the full versions are available from ILO website.

Maternity Protection refers to the measures enshrined by the United Nations International Labour Organization (ILO) that are intended to ensure that a woman’s economic activities do not threaten her health or that of her child during and after pregnancy. These standards also aim to assure that a woman’s reproductive role does not compromise her economic and employment security.

C.9.2.1 Five basic elements of maternity protection

These elements of maternity protection are covered by the 2000 ILO standards: Convention No.183 and Recommendation No. 191.

- *Maternity leave – the mother’s right to a period of rest from work in relation to pregnancy, childbirth and the postnatal period.*
- *Cash and medical benefits – the mother’s right to cash benefits during her absence for maternity and health care related to pregnancy, childbirth and postnatal care.*
- *Protection of the mother’s and child’s health – the assurance of a healthy workplace during pregnancy and breastfeeding.*
- *Employment protection and non-discrimination – guaranteeing the woman’s employment security and the right to return after her maternity leave to the same job or an equivalent one with the same pay. Moreover, a woman cannot be discriminated against at work or while searching for work because of her reproductive role.*
- *Breastfeeding arrangements - to support a woman in breastfeeding or milk expression at the workplace.*

In principle, Convention No. 183 covers all women in all types of economic activities, including women in atypical forms of dependant work (e.g. home workers, part-time, temporary and casual workers). In practice, national systems and mechanisms are generally not adequately developed to reach all women who require maternity protection.

Looking at the elements covered, maternity protection in its broad sense is not simply a maternal health and decent work issue, but touches on a broad range of areas

including gender equality, human rights, poverty reduction and development. Moreover, it is part of a larger issue, namely “balancing work and family responsibilities”, that is currently generating more and more discourse in issues regarding economic and social policies.

Maternity protection makes a central contribution to a decent life and to decent work, and the ILO closely links the two issues. For the ILO, “Decent Work” involves opportunities for work that are productive and deliver a fair income, security in the workplace, social protection for families, and better prospects for personal development and social integration. It also involves freedom for workers and employers to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.

National laws designed to protect the health of mother and child and the labour rights of working women figure prominently in the legislation of almost every ILO Member State, At least 167 countries have passed maternity protection laws. However, there are significant variations in the scope of coverage, the extent of protection, the complexity of the schemes in force and the respective responsibilities of the State, of social security and of individual employers for the provision of cash benefits.

C.9.2.2. Maternity Protection: Why Is It Important?

Maternity Protection is a collective responsibility

Over the past one hundred years or more, work has evolved tremendously and over the past half century or so, women have become increasingly integrated into the labour market. Tension between reproductive and productive roles has risen and, slowly, solutions have appeared. These solutions originated for the most part from broad collaboration to assist individuals to participate both in the reproduction of children and the production of goods and services. Maternity protection at work is one type of this collective assistance.

Several international decisions, many resolutions and standards have been set that recognize maternity as a “social function” and not a handicap in employment. Working women should not be punished on an individual basis. This principle is the basis for introducing protective measures, policies and legislation in most countries.

At national level, the need for mothers to rest from their work activities has been set out in legislation: Virtually all countries entitle at least part of their female workforce to maternity leave with a guarantee to return to their job at the end of leave. Collective sharing is further underlined with the payment of maternity cash and medical benefits during pregnancy, childbirth and afterwards. This is funded by the pooling of funds either through social security,

public funds or by employers. Thus States, even amongst the poorest in the world, understand the importance of protecting maternity for working mothers.

Bearing children is an important contribution to the continuation of future generations. Responsibility for maternity protection involves more than just favouring mother and child. Investing in health promotion and protection for women and children is a direct entry point to improved social development, productivity and better quality of life.

C.9.2.3. The Wider Framework

Strong standards of maternity protection benefit everyone - men and women, young and old, employers, workers and governments. It is essential to the following issues.

Fundamental human rights

The right to live free of discrimination and harassment is a fundamental human right. The right to work in dignity and to benefit from decent working conditions is also a human right. These rights are set out in the human rights Convention on the Elimination of Discrimination against Women, the Convention on the Rights of the Child and the International Convention on Economic, Social and Cultural Rights. Maternity protection explicitly provides for the right of all women of reproductive age to work without threat of discrimination, and in the case of maternity, the right for women to work in conditions of economic security

and equal opportunity, and to benefit from just and decent working conditions.

Social justice and gender equality

While both women and men can rear children and take care of dependants only women can biologically bear and breastfeed children. Maternity protection is required to enable women to carry out this biological role without being marginalized in the labour market, threatening their productive roles as workers or undermining their economic security. Thus, maternity is a condition that necessitates differential treatment to achieve genuine equality.

Relevant in all cultural settings, economic empowerment of women unleashes their socio-economic potential as a force for development. Women's increased bargaining power and decision-making ability in the household, as well as their improved status and income, have led to a number of positive secondary effects, such as enhanced child nutrition, health and education, better child-caring practices, lower infant mortality rates and less child labour. Promoting gender equality and empowering women is the objective set out by Millennium Development Goal (MDG) 3, as part of the eight time-bound targets that world leaders from rich and poor countries committed themselves to achieve by 2015.

C.9.2.4 Aims of Maternity Protection

Improving maternal and new-born health

The first aim of maternity protection is to provide a

measure of economic security during maternity.

Preserving the health of the mother and her new-born directly contributes to development objectives related to maternal, new-born and child health. Maternity protection safeguards against maternity related threats to women's health through several different mechanisms.

Maternity leave is intended to safeguard the health of a woman and that of her child during the perinatal period, in view of the particular physiological demands associated with pregnancy and childbirth. Maternity protection also provides for health protection, to protect women workers from **health risks** and dangerous working conditions and to support the healthy physical and psychological development of mother and child during pregnancy, after birth and whilst breastfeeding. Maternity protection calls for supports enabling women to continue **breastfeeding after returning to work** bringing significant benefits to the health of the mother and her child.

The second aim of maternity protection is child development.

A generation of healthy children is an asset for any society. Maternity protection is also about providing a healthy environment for infants and young children, and about child nutrition and protection. Adequate maternity leave, income security during this time and rights that allow a mother to continue to breastfeed in the best way possible and have access to health care when she has returned to

work, all promote the health of the new-born child.

Economic growth and poverty reduction

Maternity protection makes economic sense and contributes to MDG 1 on eradicating extreme poverty and hunger. It ensures that women can continue to contribute to a country's economic growth, and it helps to maintain the health of women and their children, to the benefit of individuals, families, businesses and societies as a whole. Breastfeeding also provides numerous economic benefits, ensuring a nutritionally perfect, environmentally friendly, sustainable supply of food for infants that helps to reduce the use, and therefore, the expense of milk substitutes, while also bringing long term health benefits for children, and reducing the demand for (and costs of) curative health services.

Productivity

Maternity protection can assist employers to maintain experienced, skilled and valued female employees. Employers who consider employees as a worthy investment (in terms of skills, knowledge and experience) will want these employees to continue working for them.

Decent work

Maternity protection is also a core component of social protection and it is central to the cross cutting concern of gender equality. As a key part of these goals, maternity

protection is part and parcel of the Decent Work Agenda.

Cash benefits

Cash benefits provided during maternity leave are intended to replace a portion of the income lost due to the interruption of the woman's economic activity. Without such support, the woman's loss of earnings during her absence on leave, coupled with increased expenditures associated with pregnancy and birth, would pose financial hardship for many families. In such circumstances, women might feel compelled to return to work before their leave entitlement was exhausted and, perhaps before it was medically advisable to do so.

In 2009, 97 per cent of 167 countries provided cash benefits to women.

However, in regions such as sub-Saharan Africa protection has developed little and is largely dependant on social welfare, rather than on a social security system, with insufficient scope, effectiveness and permanence. A large proportion of economically active women remain unprotected because they are under-represented in the formal economy towards which social security protection is directed.

Employer liability systems

Large differences still persist between regions with respect to who pays cash benefits.

C.10 Community Development and Social Welfare Services and the 1st 1000 Most Critical Days

Abstracted and reformatted from the Strategic Plan of the Republic of Zambia, Ministry of Community Development, Mother and Child Health, 2013-2017, MCDMCH,

C.10.1 Description of the Social Sector

Mission statement for the social sector

To effectively and efficiently facilitate the provision of equitable social protection and quality primary health care services to communities in order to contribute to sustainable development.

Value statement

The Ministry in the provision of social protection and primary health care shall uphold integrity, transparency, respect of clients, confidentiality and impartiality.

Policy objectives

- *To empower the low capacity household in order to improve their productivity and livelihoods;*
- *To provide social assistance to incapacitated*

individuals and households in order to reduce extreme poverty;

- *To provide quality maternal and child health services in order to reduce maternal and child mortality;*
- *To provide preventive and curative health services in order to reduce high incidences and prevalence of diseases;*
- *To facilitate the construction, rehabilitation and maintenance of infrastructure and equipment for effective delivery of primary health care and social protection services;*
- *To effectively mobilise and manage financial, administrative and logistical support services in order to enhance the operations of the Ministry;*
- *To provide functional literacy to the community in order to reduce illiteracy levels and improve livelihoods;*
- *To plan, coordinate, monitor and evaluate the implementation of policies and programmes in order to ensure the attainment of ministerial goals and objectives;*
- *To rehabilitate, care and protect juveniles and children in need in order to reduce delinquency and promote their wellbeing;*
- *To manage and develop human resource in order to enhance the operations and performance of the Ministry;*
- *To promote efficient operations of Non-Governmental Organisations in order to enhance transparency, accountability and service delivery;*

Strategies

- *Strengthen the mechanisms for the provision of finance, agriculture inputs and training to low capacity households;*
- *Scale up the provision of technical and financial support to community initiated projects;*
- *Roll out the social cash transfer scheme*
- *Strengthen the mechanism for provision of welfare support to vulnerable individuals and households;*
- *Strengthen the capacity of community welfare structures;*
- *Strengthen the mechanism of support to victims of gender based violence and human trafficking;*
- *Mobilise and sensitize communities and maternal new-born and child health services;*
- *Scale up the scope and expand the coverage of reproductive health services;*
- *Scale up the coverage of the expanded programme on immunisation, care for the sick child and emergency triage assessment and treatment;*
- *Strengthen the implementation of integrated management of child illness strategy;*
- *Scale up infant and young child feeding services;*
- *Develop and implement behavioural change communication mechanism;*
- *Strengthen community health services and preventive health care services;*
- *Strengthen and manage curative services for communicable and non-communicable diseases;*
- *Strengthen the mechanisms for the supply of health*

- commodities;*
- *Strengthen functional referral systems both horizontally and vertically;*
 - *Scale up the number of functional literacy classes;*
 - *Rehabilitate and re-integrate juvenile delinquents;*
 - *Scale up the provision of technical and financial support to children's homes;*
 - *Develop and enforce minimum standards of care in child facilities;*
 - *Facilitate provision of juvenile justice services*
 - *Develop and implement community and institutional rehabilitation programmes;*
 - *Promote the mainstreaming of disability issues in Ministry budgets, programmes, and recruitment and training guidelines;*
 - *Strengthen microfinance services and entrepreneurial activities.*

C.10.2 Child Protection in Zambia

Abstracted and reformatted from "Child Protection In Zambia", O'Brien Kaaba, published with support from PLAN International. Available from Children in Need Network (CHIN). Pages 28-31 and Chapter 11.

C.10.2.1 Infants and Adoption

Adoption is a process whereby parental responsibility is extinguished in the natural parents, or any person presently bearing parental responsibility of the infant and this responsibility is transferred into those who adopt.

This is achieved by court order based on the Adoption Act, Chapter 54 of the Laws of Zambia. Under this Act only a person who has not attained the age of twenty-one can be adopted excluding a person who is or has been married.

Key points regarding adoption

- *Any person who has not yet attained the age of twenty-one years and who is or has not been married is capable of being adopted.*
- *Adoption extinguishes parental responsibility and re-establishes it in the adopters.*
- *The adopters must be above 25 years old and 21 years older than the infant; or where the adopters are relatives of the infant they must be at least 21 years.*
- *The consent of parents and guardians is required for adoption and the consent of the mother of an infant shall not be admissible until the child is six weeks old.*
- *A sole male applicant may not adopt a female infant.*
- *It is unlawful to pay or receive money or a reward as consideration with respect to adoption. It is unlawful to advertise for adoption.*
- *Adopting Zambian infants abroad requires special license*

C.10.2.2 Juvenile Offenders and the Law

According to section 2 of the Juveniles Act, Chapter 53 of the laws of Zambia, a juvenile means a person who has not attained the age of nineteen years; and includes a child and

a young person. A child is a person who has not attained the age of sixteen years, while a young person “means a person who has attained the age of sixteen years, but has not attained the age of nineteen years.”

All cases, except homicide and attempted murder, brought against a juvenile are assigned to a juvenile court. Throughout an investigation, trial and detention the juvenile is not supposed to mix with adult offenders.

A different room other than that used by ordinary court is juvenile court. If unavailable or unsuitable, the juvenile court will be on different days or at different times from those of an ordinary court. Attendance is restricted. No newspaper accounts or radio broadcasts of juvenile court proceedings that may lead to the identification of the juvenile are allowed.

In juvenile cases, before deciding on what to do if the offence is proved, the court tries to obtain information on the juvenile’s general conduct, home surroundings, school record, and medical history to help deal with the case in the best interests of the juvenile. The court may deal with the juvenile in any of the following ways:

- *Dismiss the charge;*
- *Make a probation order in respect of the offender;*
- *Send the offender to an approved school; only boys (and not girls) can be sent to an approved school or reformatory.*
- *Send the offender to a reformatory;*

- *Order the offender to pay a fine, damages or costs;*
- *Order the parent or guardian of the offender to give security for the good behaviour of the offender; where the offender is a young person,*
- *Sentencing the offender to imprisonment; and*
- *Deal with the case in any other legal manner*

Points to remember

- *A juvenile is a person who has not attained the age of 19 years.*
- *Juvenile offenders are not supposed to mix with adult offenders.*
- *Cases against juveniles are supposed to be heard in a juvenile court sitting in a different courtroom or sitting on different days from the ordinary court.*
- *Attendance in juvenile courts is restricted and no information identifying the juvenile should be published or broadcast.*
- *Before sentencing a juvenile, the court has to obtain information about the juvenile from the social welfare department.*
- *No child is supposed to be sentenced to imprisonment or detention.*

A female juvenile cannot be subject to an approved school or reformatory order.

C.10.2.3 Child Protection Unit

Abstracted and reformatted from a brochure, “Child Protection Unit, Department of Social Welfare, and MCDMCH”. The brochure is available from MCDMCH.

The CPU may be of assistance to Field workers of each sector if they encounter relevant problems. This is information that may be helpful to inform parents about activities related to the 1st 1000 MCDs.

What is Child Protection?

The CPU was formed on the 19th of November 2007 after His Excellency the late President, Dr. Levy P. Mwanawasa SC directed police high command to form a Child Protection Unit that would specifically look at all child related crimes.

Main objectives:

- *Provide adequate legal and social protection to children living in difficult circumstances or in need of care.*
- *Thoroughly investigate all crimes committed against children through conducting objective forensic exams.*
- *Adopt methodologies for preparing child witnesses before court proceedings in order to reverse the high acquittals due to lack of quality testimony from child witnesses.*
- *Train police officers in forensic nursing to assist in maintaining medical and legal procedures to ensure*

that the evidence collected during examination is maintained in one-stop centres and subsequently the prosecution and court.

- *Devise community level intervention strategies in order to prevent and respond to specific situations that children may be faced with.*

Targets

All children, special children, street children and children in conflict with the law.

Activities of the Child Protection Unit

- *The CPU sensitises children on their rights as laid out in the UN Convention on the Right of the Child.*

As a preventative measure, the CPU has been going round schools, churches and other public places to sensitize people on all child related crimes.

CPU works hand in hand with the Department of Social Welfare, the media and other cooperating partners on removal of children from the streets to places of safety.

CPU has formed Child Protection Committees (CPCs) to help fight child related crimes in communities.

The CPU is also prosecuting parents or legal guardians that are neglecting children in accordance with the provisions of the Penal Code Cap. 87 of the Laws of Zambia or the

Juveniles Act Cap. 53 of the Laws of Zambia.

For more information contact: The Director, Dept. of Social Welfare on phone 0211 235343, the CPU National Coordinator on phone 0977521871 or the Chief Social Welfare Officer (statutory) on phone 0211 236967.

C.10.2.4 Children's Homes and Child Care Facilities

Abstracted and reformatted from the brochure "Children's Homes and Child Care Facilities, Department of Social Welfare, MCHMCH". Full brochure available from MCDMCH.

What are children's homes?

Children's homes entail child care facilities or Institutional care provided to children in need of care or those orphaned, abandoned or whose parents or guardians are unfit to provide them with proper care and guardianship.

The Department does not run these homes but regulates them by way of providing guidelines to NGOs, Churches, individuals and missions that operate children's homes. The Department also provides grants to some of the homes.

Trends in the child care system

Some child care institutions are not registered with or

known by Government. The services that are provided in some child care institutions are unsatisfactory. The intervention strategies on which services in some child care institutions are based are inconsistent with current international approaches. The competencies and qualifications of staff working in child care institutions are varied and require standardization.

Rationale of programme

The essence of the programme in the Department is to improve the child care service delivery system so that it is better able to deliver both effective and quality service so as to comply with national obligations to vulnerable children in line with international conventions, national policies and laws.

Importance of programme

- *To identify, collect information on and register all child care institutions (including day care centres, orphanages, street children's shelters and places of safety).*
- *To update the level of skills of staff in the child care institutions, particularly social work practitioners, child care auxiliaries and community workers throughout Zambia.*
- *To sensitise child care workers on minimum standards of care.*

Guidelines on how to run a children's home or child care facility

“How to Run a Child Care Facility” booklet is a guide for those already running a child care facility and has been distributed by all district and provincial Social Welfare offices country wide. The actual “Minimum Standards of Care” document can be accessed from the office of the Director for Social Welfare who is also Commissioner for Juvenile Welfare.

Registration of NGOs and Orphanages, especially those intending to open a child care facility, is facilitated by the Department of Social Welfare in collaboration with the office of the Registrar of Societies under the Ministry of Home Affairs.

Requirements to run a child care facility

- *Every person who operates a child care facility should have a certificate of recognition from the Department of Social Welfare.*
- *The commissioner for Juvenile Welfare should be informed of any changes made to the child care facility.*
- *The child care facility should keep registers and records of all children in the centre.*
- *A basic diet should be followed and a dietary scale posted in the kitchen. Children should have at least 3 sufficient meals a day.*
- *Staff should be over 21 years with at least a grade 12*

certificate.

- *To ensure risk of children is minimized, all personnel employed by facility should be investigated by the Criminal Investigation Department (CID).*
- *Any indoor and outdoor equipment should not have sharp edges and entrapments.*
- *Each child should undergo a medical examination as soon as possible after admission and shortly before leaving.*

For more information contact: The Commissioner for Juvenile Welfare Department of Social Welfare, Ministry of Community Development and Mother and Child Health, P.O. Box 31958, Lusaka and Provincial Social Welfare Offices throughout the country.

C.10.2.5 Self Help Initiatives Programmes

Abstracted and reformatted from “Self Help Initiatives Programmes”, Department of Community Development, MCDMCH. Full brochure available from MCDMCH.

The Community Self Help Initiative Programme is one of the key Programmes implemented under the Department of Community Development. This programme is designed to improve



Timbwa club members in the poultry in Mpika District of Northern Province

the livelihood of the communities through community initiated Projects.

Community members are involved in project identification, planning, implementation, monitoring and evaluation.

The community is encouraged to provide up front materials which can locally be obtained within the community. On the other hand, the Department provides financial resources for procurement of materials that cannot be mobilized locally by the benefiting community.

Objectives

To sensitize and mobilize communities to improve their quality of life through undertaking community self help projects.

- *To facilitate service delivery at community level through creation and strengthening of Community Based Organizations.*
- *To create a favourable socio-economic environment for sustainable development of the communities by promoting local community action.*

Strategies

- *Promoting community participation and the identification of priorities through participatory methodologies.*



Permanent Secretary Sherry Thole Launching a staff House at Chikando Sub Centre in Chipata District

- *Coordinating the Project activities in communities*
- *Providing supplementary funds to communities and community based organizations that are involved in community self help projects.*

Types of projects to be funded

- *Projects that do not require major construction works such a rehabilitation of community infrastructure (community schools, community halls, etc.)*
- *Construction of small infrastructure such as animal shelters, dip tanks, community footbridges, simple culverts, and feeder roads.*
- *Improvement of housing units for the vulnerable community members.*
- *Projects that cushion the impact of HIV/AIDS.*



Nyamuseche Housing Project in Petauke.

For further information on Self Help Initiative Programmes contact: The Director, Department of Community Development, Box 31958 or the PCDO in the Provinces.

C.10.3 Social Welfare Services

*Abstracted and reformatted from a brochure,
“Department of Social Welfare, Services Provided,”
Department of Social Welfare, MCDMCH.*

C.10.3.1 Statutory Services

Services provided to juveniles in conflict with the law include:

- *Investigations for courts: Social Welfare Officers, gazetted as Probation Officers carry out investigations on behalf of the courts to determine and advise the courts on the punishment which is in the best interests of juvenile offenders*
- *Probation of Offender: This is either institutional or community based rehabilitation process in which a juvenile in conflict with the law is placed under the supervision of a Probation Officer in accordance with the Probation of Offenders Act Cap. 93 of the laws of Zambia*



C.10.3.2 Correctional Facilities and After Care Services

These are institutions meant to provide reception, care and rehabilitation of juveniles in conflict with the law as ordered by the court. These are Nakambala Approved School in Mazabuka, Katombora Reformatory in Kazungula and Insakwe Probation Hostel in Ndola (female juveniles) Social Welfare Officers provide counselling to parents/guardians of the juveniles on the need to maintain contact with children or dependants in institutions to help in preparation for their eventual reintegration into the community.

The Department runs Nakambala Approved School and Insakwe Probation Hostels for the reformation of children in conflict with the law or with disruptive behaviour. The Prisons Department under Ministry of Home Affairs run the Katombora Reformatory School. The Department seconds staff to the Katombora institution.

After care services are offered to juveniles discharged from the two correctional institutions. It is meant to assist in preparing juveniles for eventual reintegration into the community and it involves the supervision of such juveniles by Probation Officers and Juveniles Inspectors.

Capacity building and inspection of child care facilities

The Department does not run child care institutions, but networks with and provides guidelines to NGOs and

individuals permitted to operate children's homes. The Department also provides small grants to some of the homes.

These homes provide care to children in need of care, (orphaned, abandoned or children whose parents or guardians are unfit to look after them). Government policy however, encourages community participation in the care of such children. Institutional care should be viewed as a measure of last resort.

The Department of Social Welfare addresses the proliferation of children's homes. It regulates service delivery and provides guidelines to all child care service providers for better, effective and quality service provision in line with national obligations to Orphans and Vulnerable Children (OVC) as enshrined in international conventions, national policies and laws.

In addition the Department also provides guidance, capacity building of child care providers and sensitization of local communities in recognizing the needs of OVC and making the services meet acceptable standards.

C.10.3.3 Adoption

This service provides a permanent home, legal protection and security to children in need of care in accordance with the Adoption Act Cap. 54 of the laws of Zambia.

C.10.3.4 Foster Care

This is a service provided to children in need of care in accordance with the Juveniles Act Cap 53 of the laws of Zambia. This service provides a temporary home to the child.

C.10.3.5 Street Children Programmes

The Department provides technical and other support to Non-Governmental Organisations (NGO's) and District Street Children Committees implementing activities meant to assimilate and keep children who are in especially difficult circumstances off the streets. It also provides financial and technical support, legislative and policy guidance to street children's centres and committees, children's homes and other organisations providing care to children in difficult circumstances.

C.10.3.6 Non-statutory Services

These services are administered without reference to an Act of Parliament Public Welfare Assistance Scheme (PWAS). This is Government's social assistance programme, aimed at mitigating the adverse effects of socio-economic shocks on the extreme poor and vulnerable persons.

The scheme targets:

- *Aged persons*
- *Disabled or the chronically ill persons*

- *Female headed households;*
- *Orphans and vulnerable children*
- *Victims of minor disaster*
- *Others who are genuinely unable to support themselves*

Care for older persons

This is support provided to older persons through community or institutional care. The following are some of the old people's homes in the country:

Maramba in Livingstone, Chibolya in Mufulira, Mitanda in Ndola, Divine Providence Home in Lusaka, Chibote in Luanshya, and Mwandi in Sesheke.

The Department runs the first two with the help of the board, while the Salvation Army runs Mitanda. The Catholic Nuns runs Divine and Chibote while Mwandi is run by the United Church of Zambia.

The Department also mounts public awareness campaigns including observance of the International Day for Older Persons (1st October): as well as encouraging residential and non-residential care programmes for the older persons

Places of Safety

These are institutions under which temporary shelter, food and care is provided to the stranded, destitute and persons in various helpless situations. Such institutions are found in Kabwe, Livingstone, Lusaka, Mufulira and Ndola.

Marriage counselling

This involves premarital and marital counselling and guidance services to couples.

Medical social work

This is provided in material and other forms of assistance, counselling and tracing of relatives for/to patients mainly in districts where there are no Medical Social Workers.

Prison welfare

This is support to prisoners by way of linking them to their families and to prepare for their integration into the communities once discharged from prison. The Department has offices in all districts and all Provincial headquarters.

For more information contact: any District or Provincial Social Welfare Officer or the Director, Department of Social Welfare, Community House, Sadzu Road, P.O. Box 31958 Lusaka, Zambia.

C.10.4 Community Self Help Operational Guidelines

*Abstracted and reformatted from: “**Community Self Help Operational Guidelines**”, Department of Community Development, MCDMCH. Pages 7-12.*

Community Self Help Programme can be defined as a

process of enabling groups, institutions or societies to define, articulate, engage and actualise their vision of development goals by building on their own resources and ideas. Community Self Help Activities should be client and people centred, promoting local ownership and empowering groups of people.

It should give strength to the communities and organisations. It should be remembered also that when assistance is provided to people 'to meet their needs' without regard to their existing capacities, very often the capacities that they possess are undermined and weakened by the overpowering presence of the aid. When this occurs, vulnerabilities are often increased rather than reduced by Aid. An adequate notion of vulnerability, then, must take account of people's capacities. Self help is not based on doing things for the people but the people should define what their needs are.

Objectives of Community Self Help Programme

The objective of Community Self Help Programme is to facilitate effective service delivery through support to community initiated projects. Members of the communities are encouraged to work together to improve their living standards. The Department of Community Development facilitates the implementation of self help projects through conducting project verification and appraisals, and provision of grants, monitoring and evaluation of projects.

C.10.4.1 Participation in Community Self Help Programme

Participation in community self help activities can also be used to refer to the involvement of local people in the actual agenda setting of development. To be fully participatory, the agenda need to be set by the communities involved, rather than outside agencies deciding on the priorities to be addressed.

Technical assistance

Technical assistance for projects planned and carried out by local people may be in form of skills, materials or funds which the people of the community cannot provide for.

Gender perspective

The gender perspective in Community Self Help activities is important but the failure or inadequacies of this fact in the programme may lead to the perpetuation of suffering in not only women but also children who are in most cases dependant upon them. The position of women is of particular concern, not merely as a matter of human rights, but also because all the evidence agrees that they make a greater contribution to economic life. Women spend most of the earnings they control on household needs, particularly for their children. Yet women have fewer opportunities to generate income.

C.10.4.2 Application Procedure for Community Self Help Projects

Obtain a proposal form from the Department of Community Development in any of the districts of Zambia. A project proposal application form is not sold but is given free of charge. Obtain a Certificate of Registration from the Registrar of Societies before applying for funding.

In a situation where the communities cannot afford to get a certificate of registration due to geographical locations, funding will be channelled through the District Community Development Office using the District Food Security Pack Account. This implies that the district office will facilitate the process of project implementation.

A 10% investment is required towards the project in the form of community labour (bricks, sand, manpower, land, etc.) Communities are required to open bank accounts where necessary.

Before the funding, all projects are verified by the team comprising of officers from the Department of Community Development Headquarters, Provincial Community Development Office, District Community Development Office, Sub centre officers and the community members undertaking the project.

Verification of Community Self Help Projects

Verification of Community Self Help Projects will be

undertaken prior to funding of projects as this will ascertain the viability of the intended projects at a minimum cost.

C.10.4.3 Types of Assistance

The grant is given to any successful community group who are engaged in community self help projects such as:

- *Completion and rehabilitation of small infrastructure that does not require major construction or machinery; such as community halls, community markets, community libraries and community recreational facilities, group housing schemes, sub centre houses, etc.*
- *Construction of community footbridges, culverts and linking small roads, dip tanks, animal shelters, poultry houses, fish ponds, bee keeping, gardening, etc.*
- *Water and sanitation projects such as construction of pit latrines, hand wells, maintenance of community water points (no borehole drilling)*
- *Projects that take into consideration the care and support to people living with HIV/AIDS*

C.10.4.4 Community Self Help Grant Qualifications

In order for a community to benefit from the Government assistance for Community Self Help Projects, the communities must have the following:

- *Bank account*
- *Beneficiary register*
- *Contact address/physical address/telephone no.*

Proof of sustainability of project

The Project must at least be completed within one year. Depending on the nature of the project and flow of funds, a project can go beyond one year. Certificate of registration where possible should be attached.

An application which is not considered in the first year shall be resubmitted as a new application in the second year with changes that could have taken place during the year in which the project was not funded.

Voluntary and open membership

The groups are voluntary organizations and thus people should join willingly without being coerced. They are open to all members of the community including the disabled who want to use their services.

Democratic control and ownership

The control and ownership of the projects are vested in the members of the communities. The office holders are elected by the general members and are accountable to the members.

Autonomy and independence

The community groups are autonomous and are controlled by their members. They should make independent decisions. If they get resources from external sources, they are accountable in terms of usage of the resources to the financiers but this does not take away their autonomy.

Registration

The group is officially recognised when it acquires a certificate of registration from the Registrar of Societies. Prior to registration the group gets a recommendation letter from the District Community Development Officer or Provincial Community Development Officer. The recommendation letter is written to the Registrar of Societies upon the groups' meeting all the requirements such as minutes of meetings held, constitution formulated by the group, list of members in the group and their positions, and meeting the fees required by the Registrar of Societies.

However this also depends on the type of project. Some projects are continuous and long term while others are specific and short term activity which may not require the group to be registered. In such a circumstance the group shall be funded through the District Community Development Officer who shall facilitate the implementation of such projects. For this purpose the District Food Security Pack Accounts in the districts shall be used to facilitate the disbursement of funds to the group

undertaking a short term activity.

Group composition

The group is composed of mainly members in the community. The number varies depending on the activity or project to be undertaken. However, taking into consideration the aspect of gender and development, women are also encouraged to join the groups. Development works well when both women and men work together.

Roles and responsibilities

Each community group operates as an individual entity with its own rules and regulations based on its constitution and understanding. Members of the community meet regularly under their elected leaders to plan for activities to be undertaken. The group's operations are limited to activities within the community. Activities of the group are mainly centred on uplifting members' standards of living.

Functions

Institutional Framework Government Responsibilities:

- *Must supervise and intervene where need arises*
- *Carry out verifications of all Community Self Help projects*
- *Make sure that the community meets the criteria for funding*

- *Assess the upfront contributions from the community*
- *Keep all required photocopied documents pertaining to the project*

C.10.4.5 Sub Centre Office

A sub centre is a sub structure under the District Office which is found at community level. In terms of size, a sub centre covers a radius of about sixteen (16) kilometres. These structures are found both in rural and urban areas. Depending on the geographical set up of a given area, one to two sub centre officers known as Community Development Assistants are stationed at each centre.

Roles and responsibilities

The sub centre office plays a very instrumental role in initiating community development activities at the grass roots level. A sub centre officer ensures that community development services are brought closer to the people on the ground.

C.10.5 Women Empowerment Programme

Abstracted and reformatted from the brochure, "Women Empowerment Programme", Department of Community Development, MCDMCH. Brochure available from MCDMCH.

C.10.5.1 Women Empowerment Background

The government of the Republic of Zambia through the Ministry of Community Development and Social Services has a mandate to alleviate the suffering of the poor and empower the vulnerable in communities.



The Women Empowerment Programme is a wholly funded Government programme, whose overall objective is to empower women's groups and associations formed through provincial, district sub centre levels. The Ministry provides grants and entrepreneurship skills to support Income Generating Activities (IGA) undertaken by women's groups throughout the country.

The types of assistance available under this programme are:

- *Small grants given to clubs and associations for the purpose of engaging in IGA. Some of the projects funded include poultry, goat rearing, gardening,*



basket weaving, farming, pig rearing, etc.

- *Provision of equipment such as hammer mills, ox ploughs, yengp ress machines, ox carts, knitting machines, etc.*

In 2010 the total funds allocated to the programme was K 5 billion (KR 5 million) out of which a total of 650 clubs and associations from different parts of the country were



funded by the Ministry. In 2011, the budgetary allocation has increased to K 15 billion (KR 15 million) which is an indication of government's unequivocal commitment to fight poverty. The number of beneficiaries increased in 2012.

C.10.5.2 How to Access Assistance from the Women's Empowerment Programme

Each year of the program the Ministry invites and reviews applications from women's clubs and associations who would like to access allocated funds and equipment.

It should be noted that access to this programme is demand driven. Therefore, you cannot benefit from the programme if you do not apply. The programme can be accessed by any club or association regardless of political

affiliation, race, religion, etc.

These funds disbursed to the women's clubs and associations are government resources which will be subjected to monitoring and evaluation of income generation activities undertaken by women's clubs and associations by the officers from the Ministry of Community Development and Social Services. If there is any misapplication of these funds, the culprits will be reported to the law enforcement officers.



For a women's club or association to access the funds, the following are required:

- *A project proposal form which shall be collected from our District Community Development Offices should be completed. The proposal form is not sold but is given free of charge.*
- *An attachment of two (2) copies of the group or association certificate from the Registrar of Societies or the District Council.*
- *A valid bank account*

- *A copy of the club's Constitution*
- *A list of club members and their contact details*

Completed proposal forms must be submitted to the District Community Development Officer (DCDO) for processing. The DCDO will conduct a physical verification of the club/association.

Please note that no proposal forms should be submitted to the Ministry Headquarters directly, as such applications will be rendered invalid.

For further information please contact: The Permanent Secretary, Ministry of Community Development Mother and Child Health, Private Bag W 252 Community House, LUSAKA or the District Community Development Officer.

C.10.6 Food Security Pack Programme

Abstracted and reformatted from the brochure "Food Security Pack Programme", Department of Community Development, MCDMCH. The brochure is available from MCDMCH.

C.10.6.1 Food Security Pack Background

Food Security Pack was introduced in November 2000 in all districts of Zambia; implemented by the Community Development, Mother and Child Health, Department of Community Development and Programme Against Malnutrition (PAM). It is intended to empower vulnerable

but viable farmers through a small input loan, to ensure household food security, and consequently contribute to poverty reduction.

C.10.6.2 The Pack Components

The pack is constituted around four components:

- *Crop Diversification and Conservation Farming*
- *Market Entrepreneurship and Seed/Cereal Bank Development*
- *Alternative Livelihood*
- *Management and Coordination*

1. Crop Diversification

The pack consists of the following:

- *A cereal crop (i.e. maize, millet, rice)*
- *A legume crop (groundnuts, beans)*
- *A root tuber crop (sweet potato, cassava) and other crops (depending on ecological zones)*
- *Fertilizer or lime*

2. Market Entrepreneurship and Seed/Cereal Bank Development

Focuses on capacity building among NGOs, farmers, traders and beneficiaries in:

- *Entrepreneurship skills,*
- *Post harvest handling,*
- *Value adding and marketing skills and*
- *Cereal bank development*

3. Alternative Livelihood Interventions

Provision of alternative packs, taking into account the comparative advantage of a particular area, such as:

- *Fish farming,*
- *Small livestock rearing'*
- *Draft power, animal care health services*

4. Management and Coordination

This forms the basis for increasing crop production through practices that encourage sustainability such as conservation tillage, soil fertility improvement and erosion control.

C.10.6.3 The Food Security Pack Programme

Target and eligibility

Vulnerable but viable beneficiaries that include:

- *Female headed households,*
- *Orphanages,*
- *Child headed households,*
- *Farmers cultivating less than one hectare,*
- *Disabled,*
- *Households affected by floods, drought and other natural calamities,*
- *Households with terminally ill patients*



Programme outputs

Diversified supply of seeds and planting materials for household food security and cash crops

- *Promoting farming methods that are sustainable and increase yields,*
- *Development and management of community seed/cereal banks will ensure steady recovery and supply of seeds through seed entrepreneurship*

Benefits/Outcomes

- *Food secure household,*
- *Improved and sustained livelihood,*
- *Self sufficient/self reliance*

An output

- *Number or quantity of the harvest*

*For more information please contact: The Director,
Department of Community Development, MCDMCH.*

C.10.7 Social Cash Transfer Scheme

This information has been abstracted and reformatted from “Social Cash Transfer Scheme”, Department of Social Welfare, MCDMCH. The original brochure is available from MCDMCH.

C.10.7.1 Social Cash Transfer Scheme Background

The Social Cash Transfer Scheme started in 2003 as a pilot in Kalomo district with support from the MCDSS/GTZ Social Safety Net Project. It has since been extended to Kazungula, Chipata, and Monze. The scheme was extended to Katete by September 2007. It is administered by the Department of Social Welfare through the Public Welfare Assistance Scheme (PWAS). The scheme will eventually be rolled out to cover the whole country.

The cash transfer scheme is an alternative to the in-kind assistance offered through PWAS and tries to respond to the growing number of household who have no or limited self help potential due to the HIV AIDS pandemic. These extremely poor and incapacitated households cannot be reached by labour (e.g. FSP) or micro-credit programmes and therefore need regular and continuous social assistance to survive and invest in the education of their children.

The goal of the expanded SCT is to reduce extreme poverty and the intergenerational transfer of poverty by ensuring that the poorest 10% of the population receiving SCT have improved food security. Child grants contribute to the improved nutritional status of under-five children and beneficiaries of the social pension continue to receive regular cash transfers.

C.10.7.2 The Social Cash Transfer Programme

Target group

The scheme targets 10% neediest households who fulfil the following eligibility criteria:

- *Destitute: the household has difficulties to survive, meaning for instance that the household has less than 3 meals a day, an inadequate shelter, insufficient clothing, there is no or very little external support, no regular flow of income and there are also no valuable assets which can be used for coping.*
- *Incapacitated: the household does not have enough physically fit household members who can take care of the dependants*

Payment methods

Beneficiary households receive their transfers on a bimonthly basis through pay points. These are established at the nearest school or health centre and are manned by Pay Point Managers who are civil servants.

Transfers

The scheme is cost efficient with administrative costs remaining below 15% of the total costs. A national scale up based on the Kalomo model would cost roughly ZMK 134 billion (KR 134 million) for 200,000 households with

average administrative costs of 15%.

The transfer level varies. Different transfer amounts are being piloted varying from an average of K 47,500 (KR 47.50) per month per household in Kalomo, Kazungula & Monze to K 75,000 (KR 75.00) in Chipata where the amount is staggered according to the number of school going children and K 60,000 (KR 60.00) in Katete.

Monitoring

The scheme's monitoring system involves all levels of the Department of Social Welfare, from headquarters down to community level.

The CWACs, ACCs, the District Social Welfare Office, Provincial Social Welfare Office & Department of Social Welfare head office are all in charge of ensuring the smooth functioning of the scheme. Community structures adequately counsel beneficiary households, changes are properly managed, problems are solved, and money is paid out timely, in full and regularly by pay point managers. All levels are asked to carry out regular monitoring visits and present bimonthly monitoring reports.

Given that the scheme is feasible, affordable and has had positive impacts, the MCDMCH will be scaling up the scheme to 10 additional districts over the next 10 years.

*Additional information is available from
www.mcdss.gov.zm Email: sw@mcdss.gov.zm*

C.10.8 Child Grant Social Cash Transfer Scheme

The following is abstracted and reformatted from "Child Grant Social Cash Transfer Scheme Manual of Operations", Department of Community Development, MCDSS (now MCDMCH). Reformatted from Pages 19, 25-26. The full original document is available from MCDMCH.

C.10.8.1 CGSCTS Targeting

A two dimension procedure is employed to identify the beneficiaries. First, geographic targeting was used to select the districts that face the twin challenges of high poverty and high under-five mortality rates. The second stage involves the selection of households.

This two stage process makes targeting more transparent and effective. Considering that poverty rates are extremely high in the pilot districts - averaging 88%, and peaking at 96% in Kalabo - categorical targeting (blanket coverage) is preferred to poverty targeting, as the number of non-poor households on the scheme will be small and probably less than the costs of targeting to exclude a small minority of households. The non-poor might also be vulnerable to falling into poverty in these areas since poverty levels are very high and they might give considerable household resources to other poor families. Within these districts

all households with children aged less than 36 months (3 years) will be selected. The targeting of this scheme is universal as justified by the high poverty levels in the current districts to be rolled out.

Categorical targeting advantages:

- *It is much simpler administratively and therefore more cost effective than community based targeting, and on the other hand it is challenging to do targeting for a population where over 96% of the population live in abject poverty and therefore qualify for the identification and selection criteria. If poverty rates are very high, then targeting has little potential to generate potential savings and is less likely to reduce costs of social transfers.*
- *It is easy to understand the selection criteria which reduces or eliminates accusations of favouritism or bias.*
- *Reduces exclusion error.*
- *Poverty targeting can sometimes introduce perverse incentives such as not working or selling assets or lying in order to be included on the scheme.*
- *Where there is a lot of community support through informal social protection mechanisms, if all households with children get the grant better off household are less likely to withdraw the informal support they have been giving the poorer households.*

C.10.8.2 Eligibility Criteria and Procedures

In order to qualify to receive the grant, the following criteria will apply:

- *Household head must be Zambian or person resident in Zambia and should show proof by using an NRC (green, blue, pink) or resident permit.*
- *The applicant will be a mother and where the mother is dead the applicant should be the primary care giver. A primary care giver is any person (i.e. parent, relative, or friend) who is looking after the child and directly responsible for the child's welfare.*
- *The child must be 36 months or less at point of application and registration. The entry age was set to ensure every household would spend a minimum of two (2) years on the scheme.*
- *Having been living in the area continuously for the past 6 months.*

In order to capture beneficiaries the following procedures will be implemented. Enumerators working with CWACs will be used to get applications from people eligible to receive the child grant.

Transfer amount

The monthly transfer for households approved by the scheme amounts to ZMK 55,000 (KR 55.00) per household (2013). The transfer will be paid every two months, therefore each recipient will be receiving a total of ZMK 110,000 (KR 110.00) for two months payment.

The transfer is based on the annual average price of a 50 kg bag of maize, which allows a family of 6 at least a second meal a day. Households with children who are physically disabled and below the age of 14 years old will be entitled to a K 100,000 (KR 100.00) per month and thus paid on a bi monthly basis a sum of K 200,000 (KR 200.00). The justification of this special treatment for the disabled children is to enable them meet other extra costs motivated by their state of disability.

The value of these transfers is monitored regularly to allow for inflationary increases at least every year. The beneficiary households are free to spend the transfers in any way they want. At the same time, households are not supposed to misuse the transfer on alcohol or gambling as it is meant to benefit the entire household.

In the event that a particular recipient misuses the received grant, the first step would be for the CWAC during their monitoring exercise to provide counselling to such a recipient and the household. In the event that there is no change, then the village headman/person is supposed to be involved in the matter and counsel this particular household. When this still persists, the matter is then brought to the attention of the ACC. The ACC also should make efforts to counsel the recipient. If all these measures have failed, the matter should be brought to the attention of the DWAC for a possible recommendation. If DWAC has made its own observations and confirms that efforts were made and there is no change, the last resort is to allow the Next of Kin to be registered as the recipient for the

household.

The transfers are distributed through pay points, which are usually established at local schools or health posts in the different communities. The DSWO uses Form 3 to establish a pay point together with the Department of Education, Department of Health or other relevant Departments). Only a maximum of 100 beneficiaries should be registered under one Pay Point Manager (PPM).

This is in order to reduce fiduciary risks associated with handling huge sums of money for each Pay Point Manager (PPM). PPMs will be chosen by the DSWO from line government Ministries. MCDSS (MCDMCH) staff will not be appointed PPMs in order to enhance separation of powers and reduce fiduciary risks. Since the Ministries of Health and Education have staff at local level, most PPMs will come from these Ministries. The PPMs as well as their assistants are then trained in a short one day PPM training, organized by the DSWO.

Every month PPMs then collect the money from the district and take it back to their respective community.

They are supplied by the DSWO with a list of approved beneficiaries. The list specifies the names of beneficiary households and their deputies, the NRC and the individual as well as the total amount to be paid out. This list is then also the basis on which the DSWO raises a voucher and issues a cheque every other month to the PPMs. For the PPMs to cash in the cheque, the DSWO sends a withdrawal

authorization to the bank, detailing the name of the pay point, the name and NRC of the PPM as well as the amount to be withdrawn.

Therefore, PPMs should collect and pay out the money within two weeks of receipt of funds. CWAC members assist the PPM to inform the beneficiaries on which exact date the payment is carried out. CWAC members should inform beneficiaries in person as opposed to public announcement as this may cause security risks.

C.10.9 Women Empowerment Operational Guidelines

The following is abstracted and reformatted from “Women Empowerment Operational Guidelines”, Department of Community Development, MCMDCH. Pages 8-10. The full original document is available from: MCDMCH.

Targeting

The Women Empowerment Programme mainly targets the poor and vulnerable women living in peri-urban and rural areas.

Formation of clubs/associations

Women’s club

The women’s club is the coming together of individual women to form a group. The formation of a club helps

to build individuals capacities. A women's club is formed by committed individuals whose intention is to bring development to areas where an individual cannot manage alone.

Registration of clubs

The club is officially recognised when it acquires a certificate of registration from the Registrar of Societies or Local Council. Prior to registration the group gets a recommendation letter from the District Community Development Officer. The recommendation letter is written to the Registrar of Societies upon the groups' meeting all the requirements such as minutes of meetings held, constitution formulated by the group/club, list of members in the club and their positions, and meeting the fees required by the Registrar of Societies.

Composition and gender of clubs

The women's club is composed of mainly women. The number varies between 10 and 20. However, taking into consideration the aspect of gender and development, men are also encouraged to join women's clubs. Development works well when both women and men work together. Nonetheless men should not be elected to positions of chairpersons but could be elected as committee members. The idea of women's club is intended to empower women who are considered to be more vulnerable in the communities.

The women's club operates as an individual entity with its own rules and regulations based on its constitution

and understanding. Members of the club meet regularly under their elected Leaders to plan for activities to be undertaken. The club's operation is limited to activities within the group. Activities of the club are mainly centred on uplifting members' standards of living. As the clubs operation is limited to activities within the group, there is a need to belong to a much bigger group which will foster development of the bigger area.

Area Associations

The Area Association is composed of members from the existing women's clubs in a particular area. The Area Association is formed to spearhead development of the bigger area. This does not mean that individual clubs will be disbanded. Individual clubs will continue to operate in the normal way except that they will belong to bigger Association. The individual clubs will belong to a the Area Association by affiliation. Therefore the Area Association is a composition of elected members from individual women's clubs.

Registration of Area Associations

The Area Association gets a certificate of registration from the Registrar of Societies in the same way as individual clubs will do.

Composition and gender of Area Associations

The composition of the Area Association is as follows: the Chairperson, the vice Chairperson, the Secretary, the Vice Secretary, the Treasurer, the Vice Treasurer and the Committee Members. Men are considered for positions as

committee members.

Functions of the Area Associations

The function of the Area Association is to coordinate activities of individual clubs in the area covered by the Association. Activities involves fundraising, holding of meetings, conduct trainings of members. The operation of the Area Association is limited to a particular region of the district. In order to foster development in the entire district, a District Area Development Association is formed to spearhead development of the district.

C.10.10 Public Welfare Assistance Scheme Guidelines

The following is abstracted and reformatted from "Public Welfare Assistance Scheme Guidelines", 2008, Department of Social Welfare. Pages 3-14. Full document available from MCDMCH.

C.10.10.1 Public Welfare Assistance Scheme (PWAS) Objectives

To assist the most vulnerable in society to fulfil their basic needs such as health, education, food and shelter and to facilitate the movement of stranded persons.

C.10.10.2 PWAS Principles

There are six principles that are essential for achieving

PWAS objectives. PWAS will pursue these principles through its implementation strategies and capacity building activities.

Decentralisation: The community must identify the most appropriate people for welfare support. This is because communities know all the people and their true situations better than any outsider.

Participation: The communities must decide for themselves how to allocate resources to suitable beneficiaries.

Transparency: Communities must know what resources are available. Decision making must be based on criteria that are widely known and understood, and must not be subject to directives from local leaders.

Accountability: The reasons for decisions must be clearly given and explained to the community as well as to the superiors.

Partnership: PWAS must work in partnership with existing local initiatives, committees and projects, and not try to start new programmes where effective community organization already exists.

Tradition: PWAS must not undermine positive traditional practices but must complement and promote the strong Zambian traditions of helping the vulnerable. PWAS recognises the twin of HIV/AIDS and increasing poverty that threaten the ability of families and communities to

provide care.

C.10.10.3 District Welfare Assistant Committee (DWAC) Organization

District Welfare Assistant Committee (DWAC)

The DWAC should be composed of between 8 to 10 members with membership from line Ministries (Health, Education, Agriculture, Community Development, and Council) and from NGOs, CBOs and FBOs

Area Coordinating Committees

The DSWO together with members of the DWAC will divide the district according to the location of suitable partners. The operational area of each partner becomes one or more PWAS Area. There should be between 9 and 30 areas per district.

Areas might follow boundaries of health centre catchments, education zones, wards, Chiefdoms, geographical features or any other way of dividing the district.

The ACCs will be made up of personnel from the partner organization in the area selected by the community.

C.10.10.4 Welfare Resource

This section describes what resources might be available under PWAS. CWACs will have the responsibility of

allocating welfare resources to beneficiaries.

The DSWO will be given information on what resources are available for PWAS as early as possible. The DSWO will divide the resources between the areas according to the ceiling, and inform each ACC of what resources are available. ACC will then inform the CWACs. It is important that this information is given before clients are chosen. Equity should be used to distribute resources.

The resources available throughout the country are from the GRZ/PWAS budget, Cooperating Partners and local resources. The DSWHQ will always endeavour to secure more resources for all districts.

PWAS budget

Basic PWAS funds come from the GRZ budget, for all districts in Zambia. These funds can be allocated for any of the following purposes according to the priorities identified by the CWAC:

Social Support: Social support includes food, shelter, blankets, repatriation and other basic welfare needs.

Health Care Costs: Health care costs include accessing health services. Assistance can be given with meeting transport and prescription charges, as well as fees and charges levied at the health centre or hospital and purchase of medical appliance.

Education Costs: Support for accessing primary and secondary education can be met. PWAS funds should not usually be used to provide uniforms for primary school pupils.

The GRZ PWAS funds are not available for support services outside these three components. They are not available for tertiary education, business loans or agricultural inputs, micro projects, other community projects and activities, infrastructure repair or any other development purpose. The following services are also not provided for under PWAS funding: funerals, purchase of coffins, burial of destitute persons or any form of international travel such as visas, conferences or workshops.

Counselling and referral are cross cutting services in which PWAS structures will be involved.

Bursary schemes

Social Welfare community structures will verify and identify beneficiaries for various bursary schemes.

Other resources

As the scheme progresses, PWAS will be able to offer different welfare resources in different districts. These might be on a pilot basis, or targeted towards the special needs of a particular place. The DWACs, ACCs and CWACs will be informed of what is available, and asked to identify suitable beneficiaries.

Local resource mobilisation

Local communities also have resources to contribute to PWAS. Their first resource is voluntary commitment of time. CWACs and ACCs depend on voluntary work at community level. There are some people who do not want to work for free but others have motivation to assist those who are suffering. Those who are motivated to do voluntary work must be in the forefront in PWAS.

Other local resources can be contributed to the most vulnerable through PWAS. These could include voluntary labour, fetching water for an elderly person, donations of food, putting up a basic structure for a disabled person and other goods, or assistance with ploughing or transport. The DWAC shall also be involved in resource mobilisation.

C.10.10.5 Selecting Clients

The responsibility for selecting PWAS recipients lies with the community. Community members know their neighbours and their situations better than anyone else. They know who is genuinely in need.

Once the CWAC has been informed of what resources are available to them, they must identify the appropriate person to receive the benefits as clients. Clients should only be identified for the resources that are available to avoid building false hopes.

CWACs have to make difficult choices, as resources will not

be enough to provide full assistance for everyone in need. CWACs have to choose between deserving candidates, and explain their decisions to the community and to the Department of Social Welfare. To help in this, a client identification matrix is used to compare candidates and allocate resources, as well as for monitoring, reporting, transparency and accountability purposes. The matrix shows several characteristics of the vulnerable and each case can be ticked and used for ranking.

Copies of the matrix will be available in all districts through the DSWO's office. Before using the matrix, CWAC members first meet PWAS applicants. The CWAC team gets full background information on each case. At the CWAC meeting, the background to each case is discussed in detail before the matrix is filled in as a summary. The matrix is then used to help prioritise cases.

The client identification matrix has four sections, to be filled with ticks as appropriate for each candidate. When all the candidates have been listed, the CWAC can compare which applicants have the most ticks, and which candidates are most needy for the resources available.

First, the applicant is named and the number of dependants indicated.

The 'Social Qualifiers' category is then indicated. PWAS clients **MUST** fall into at least one of these categories. Applicants who fall into more of these categories should be given priority by the CWACs:

- *Household head is aged: Aged people are those over 60 years old. Household head is a child: This applies if there is no adult over 21 caring for the children and dependants of a household. The head of the household in these cases is usually an orphan looking after younger siblings.*
- *Household head is disabled: This category is for people who have a long term physical or mental disability that stops them from meeting their basic household needs.*
- *Household head is sick: This applies if the household head has a chronic illness that stops them from meeting their basic household needs on a medium to long term basis.*
- *Household head is single: This means households headed by a single person with full responsibility for dependants under the age of 18.*
- *Applicant is an orphan or vulnerable child: This is for the direct application of a child under the age of 18 who is not receiving adequate care from his or her family or household.*
- *Applicant is displaced or disaster victim: This is for people who have suffered a short term problem such as becoming stranded, or having their house burn down. It is not for victims of major disasters, which fall under the Office of the Vice President. PWAS does not have capacity to meet major disasters.*

The 'Economic Qualifiers' are listed. They review the applicants' income sources, to see if the client can get an

income from somewhere else. To get PWAS, at least two of the following criteria should apply.

- *No support from relatives: The household should have no realistic chance of getting support from other relatives.*
- *Unable/should not work: This applies to people who are unfit to work for physical reasons or 'should not work' because they are at school or are too old. This criteria applies if there is no one in the household who can get an income from working not just the household head.*
- *No productive assets: This means that the candidate/household does not own assets that can be used to fulfil basic needs. This could include agricultural activities, livestock, a house with rooms for rent, etc.*
- *Then the CWAC examines characteristics. Some are given on the matrix, and others can be added locally. Those given already are:*

Insufficient food for household members: This applies if the household do not eat sufficient meals on a regular basis.

- *Children do not attend school: This applies if more than half the children of the household who should be at primary school do not attend.*
- *Housing is below average standard: This applies if the CWAC decides that the applicant's housing is worse than most other housing in the area. Traditional methods should not be taken as a negative, but rather the size (in relation to the*

- number of residents) water and sanitation, security of roofing ventilation etc should be considered.*
- *Cannot access health services: This implies where the household cannot afford to pay health user fees at clinics for all members of the household to attend whenever necessary.*
 - *Recent death of former household head: This implies where a former household head died within the previous two years.*

C.11 The Anti-Gender Based Violence Act and Protecting Children from Gender Based Violence

Abstracted and reformatted from “Child Protection in Zambia”, O’Brien Kaaba, published with support from PLAN International. Available from Children in Need Network (CHIN). Pages 16-19. Anti-Gender Based Violence Act, Simplified Version, with support from UNICEF. Page 10.

C.11.1 The Anti-Gender Based Violence Act

The Anti-Gender Based Violence Act creates obligations on the part of police officers, labour inspectors, social workers, counsellors, medical practitioners, legal practitioners, nurses, religious leaders, traditional leaders, teachers, employers or other persons or institutions with information concerning gender violence to be of assistance to the victims.

In addressing how to help victims of gender based violence, the Act applies to all front line workers from every sector. Section 5 of the Act states in part:

A police officer, labour inspector, social worker, counsellor, medical practitioner, legal practitioner, nurse, religious leader, traditional leader, teacher, employer or other person or institution with information concerning the commission of an act of gender based violence shall:

- *Inform a victim of the victim's rights and any basic support which may be available to assist the victim;*
- *Obtain for the victim, or advise the victim how to obtain shelter, medical treatment, legal services, counselling or other service that may be required in the circumstances;*

A child or a person with a mental disability may be assisted by a next friend to file a complaint of GBV. A complaint against GBV may also be filed by any other person or institution with information about the GBV where the intervention is in the interest of the victim.

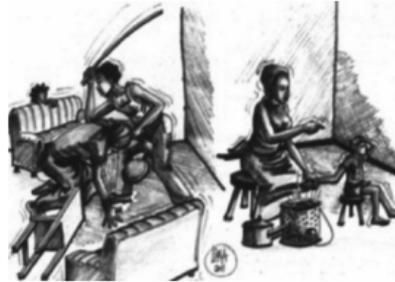
If a lawyer does not represent the victim, the clerk of court shall inform the applicant of the remedies available; and of the procedure for lodging an application for a protection order.

What should the police do?

Upon receipt of a complaint the Police should act promptly

and should assist by:

- *Offering the victim or the person reporting protection that is, issuing them with a medical form and sending the victim to a medical facility;*
- *Interviewing the parties and witnesses;*
- *Recording the complaint in detail and giving a copy to the victim if they so require;*
- *Assisting the victim to obtain free medical treatment;*
- *Assisting the victim to a place of safety;*
- *Offering protection to enable victim to retrieve personal belongings;*
- *Assisting and advising the victim to preserve evidence.*



A child witness must always be interviewed in the presence of a guardian or next friend.

How can a person get legal protection under the act?

The Protection Order can be applied for if one has actually suffered violence, if one feels threatened by another person with gender based violence, or if one has knowledge of the GBV.

Who can make an application?

Where the victim is a child or a person with mental disability, the protection order can be obtained for them by:

- *A parent or guardian or the person they normally live with;*
- *A social worker;*
- *A police officer or probation officer;*
- *A medical officer;*
- *A representative of a non-governmental organisation or an institution with information about the gender based violence;*

Written consent need not be obtained if the victim is unconscious, is a child, a person with a mental disability, or is unable to provide written consent (and has convinced the Court of this).

If one does not have the written consent of the victim they can apply for a protection order with the permission of the Court.

Who can a Protection Order be made against?

The Protection Order can be made against the person threatening or carrying out the violence and against any persons assisting them in threatening or carrying out the violence.

Where can an application for a Protection Order be made?

The application for a protection order can be made in a Subordinate Court situated where the victim or perpetrator resides, carries on business or is employed or where the violence took place or was going to take place, i.e. the most convenient place for the applicant.

If a victim does not have a lawyer when applying for the protection order, the clerk of Court is supposed to inform the applicant of the procedure and the remedies available for the victim.

What is the process of getting a protection order?

When one makes an application for a Protection Order, the application will not be heard in open Court. It will be heard in private in the Magistrate's Chambers and only the victim and perpetrator, their lawyers and any other person permitted by the Court will be present.

If the Court feels that having the perpetrator in Court will result in an unfriendly environment in the Court, the Court will take all necessary steps to separate the victim and witnesses from the perpetrator.

When a victim applies for a Protection Order the Court must make a decision within 14 days. When making the decision the Court:

- *Will consider whether or not an Interim Order or a Protection Order has been issued to the victim or the perpetrator in the past;*
- *Can ask for any evidence it thinks is necessary to assist it to make a decision including medical evidence which should be supported by a police report that was used by the victim to get a medical examination;*
- *Can call and question any witness before the Court;*
- *Request for a report containing details of the circumstances of the violence, an assessment of its effects and any other relevant information from a social worker, a probation officer or from any other officer appointed by the Court*Where the respondent has no legal representation the respondent cannot speak to the victim directly but can only ask questions through the Court;



Any person who knowingly makes a false statement to the Court in an affidavit commits an offence and can be sent to prison for up to three years.

What does Protection Order do?

A Protection Order prohibits the perpetrator or any person assisting them from carrying out any acts of gender based violence. The order can prohibit the perpetrator and the persons assisting them from:

- *Assaulting or using physical force against the victim or his/her friends, relations, legal representatives or any other person associated with the victim;*
- *Forcibly detaining the victim or any of his/her friends or relations;*
- *Depriving the victim access to adequate food, water, clothing, shelter or rest;*
- *Forcing the victim to engage in any sexual contact or sexual behaviour “that abuses, humiliates, degrades, or violates their honour/uprightness whether or not the victim and the perpetrator are married to each other;*
- *Depriving, destroying, damaging, obstructing or hindering the victim from the use of property in which the victim has an interest; merely threatening the victim with any of the aforesaid is also not permitted when a protection order has been granted*
- *Depriving or threatening to deprive the victim of economic or financial resources including the payment of rentals or any mortgage or other repayments;*
- *Contacting the victim on the phone, in person or through any other means at work, at home or any place where the victim is frequently found;*

- *Abusing the victim or threatening to do so emotionally, verbally or psychologically;*
- *Harassing the victim;*
- *Coming to or into the victim's home without their permission or even coming within 100 metres of the victim;*
- *Getting help from a third person to commit an act of gender based violence against the victim;*

The order will set conditions to ensure that the perpetrator complies with the order.

What conditions can be included in the protection order?

A victim may request, or the Court may decide on its own where the Court feels it is necessary for the safety of the victim or any other person associated with the victim, that any Protection Order it grants contains the following conditions:

- *It can direct the perpetrator to seek counselling or rehabilitation; it can forbid the perpetrator from being at places where the victim, their children or dependants are frequently found;*
- *That the police are permitted to search for any weapon the perpetrator is believed to have and further that the perpetrator surrenders any firearm or any other weapon they own/have and that the police suspend the license for the said firearm for as long as the protection order is in place;*
- *That both the victim and the perpetrator are*

- forbidden from taking, damaging or disposing of any property the other may have an interest in;*
- *Where a perpetrator is responsible for looking after the victim and their children, that the perpetrator makes the necessary periodic payments;*
 - *That temporal sole custody of any child or dependant of the victim be given to the victim or any other appropriate custodian (if the Court is satisfied that this will be necessary for the child or dependant);*
 - *That contact between the perpetrator and any child of the applicant be forbidden or where it is permitted that it must take place under specified conditions aimed at ensuring the safety of the victim and any child or family member who may be affected and only in the presence and supervision of a social worker or family member appointed by the Court;*
 - *That the victim be relocated to a safe place such as the places of safety that will be set up by the government or a house for which the perpetrator will pay rentals;*

A Protection Order can be in place for up to 12 months. It can be extended, modified or withdrawn if good reasons are given to the Court by the victim (applicant). Furthermore, while the Protection Order is in place the respondent can also apply to the Court to have it modified or cancelled if the conditions that led to its imposition change.

The interim protection order

An Interim Protection Order is a temporary and urgent

Protection Order that can be granted immediately whilst waiting for the conclusion of investigations or the granting of a final Protection Order. It can be made in the absence of the respondent and is given where the Court feels that a victim is in immediate danger and it would be in the best interest of the victim.

An Interim Protection Order is granted for a period of no more than 3 months and has the same effect as and may carry the same conditions as a Protection Order. It can be extended for another 3 months if the Court



thinks this is necessary. Where a perpetrator/respondent does not appear before the Court to argue why the order should not continue in force the order will be made final.

A person contravening one of these orders commits an offence and is liable, upon conviction, to imprisonment for a period not exceeding two years.

Places of safety

The Minister responsible for Social Welfare has the duty to put up and run places of safety (shelters) for child and adult victims of gender based violence respectively throughout Zambia using money from the government.

Places of safety are premises where the welfare of the victim of gender based violence is assured.

A place of safety for child victims must provide security and safety for the child, temporary basic material support, counselling, and rehabilitation and education facilities. The best interest of the child shall be paramount in any assistance given to rescue or reintegrate the child.

Places of safety set up for adults must have similar facilities as those provided in the children's places of safety. In addition the adults' places of safety must have programmes for skills development and training programmes to reintegrate adult victims into their families and communities.

For victims who have children, the places of safety should offer programmes for the care and development of the children. Where necessary and if so determined, a victim's child can, with the explicit consent of the victim be educated outside the place of safety.

C.12 Household Budgeting to Promote Growth in the 1st 1000 MCDs

Money is a major but not the only resource in a home. However, it is one resource that can cause chaos in the household if it is not handled properly.

Therefore, careful use of available resources in a home is essential whether a home is big or small or whether

a family is rich or poor. Money though essential in a household is not the only resource in the family. There are other resources such as human and material resources. Human resource includes every human being's potential to do some positive activity that contributes to the wellbeing of the family. Some of the activities that the human resource in the home can do to improve the family welfare is: keeping the home clean, cooking and preparing timely meals, income generation, farming and gardening.

If all the human resources in the household were to be used to their full potential towards making the household better there could be savings in the home. For example, if a household took up the duties to clean the surroundings, there would be no need for a garden worker and so the money to pay the garden worker could be used to buy the other items or services for the household including food to feed children.

A budget to guide use of money in the home is vital at all times. A household budget simply spells out how available money is to be spent. There are priorities in every household. For example, a household without shelter and school going children with working managers of the household would provide a budget with the following items on the list:

- Rentals
- Workers salary
- Water bills
- Electricity
- Food
- Money owing other people
- Transport Money for work
- School Fees
- School Uniforms
- Health Services
- Emergency funds
- Pocket money
- Savings

The priority will differ from one person to another and from one situation to another. This is due to the fact that at one point or other different households would have different pressing needs, but household food security is always key in whatever situation.

After making the broad budget, there is need to make smaller budgets for the items listed in accordance with the available money for the item. One of the most crucial item on the list above is food. Food budgeting calls for thriftiness and careful spending, without underfeeding or overfeed the members of the household. Food budgeting is simply a plan of how to purchase food to be consumed for a set period of time. It is difficult to provide a specific advice on food budgeting to every situation available in various households. However, broad guidelines on how to make and implement the food budget can help a household to

budget within their limits.

Tips on food budgeting and purchasing

- *Always buy fresh foods from clean, hygienic sources even if the money is inadequate*
- *Buy dry foods and non-perishable foods such as beans, sugar, ground nuts, dried fish and meat in bulk foods*
- *Buy perishables like poultry, meat, mushrooms in bulk from a cheaper, safe source and preserve*
- *Buy fresh vegetables from clean, safe and cheaper sources*
- *Buy foods when in season and preserve for future use*
- *Store foods properly to avoid wastage*

C.13 Facts for Life

Abstracted from “Facts for Life”, Fourth Edition, Produced by UNICEF, WHO, UNESCO, UNFPA, UNDP, UNAIDS, WFP and the World Bank. Facts for Life can be found at www.factsforlifeglobal.org.

Facts for Life has been developed as a vital resource for those who need it most. It delivers essential information on how to prevent child and maternal deaths, diseases, injuries and violence. Facts for Life provides information to help save, improve and protect children’s lives, and should be shared widely with families, health workers, teachers, youth groups, women’s groups, community organizations, government officials, employers, trade unions, media, and

non-governmental and faith based organizations.

The following areas are covered by the Facts for Life:

- Timing Births
- Safe Motherhood and New-born Health
- Child Development and Early Learning
- Breastfeeding
- Nutrition and Growth
- Immunisation
- Diarrhoea
- Coughs, Colds and More Serious Illnesses
- Hygiene
- Malaria
- HIV
- Child Protection
- Injury Prevention
- Emergencies: Preparedness and Response

Facts for Life is designed to educate those who have influence over the safety and wellbeing of children. Through simple messages, it aims to bring life-saving knowledge to every corner of the world.

Facts for Life aims to provide families and communities with the information they need to save and improve the lives of children. Parents, grandparents, other caregivers and young people can refer to this practical source of information for answers to their questions related to childbearing and getting children off to the best start in life. The challenge is to ensure that everyone knows and

understands these facts and is motivated to put them into practice.

The messages contained in Facts for Life are based on the latest scientific findings by medical and child development experts around the world.

Everyone can help communicate the Facts for Life messages — health workers, teachers, social workers, government officials, broadcasters, journalists, community workers, religious and political leaders, mothers, fathers, grandparents, other family members, friends, neighbours, students and people in all walks of life — young and old, men and women, and girls and boys.

Using ***Facts for Life*** can increase people's knowledge and change their practices and behaviour to improve and save children's lives. This can lead to positive changes in social beliefs and norms (what is considered normal by society) concerning the survival, growth, learning, development, protection, care and support of children.

Knowledge alone is insufficient for behaviour change

It is often assumed that if people are provided with information, products (such as vaccines or hand pumps) and services (such as health or education), they will adopt healthier behaviours.

However, information, products and services are often not enough to ensure adoption of new behaviours.

It is important to go beyond giving people information. Facts for Life should be used in consultation with children, families, communities and social networks. Their participation is vital to influencing behavioural and social change in favour of children's rights. Using Facts for Life as a tool in communication and development interventions involves:

- *Listening to the concerns of children, families and communities about the topics in Facts for Life*
- *Communicating the messages and supporting information in Facts for Life in interesting and constructive ways that are relevant to a particular context*
- *Stimulating dialogue among all concerned*
- *Supporting actions with children, families and communities that improve behaviours related to the topics in Facts for Life*
- *Assessing the actions to determine behaviour change and outcomes.*

C.13.1 Stages of Behaviour Change

As individuals, we go through different stages in changing our behaviour. These stages include:

- *Not being aware*
- *Becoming aware*
- *Becoming motivated to try something new*
- *Adopting a new behaviour*

- *Sustaining and ‘internalizing’ a new behaviour so that it becomes part of our normal everyday practice.*

First, we have to become aware that a particular behaviour may not be healthy for us or our children. We then learn that there are other choices or alternative behaviours. We decide to try a new behaviour. If we are satisfied that the new behaviour is beneficial we may repeat it. Ultimately, we may adopt it. Then we may advocate or promote it with others, encouraging them to adopt it too.

Learning a new behaviour takes place in this continual cycle of awareness, experimentation and repetition. For example, a father may be persuaded through talking with the local religious leader to have his children sleep under insecticide treated mosquito nets. He then sees that the nets prevent mosquito bites and that his children do not get malaria. He becomes an advocate for sleeping under insecticide treated mosquito nets, sharing his experience with friends and urging them to use the nets. Sometimes people who appear to have adopted a new behaviour eventually reject it and return to their former behaviour.

- *Repetition is vital! Most people do not learn or change behaviour after only one discussion or exposure to a new behaviour.*
- *People are more likely to trust information and to act on it to change behaviours if:*
 - o *They are encouraged to discuss it among themselves and to ask questions to clarify their understanding*

- o They understand how they and their families and communities will benefit*
- o The language is familiar and compatible with the local culture and social norms, avoiding judgmental or prescriptive-sounding 'orders'*
- o The person presenting it or the source of information (such as radio or television) is well known and trusted*
- o They hear repeated, simple and consistent messages from different sources*
- o They are given time to change, especially if the change carries a cost, such as installation of latrines.*

Interpersonal: person-to-person

Most people are not comfortable using new information seen or heard in the mass media without having an opportunity to discuss it with someone they trust. Person-to-person communication supplemented by mass and traditional and/or 'mid' media campaigns and ongoing programming activities, are most effective in encouraging people to adopt, sustain and internalize new behaviours.

- Use simple examples of problems that are important to the people involved. Start with what is already known and focus on major concerns. Avoid technical or scientific language. Use illustrations to stimulate discussion.*
- Encourage people to ask questions and express concerns. Guide the discussion to explore the causes of the problem and possible solutions. Remember*

to listen, which is as important to communication as speaking. The participation of children, families and other community members is key to identifying barriers or unforeseen problems that prevent people from acting on the message. They can articulate local solutions.

- *Show respect for people's opinions, knowledge and ability to change. People learn best in situations that build their confidence, and they take action when they feel understood and respected. Be a role model for the behaviour you would like to see adopted.*
- *Support people in taking action. Recognize that they may want to change but may not be able to act alone. Help them mobilize existing networks or create new ones that will encourage more individuals and families to adopt and sustain new behaviours.*

C.13.2 Timing Births

Why it is important to share and act on information about timing births:

- *Too many births, births too close together and births to adolescent girls under 18 and women over 35 endanger the lives of women and adolescents and their infants.*
- *Pregnancy before the age of 18 or after the age of 35 increases the health risks for the mother and her baby.*
- *For the health of both mothers and children, a*

woman should wait until her last child is at least 2 years old before becoming pregnant again. The risk of death for new-borns and infants increases significantly if the births are not spaced. There is a higher chance that the new baby will be born too early and weigh too little. Babies born underweight are less likely to grow well, more likely to become ill and four times more likely to die in the first year of life than babies of normal weight.

- *The health risks of pregnancy and childbirth increase if a woman has had many pregnancies.*
- *Family planning services provide men and women of childbearing age with the knowledge and the means to plan when to begin having children, how many to have, how far apart to have them and when to stop. There are many safe, effective and acceptable methods of planning for and avoiding pregnancy.*
- *Both men and women, including adolescents, are responsible for family planning. Both partners need to know about the health benefits of family planning and the available options.*

C.13.3 Safe Motherhood and New-born Health

Why it is important to share and act on information about safe motherhood and new-born health:

- *Every pregnant woman hopes for a healthy baby and an uncomplicated pregnancy.*

- *Girls who are educated and healthy and who have a nutritious diet throughout their childhood and teenage years are more likely to have healthy babies and go through pregnancy and childbirth safely if childbearing begins after they are 18 years old.*
- *The risks associated with childbearing for the mother and her baby can be greatly reduced if a woman is healthy and well nourished before becoming pregnant. During pregnancy and while breastfeeding, all women need more nutritious meals, increased quantities of food, more rest than usual, iron folic acid or multiple micronutrient supplements, even if they are consuming fortified foods, and iodized salt to ensure the proper mental development of their babies.*
- *Every pregnancy is special. All pregnant women need at least four prenatal care visits to help ensure a safe and healthy pregnancy. Pregnant women and their families need to be able to recognize the signs of labour and the warning signs of pregnancy complications. They need to have plans and resources for obtaining skilled care for the birth and immediate help if problems arise.*
- *Childbirth is the most critical period for the mother and her baby. Every pregnant woman must have a skilled birth attendant, such as a midwife, doctor or nurse, assisting her during childbirth, and she must also have timely access to specialized care if complications should occur.*
- *Post-natal care for the mother and child reduces the risk of complications and supports mothers and*

fathers or other caregivers to help their new baby get a healthy start in life. The mother and child should be checked regularly during the first 24 hours after childbirth, in the first week, and again six weeks after birth. If there are complications, more frequent check-ups are necessary.

- *A healthy mother, a safe birth, essential new-born care and attention, a loving family and a clean home environment contribute greatly to new-born health and survival.*
- *Smoking, alcohol, drugs, poisons and pollutants are particularly harmful to pregnant women, the developing foetus, babies and young children.*
- *Violence against women is a serious public health problem in most communities. When a woman is pregnant, violence is very dangerous to both the woman and her pregnancy. It increases the risk of miscarriage, premature labour and having a low-birth-weight baby.*
- *In the workplace, pregnant women and mothers should be protected from discrimination and exposure to health risks and granted time to breastfeed or express breast milk. They should be entitled to maternity leave, employment protection, medical benefits and, where applicable, cash support.*
- *Every woman has the right to quality health care, especially a pregnant woman or a new mother. Health workers should be technically competent and sensitive to cultural practices and should treat all women, including adolescent girls, with respect.*

C.13.4 Child Development and Early Learning

Why it is important to share and act on information about child development and early learning.

- *Child development refers to the changes that occur as a child grows and develops in relation to being physically healthy, mentally alert, emotionally sound, socially competent and ready to learn.*
- *The first five years of a child's life are fundamentally important. They are the foundation that shapes children's future health, happiness, growth, development and learning achievement at school, in the family and community, and in life in general.*
- *The early years, especially the first three years of life, are very important for building the baby's brain. Everything she or he sees, touches, tastes, smells or hears helps to shape the brain for thinking, feeling, moving and learning.*
- *Babies learn rapidly from the moment of birth. They grow and learn best when responsive and caring parents and other caregivers give them affection, attention and stimulation in addition to good nutrition, proper health care and protection.*
- *Encouraging children to play and explore helps them learn and develop socially, emotionally, physically and intellectually. This helps children get ready for school.*

- *Children learn how to behave (socially and emotionally) by imitating the behaviour of those closest to them.*
- *Entering primary school on time is critical to ensure the continuity of a child's development. Support from parents, other caregivers, teachers and the community is very important.*
- *All children grow and develop in similar patterns, but each child develops at her or his own pace. Every child has her or his own interests, temperament, style of social interaction and approach to learning.*

HOW A CHILD DEVELOPS

By the age of 1 month

<p>A baby should be able to:</p>	<ul style="list-style-type: none"> • Turn her or his head towards a hand that is stroking the child's cheek or mouth • Bring both hands towards her or his mouth • Turn towards familiar voices and sounds • Suckle the breast and touch it with her or his hands.
<p>Advice for parents and other caregivers:</p>	<ul style="list-style-type: none"> • Make skin-to-skin contact and breastfeed within one hour of birth

	<ul style="list-style-type: none"> • Support the baby’s head when you hold the baby upright • Massage and cuddle the baby often • Always handle the baby gently, even when you are tired or upset • Breastfeed frequently and on demand • Always safely dispose of the baby’s faeces and wash hands with soap and water or a substitute, such as ash and water, after changing the baby • Talk, read and sing to the child as much as possible • Give consistent love and affection • Visit a trained health worker with the infant during the first week and again six weeks after birth.
<p>Warning signs to watch for:</p>	<ul style="list-style-type: none"> • Poor suckling at the breast or refusing to suckle • Little movement of arms and legs • Little or no reaction to loud sounds or bright lights • Crying for long periods for no apparent reason • Vomiting and diarrhoea, which can lead to dehydration.

By the age of 6 months

A baby should be able to:

- Raise the head and chest when lying on her or his stomach
- Reach for dangling objects
- Grasp and shake objects
- Roll both ways
- Sit with support
- Explore objects with hands and mouth
- Begin to imitate sounds and facial expressions
- Respond to her or his own name and to familiar faces.

Advice for parents and other caregivers:

- Lay the baby on a clean, flat, safe surface so she or he can move freely and reach for objects
- Continue to hold and cuddle the baby every day, giving consistent love and affection
- Prop or hold the baby in a secure position so she or he can see what is happening nearby
- Continue to breastfeed on demand day and night, and start adding other foods (two to three meals a day starting at 6 months; three to four meals a day from 9 months)

	<ul style="list-style-type: none"> • Talk, read or sing to the child as often as possible, not only when she or he is hungry or getting ready to sleep.
Warning signs to watch for:	<ul style="list-style-type: none"> • Stiffness or difficulty moving limbs • Constant moving of the head (this might indicate an ear infection, which could lead to deafness if not treated) • Little or no response to sounds, familiar faces or the breast • Refusing the breast or other foods.

By the age of 12 months

A baby should be able to:	<ul style="list-style-type: none"> • Sit without support • Crawl on hands and knees and pull herself or himself up to stand • Take steps holding on to support • Try to imitate words and sounds and respond to simple requests • Enjoy playing and clapping • Repeat sounds and gestures for attention • Pick things up with thumb and one finger • Start holding objects such as a spoon and cup and attempt self-feeding.
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Advice for
parents and
other caregivers:

- Point to objects and name them; play with, talk, sing and read to the child frequently
- Use mealtimes and other family activities to encourage interaction with all family members
- Give consistent affection and be responsive both when the child is happy and when upset
- If the child is developing slowly or has a physical disability, focus on the child's abilities and give extra stimulation and interaction
- Do not leave a child in one position for many hours
- Make the area as safe as possible to prevent accidents, and keep dangerous objects, such as sharp objects, plastic bags and small items a child can choke on, out of the child's reach
- Continue to breastfeed and ensure that the child has enough food and a variety of family foods
- Help the child experiment with spoon and cup feeding

	<ul style="list-style-type: none"> • Make sure the child's immunisations are up to date and that she or he receives all recommended doses of nutrient supplements • Keep the child's hands clean and begin teaching the child to wash them with soap.
Warning signs to watch for:	<ul style="list-style-type: none"> • Does not make sounds in response to others • Does not look at objects that move • Listlessness and lack of response to the caregiver • Lack of appetite or refusal of food.

By the age of 2 years

A child should be able to:	<ul style="list-style-type: none"> • Walk, climb and run • Point to objects or pictures when they are named (e.g. nose, eyes, ears) • Say several words together (from about 15 months) • Follow simple instructions • Scribble if given a pencil or crayon • Enjoy simple stories and songs • Imitate the behaviour of others • Begin to eat by herself or himself.
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<p>Advice for parents and other caregivers:</p>	<ul style="list-style-type: none"> • Read to and sing or play games with the child • Teach the child to avoid dangerous objects • Talk to the child normally – do not use baby talk • Continue to breastfeed and ensure the child has enough food and a variety of family foods • Make sure the child is fully immunised • Encourage, but do not force, the child to eat • Provide simple rules and set reasonable expectations • Praise the child’s achievements, provide reassurance when the child is afraid and continue to give consistent affection every day.
<p>Warning signs to watch for:</p>	<ul style="list-style-type: none"> • Lack of response to others • Difficulty keeping balance while walking • Injuries and unexplained changes in behaviour (especially if the child has been cared for by others) • Lack of appetite.

C.13.5 Breastfeeding

Why it is important to share and act on information about breastfeeding:

- *Breast milk alone is the best food and drink for an infant for the first six months of life. No other food or drink, not even water, is usually needed during this period.*
- *Newborn babies should be given to the mother to hold immediately after delivery. They should have skin-to-skin contact with the mother and begin breastfeeding within one hour of birth.*
- *Almost every mother can breastfeed successfully. Breastfeeding the baby frequently causes production of more milk. The baby should breastfeed at least eight times daily, day and night, and on demand.*
- *Breastfeeding helps protect babies and young children against dangerous illnesses. It also creates a special bond between mother and child.*
- *Bottle feeding and giving a baby breast milk substitutes such as infant formula or animal milk can threaten the baby's health and survival. If a woman cannot breastfeed her infant, the baby can be fed expressed breast milk or, if necessary, a quality breast milk substitute from an ordinary clean cup.*
- *If a woman is infected with HIV, there is a risk that she can pass the infection to her infant through breastfeeding. In the first six months, this risk is much greater if the infant is fed both breast milk and other liquids and foods than if fed breast milk alone.*

Therefore, it is recommended that the baby receives breast milk alone for the first six months, unless it is acceptable, feasible, affordable, sustainable and safe to give breast milk substitutes (infant formula) exclusively.

- *A woman employed away from her home can continue to breastfeed her child. She should breastfeed as often as possible when she is with the infant and express her breast milk when they are apart so that another caregiver can feed it to the baby in a clean and safe way.*
- *After 6 months of age, when babies begin to eat foods, breastfeeding should continue for up to two years and beyond because it is an important source of nutrition, energy and protection from illness.*

C.13.6 Nutrition and Growth

Why it is important to share and act on information about nutrition and growth:

- *A young child should grow and gain weight rapidly. From birth to age 2, children should be weighed regularly to assess growth. If regular weighing shows that the child is not gaining weight, or the parents or other caregivers see the child is not growing, something is wrong. The child needs to be seen by a trained health worker.*
- *Breast milk alone is the only food and drink an infant needs in the first six months of life. After six months, a baby needs a variety of other foods in*

addition to breast milk to ensure healthy growth and development.

- *From the age of 6–8 months a child needs to eat two to three times per day and three to four times per day starting at 9 months – in addition to breastfeeding. Depending on the child’s appetite, one or two nutritious snacks, such as fruit or bread with nut paste, may be needed between meals. The baby should be fed small amounts of food that steadily increase in variety and quantity as he or she grows.*
- *Feeding times are periods of learning, love and interaction, which promote physical, social and emotional growth and development. The parent or other caregiver should talk to children during feeding, and treat and feed girls and boys equally and patiently.*
- *Children need vitamin A to help resist illness, protect their eyesight and reduce the risk of death. Vitamin A can be found in many fruits and vegetables, red palm oil, eggs, dairy products, liver, fish, meat, fortified foods and breast milk. In areas where vitamin A deficiency is common, high dose vitamin A supplements can also be given every four to six months to children aged 6 months to 5 years.*
- *Children need iron rich foods to protect their physical and mental abilities and to prevent anaemia. The best sources of iron are animal sources, such as liver, lean meats and fish. Other good sources are iron-fortified foods and iron supplements.*
- *Iodine in a pregnant woman’s and young child’s*

diet is especially critical for the development of the child's brain. It is essential to help prevent learning disabilities and delayed development. Using iodized salt instead of ordinary salt provides pregnant women and their children with as much iodine as they need.

- *As the child's intake of foods and drinks increases, the risk of diarrhoea substantially increases. Contamination of foods with germs is a major cause of diarrhoea and other illnesses that cause children to lose nutrients and energy needed for growth and development. Good hygiene, safe water and proper handling, preparation and storing of foods are crucial to prevent illnesses.*
- *During an illness, children need additional fluids and encouragement to eat regular meals, and breastfeeding infants need to breastfeed more often. After an illness, children need to be offered more food than usual to replenish the energy and nourishment lost due to the illness.*
- *Very thin and/or swollen children need special medical care. They should be taken to a trained health worker or health facility for assessment and treatment.*

C.13.7 Immunisation

Why it is important to share and act on information about immunisation:

- *Immunisation is urgent. Every child should complete*

the recommended series of immunisations. Early protection is critical; the immunisations in the first year and into the second year are especially important. All parents or other caregivers should follow the advice of a trained health worker on when to complete the required immunisations.

- *Immunisation protects against several dangerous diseases. A child who is not immunised is more likely to become sick, permanently disabled or undernourished, and could possibly die.*
- *It is safe to immunise a child who has a minor illness or a disability or is malnourished.*
- *All pregnant women and their new-borns need to be protected against tetanus. Even if a woman was immunised earlier, she needs to check with a trained health worker for advice on tetanus toxoid immunisation.*
- *A new syringe must be used for every person being immunised. People should demand a new syringe for every vaccination.*
- *Disease can spread quickly when people are crowded together. All children living in congested conditions, particularly in refugee or disaster situations, should be immunised immediately, especially against measles.*
- *The vaccination card of a child (or an adult) should be presented to the health worker before every immunisation.*

C.13.8 Diarrhoea

Why it is important to share and act on information about diarrhoea:

- *Diarrhoea kills children by draining liquid from the body, which dehydrates the child. As soon as diarrhoea starts, it is essential to give the child extra fluids along with regular foods and fluids.*
- *A child's life is in danger if she or he has several watery stools within an hour or if there is blood in the stool. Immediate help from a trained health worker is needed.*
- *Exclusive breastfeeding for the first six months of life and continued breastfeeding after six months can reduce the risks associated with diarrhoea. Immunisation against rotavirus (where recommended and available) reduces deaths from diarrhoea caused by this virus. Vitamin A and zinc supplementation can reduce the risk of diarrhoea.*
- *A child with diarrhoea needs to continue eating regularly. While recovering, she or he needs to be offered more food than usual to replenish the energy and nourishment lost due to the illness.*
- *A child with diarrhoea should receive oral rehydration salts (ORS) solution and a daily zinc supplement for 10–14 days. Diarrhoea medicines are generally ineffective and can be harmful.*
- *To prevent diarrhoea, all faeces, including those of infants and young children, should be disposed of in a latrine or toilet or buried.*

- *Good hygiene practices and use of safe drinking water protect against diarrhoea. Hands should be thoroughly washed with soap and water or a substitute, such as ash and water, after defecating and after contact with faeces, and before touching or preparing food or feeding children.*

C.13.9 Coughs, Colds and More Serious Illnesses

Why it is important to share and act on information about coughs, colds and more serious illnesses:

- *Coughs, colds, sore throats and runny noses are common in the lives of children. Usually they are no cause for alarm. In some cases, however, coughs are danger signs of more serious illnesses, such as pneumonia or tuberculosis. Pneumonia is the world's leading cause of death in girls and boys under age 5, closely followed by diarrhoea.*
- *A child with a cough or cold should be kept warm and encouraged to eat and drink as much as possible.*
- *Sometimes, coughs are signs of a serious problem. A child who is breathing rapidly or with difficulty might have pneumonia, an infection of the lungs. This is a life-threatening disease. The child needs immediate treatment from a trained health worker, who can also provide a referral to a health facility.*
- *Families can help prevent pneumonia by making sure babies are exclusively breastfed for the first six*

months and that all children are well nourished and fully immunised.

- *A child who has a prolonged cough that persists for more than three weeks needs immediate medical attention. The child may have tuberculosis, an infection in the lungs.*
- *Children and pregnant women exposed to smoke from tobacco or cooking fires are particularly at risk of pneumonia or other breathing illnesses.*

C.13.10 Hygiene

Why it is important to share and act on information about hygiene:

- *Young children are more vulnerable than any other age group to the ill effects of unsafe water, poor sanitation and lack of hygiene. These contribute to 88 per cent of deaths from diarrhoeal diseases. Children under 5 years old account for nearly 90 per cent of deaths from diarrhoea.*
- *The simple habit of hand washing with soap is estimated to reduce the incidence of diarrhoea by nearly half. It also greatly reduces the risk of respiratory infections such as pneumonia and other diseases, including eye infections, especially trachoma.*
- *All faeces, including those of babies and young children, should be disposed of safely. Making sure that all family members use a toilet, latrine or potty (for young children) is the best way to dispose of*

faeces. Where there is no toilet, faeces should be buried.

- *All family members, including children, need to wash their hands thoroughly with soap and water after any contact with faeces, before touching or preparing food, and before feeding children. Where soap is not available, a substitute, such as ash and water, can be used.*
- *Washing the face and hands with soap and water every day helps to prevent eye infections. In some parts of the world, eye infections can lead to trachoma, which can cause blindness.*
- *All water that people drink and use should come from a safe source or be purified. Containers for carrying and storing water need to be kept clean inside and outside and covered to keep the water clean. Where necessary, home based water treatment, such as boiling, filtering, adding chlorine or disinfecting with sunlight, should be used to purify the water.*
- *Raw or leftover cooked food can be dangerous. Raw food should be washed or cooked. Cooked food should be eaten without delay or thoroughly reheated before eating.*
- *Food, utensils and preparation surfaces should be kept clean and away from animals. Food should be stored in covered containers.*
- *Safe disposal of all household refuse helps to keep the living environment clean and healthy. This helps prevent illness.*
- *Hygiene is very important during menstruation.*

Clean and dry feminine hygiene products should be available to girls and women. A clean, private space should be provided to allow them to clean themselves and wash and dry their cloths. Sanitary napkins need to be disposed of carefully with other refuse or burned.

C.13.11 Malaria

What every family and community has a right to know about malaria:

- Malaria is transmitted through the bites of some mosquitoes. Sleeping under an insecticide treated mosquito net is the best way to prevent mosquito bites.
- Wherever malaria is present, children are in danger. A child with a fever should be examined immediately by a trained health worker and receive an appropriate antimalarial treatment as soon as possible if diagnosed with malaria. Artemisinin based combination therapies (ACTs) are recommended by WHO for treatment of Plasmodium falciparum malaria. It is the most serious type of malaria and causes nearly all malaria deaths.
- Malaria is very dangerous for pregnant women. Wherever malaria is common, they should prevent malaria by taking antimalarial tablets recommended by a trained health worker and by sleeping under an insecticide treated mosquito net.

- A child suffering or recovering from malaria needs plenty of liquids and foods.

C.13.12 HIV

Why it is important to share and act on information about HIV:

- *HIV (human immunodeficiency virus) is the virus that causes AIDS (acquired immunodeficiency syndrome). HIV touches the lives of children and families in every country in the world.*
- *HIV (human immunodeficiency virus) is the virus that causes AIDS (acquired immunodeficiency syndrome). It is preventable and treatable, but incurable. HIV is transmitted through (1) unprotected sex with an HIV-infected person (sex without the use of a male or female condom); (2) an HIV-infected woman to her baby during pregnancy, childbirth or breastfeeding; and (3) blood from HIV-contaminated syringes, needles or other sharp instruments and from transfusion with HIV-contaminated blood. HIV is not transmitted through casual contact or by other means.*
- *Anyone who wants to know how to prevent HIV or thinks he or she has HIV should contact a health care provider or an AIDS centre to obtain information on HIV prevention and/or advice on where to receive HIV testing, counselling, care and support.*
- *All pregnant women should talk to their health care providers about HIV. All pregnant women who think*

they, their partners or family members are infected with HIV, have been exposed to HIV or live in a setting with a generalized HIV epidemic should get an HIV test and counselling to learn how to protect or care for themselves and their children, partners and family members.

- *All children born to HIV positive mothers or to parents with symptoms, signs or conditions associated with HIV infection should be tested for HIV. If found to be HIV positive, they should be referred for follow-up care and treatment and given loving care and support.*
- *Parents or other caregivers should talk with their daughters and sons about relationships, sex and their vulnerability to HIV infection. Girls and young women are especially vulnerable to HIV infection. Girls and boys need to learn how to avoid, reject or defend themselves against sexual harassment, violence and peer pressure. They need to understand the importance of equality and respect in relationships.*
- *Parents, teachers, peer leaders and other role models should provide adolescents with a safe environment and a range of life skills that can help them make healthy choices and practice healthy behaviour.*
- *Children and adolescents should actively participate in making and implementing decisions on HIV prevention, care and support that affect them, their families and their communities.*
- *Families affected by HIV may need income support*

and social welfare services to help them take care of sick family members and children. Families should be guided and assisted in accessing these services.

- *No child or adult living with or affected by HIV should ever be stigmatized or discriminated against. Parents, teachers and leaders have a key role to play in HIV education and prevention and in reducing fear, stigma and discrimination.*
- *All people living with HIV should know their rights.*

C.13.13 Child Protection

Why it is important to share and act on information about child protection:

- *Every child should have the opportunity to grow up in a family. If a family is unable to care for the child, steps should be taken by the authorities to address the reasons and make every effort to keep the family together.*
- *Every child has a right to a name and nationality. Registering a child's birth helps to ensure a child's right to education, health care and legal and social services. Birth registration is a vital step towards protection from abuse and exploitation.*
- *Girls and boys must be protected from all forms of violence and abuse. This includes physical, sexual and emotional abuse, neglect and harmful practices such as child marriage and genital mutilation/cutting of girls. Families, communities and authorities are responsible for ensuring this protection.*

- *Children must be protected from all work that is hazardous. Work should not prevent them from attending school. Children should never be involved in the worst forms of child labour, such as slavery, forced labour, drug production or trafficking.*
- *Girls and boys can be at risk of sexual abuse and exploitation in their home, school, workplace or community. Measures should be taken to prevent sexual abuse and exploitation. Sexually abused and exploited children need immediate help to stop such abuse.*
- *Children are vulnerable to trafficking where protection for children is weak or missing. The government, civil society and families are responsible for preventing trafficking, as well as helping children who are victims to reintegrate into their families and communities, if it is in their best interest.*
- *Justice for children should be based on child rights. Depriving children of their liberty (incarcerating them) must always be a last resort. Procedures that are sensitive to children should be put in place for children who are victims or witnesses of crime.*
- *Income support and social welfare services can help keep families together and children in school and ensure access to health care.*
- *All children have a right to age-appropriate information, to be heard and to participate in making decisions that concern them. Fulfilment of this right enables children to take an active role in their own protection against abuse, violence and exploitation, and to become active citizens.*

C.13.14 Injury Prevention

Why it is important to share and act on information about injury prevention:

- *Many serious injuries can be prevented if parents and other caregivers supervise children carefully and keep their environment safe.*
- *Young children are at risk on or near roads. They should not play on or near the road and should always have someone older with them when they are near or crossing a road. They should wear a helmet when on a bicycle or motorcycle and should be securely strapped into an age-appropriate child restraint when being transported in a vehicle.*
- *Children can drown in less than two minutes and in a very small amount of water, even in a bathtub. They should never be left alone in or near water.*
- *Burns can be prevented by keeping children away from fires, cooking stoves, hot liquids and foods, and exposed electric wires.*
- *Falls are a major cause of injury for young children. Stairs, balconies, roofs, windows, and play and sleeping areas should be made secure, using barriers with vertical bars to protect children from falling.*
- *Medicines, poisons, insecticides, bleach, acids and liquid fertilizers and fuels, such as paraffin (kerosene), should be stored carefully out of children's sight and reach. Dangerous substances should be stored in clearly marked containers and*

never in drinking bottles. Child-resistant closures, where available, should be used on the containers of poisonous products.

- *Knives, scissors, sharp or pointed objects and broken glass can cause serious injuries. These objects should be kept out of children's reach. Plastic bags, which can cause suffocation, should be kept away from young children.*
- *Young children like to put things in their mouths. To prevent choking, small objects, such as coins, nuts and buttons, should be kept out of their reach. Children's foods should be cut into small pieces that can be easily chewed and swallowed.*
- *Children should be supported in learning about these first aid measures.*
- *Until medical help is available, the following first aid measures should help prevent a situation from becoming worse.*

First Aid Advice

Parents, other caregivers and older

First aid for burns:

If the child's clothing catches fire, quickly wrap the child in a blanket or clothing or roll him or her on the ground to put out the fire.

<p>For minor burns, the following steps can be taken:</p>	<p>Cool the burned area immediately. Use plenty of cold, clean water, which helps to reduce pain and swelling. Do not put ice on the burn; this can further damage the skin. Keep the burn clean and dry with a loose sterile gauze bandage or clean cloth. This will protect blistered skin. Do not break blisters, as they protect the injured area. If a blister is broken, the area is more susceptible to infection. Do not apply butter or ointments to the burn; they can prevent proper healing. A minor burn will usually heal without further treatment.</p>
<p>For major burns that burn all layers of skin, emergency care is needed immediately. Until it is available, the following steps can be taken:</p>	<p>Do not remove the burned clothing from the body. Make sure the child is no longer near any burning or smouldering materials or exposed to smoke or heat. Do not immerse large, serious burns in cold water, as this could cause shock.</p>

	<p>Raise the burned body part or parts above heart level, if possible.</p> <p>Loosely cover the burn area with cool, moist towels or cloths or a sterile bandage.</p> <p>If the child is unconscious, keep him or her warm. Roll the child onto his or her side so that the tongue does not block breathing.</p> <p>Check for signs of breathing, movement and coughing. If there are no signs, follow the steps under 'First aid for breathing problems or drowning'.</p>
<p>First aid for broken bones, bruises or sprains:</p>	<p>A child who is unable to move or is in extreme pain may have broken bones. Do not move the injured area and get medical help immediately.</p> <p>For bad bruises and sprains, immerse the injured area in cold water or put ice on the injury for 15 minutes. Do not put the ice directly on the skin; use a layer of cloth between the ice and the skin. Remove the ice or water, wait 15 minutes and repeat, if necessary. The cold should help reduce pain, swelling and bruising.</p>

<p>First aid for cuts and wounds:</p>	<p>Wash the wound with clean (or boiled and cooled) water and soap.</p>
<p>For minor cuts and wounds:</p>	<p>Dry the skin around the wound. Cover the wound with a clean cloth and place a sterile bandage over it.</p>
<p>For serious cuts and wounds:</p>	<p>If a piece of glass or other object is sticking in the wound, do not remove it. It may be preventing further bleeding, and removing it could make the injury worse.</p> <p>If the child is bleeding heavily, raise the injured area above the level of the chest and press firmly against the wound (or near it if something is stuck in it) with a pad made of folded clean cloth. Maintain pressure until the bleeding stops.</p> <p>Do not put any plant or animal matter on the wound, as this could cause infection.</p> <p>Put a clean sterile bandage on the wound. Allow for swelling by not tying the bandage too tightly.</p> <p>Seek medical help immediately. Ask a trained health worker if the child should have a tetanus injection.</p>

<p>First aid for choking:</p>	<p>If an infant or child is coughing, let him or her try to cough up the object. If the object does not release quickly, try to remove the object from the child's mouth. If the object is still lodged in the child's throat:</p>
<p>For infants or young children:</p>	<p>Support the head and neck. Turn the baby or young child face down with the head lower than the feet. Deliver five careful blows to the back between the shoulder blades. Turn the baby face up and press firmly on the breastbone between the nipples five times. Repeat (face down and face up) until the object is dislodged. If you cannot dislodge the object, take the child to the nearest health worker immediately.</p>

For larger children:

Stand behind the child with your arms around the child's waist. Form a clenched fist with your thumb against the child's body, above the navel and below the rib cage.

Put the other hand over the fist and give a sharp inward and upward thrust into the child's abdomen.

Repeat until the object is dislodged. If you cannot dislodge the object, take the child to the nearest health worker immediately.

First aid for breathing problems or drowning:

If there is any possibility of injury to the head or neck, do not move the child's head. Follow the breathing directions below without moving the head.

If the child is having difficulty breathing or is not breathing, lay the child flat on the back and tilt her or his head back slightly. Pinch the child's nostrils closed and blow (breathe) into the mouth, keeping all the mouth covered. Blow gently but hard enough to make the child's chest rise. Then, count to three and blow again. Continue until the child begins breathing.

If the child is breathing but unconscious, roll the child onto his or her side so the tongue does not block breathing.

If a person who cannot swim sees a child drowning in deep water, the person should immediately throw a rope, floating device or tree branch to the child and shout loudly so that others can come to help rescue the child.

<p>First aid for poisoning:</p>	<p>If a child has swallowed poison, do not try to make the child vomit. This may make the child more ill.</p> <p>If poison is on the child's skin or clothes, remove the clothing and pour large amounts of water over the skin. Wash the skin thoroughly several times with soap.</p> <p>If a child gets poison in his or her eyes, splash clean water in the eyes for at least 10 minutes.</p> <p>Take the child immediately to a health centre or hospital if any of these situations occur. If possible, bring a sample of the poison or medicine or its container with you. Keep the child as still and quiet as possible.</p> <p>If a child is bitten by a venomous or rabid animal, it is important to see a health care provider immediately for treatment.</p>
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C.13.15 Emergencies: Preparedness and Response

Why it is important to share and act on information about emergencies: preparedness and response:

- *In emergencies, children have the same rights as in*

non-emergency situations. This is true whether the emergency is a conflict, disaster or epidemic.

- *Girls and boys and their families and communities should plan ahead and take simple steps to prepare for emergencies – at home, at school and in the community.*
- *Measles, diarrhoea, pneumonia, malaria, malnutrition and neonatal complications are major causes of child deaths, particularly during emergencies.*
- *An epidemic (or outbreak) of disease can cause an emergency because of the severity of the disease or responses to it. In the case of pandemic influenza and other diseases spread by close personal contact, those who are ill should be kept separated from others.*
- *Mothers, even malnourished mothers, can still breastfeed even under the stressful conditions of emergencies.*
- *Children have the right to be protected from violence in emergencies. Governments, civil society, international organizations, communities and families have the responsibility to protect them.*
- *It is generally preferable for children to be cared for by their parents or other usual caregivers because it makes children feel more secure. If separation occurs, every effort should be made to reunite the child with his or her family, if it is in the child's best interest.*
- *The disruption and stress caused by disasters and armed conflict can frighten and anger children.*

When such events occur, children need special attention and extra affection. They should be kept as safe as possible and supported in resuming normal activities. Children can be given age-appropriate opportunities to participate in the responses to and decisions regarding the emergency situation.

- *Children have the right to education, even during emergencies. Having children attend a safe, child-friendly school helps to reinforce their sense of normalcy and start the process of healing.*
- *Landmines and unexploded devices are extremely dangerous. They can explode and kill or disable many people if touched, stepped on or disturbed in any way. Children and their families should stay only in areas that have been declared safe and avoid unknown objects.*

C.14 Roles for Field workers: To Support Services and Practices that Contribute to Preventing Stunting during the 1st 1000 MCDs:

Key:

Deliver: Primary service provision

Promote: Providing support or encouragement to activities that are not the primary responsibility of that particular sector.

Reinforce: Providing support to strengthen implementation of the intervention which is primary responsibility of another sector

Lead: Taking leadership role to ensure intervention is undertaken

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Interventions and services that are needed throughout the 1st 1000 Most Critical Days								
	MAL Staff	MoH Staff	MLGH Staff	MCH	MCDMCH Staff & Volunteers ComDev	SocAssist	MESVTEE Staff	NFNC Roles
Use Only Iodized Salt to Protect Normal Brain Development of Foetus and Protect Mother and Child from Iodine Deficiency Disease	<i>Lead</i>	<i>Reinforce</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs
Interventions and services that are needed throughout the 1st 1000 Most Critical Days

	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff	NFNC Roles
				MCH	ComDev	SocAssist		
Assure Careful Hygiene of Pregnant Woman, Breastfeeding Mother and Young Child	<i>Lead</i>	<i>Reinforce</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	
Adequate and Careful Sanitation (Special care with Infant and Young Child Faeces)	<i>Promote Guide</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>TA Research</i>
Obtain and Use an Insecticide Treated Bednet (for Pregnant Woman and Child)	<i>Promote</i>		<i>Promote</i>	<i>Distribute</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Interventions and services that are needed throughout the 1st 1000 Most Critical Days								
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff	NFNC Roles
				MCH	ComDev	SocAssist		
Drink Safe Water	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	TA
Use Micronutrient Fortified Staples (if available)	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	
Promote and Assure Appropriate Use of Community Development Programmes and Social Assistance Services	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>		<i>Promote</i>	<i>Lead</i>
Promote and Provide Family Planning Services	<i>Reinforce</i>	<i>Lead</i>	<i>Reinforce</i>	<i>Provide Service</i>	<i>Lead</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Reinforce</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Interventions and services that are needed throughout the 1st 1000 Most Critical Days							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Pre-Pregnancy Nutrition (including adequate micronutrients)	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Good Nutrition during Pregnancy: Extra Meal and Diverse Diet	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Use Iron and Folic Acid Supplements	<i>Promote</i>	<i>Guide</i>	<i>Promote</i>	<i>Distribute</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Use Focused Antenatal Care Services	<i>Promote</i>	<i>Guide</i>	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Tetanus Toxoid Vaccination during Pregnancy (Protects against Neonatal Tetanus)	<i>Promote</i>	<i>Guide</i>	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Promote Preparations for Exclusive Breastfeeding	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Interventions and services that are needed throughout the 1st 1000 Most Critical Days							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Promote and Guide toward Improved Household Food Security (Nutritious Gardening, Small Livestock, Home Food Processing, Food Preservation, Safe Food Storage)	<i>Lead</i>	<i>Promote</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Deliver</i>	<i>Deliver</i>	<i>Reinforce</i>
Assure Careful Hygiene of Pregnant Woman, Breastfeeding Mother and Young Child	<i>Promote</i>	<i>Promote</i>	<i>Deliver</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Adequate and Careful Sanitation (Special care with Infant and Young Child Faeces)	<i>Lead</i>	<i>Guide, Reinforce</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Obtain and Use an Insecticide Treated Bednet (for Pregnant Woman and Child)	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Important Services and Key Practices During Pregnancy							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Mothers take Precautions to Only Drink Safe Water	<i>Promote Guide</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Use Micronutrient Fortified Staples (if available)	<i>Promote</i>	<i>Enforce</i>	<i>Enforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Promote and Assure Appropriate Use of Community Development Programmes and Social Assistance Services	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>
Promote and Provide Family Planning Services	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Use Only Iodized Salt to Protect Against Iodine Deficiency	<i>Promote</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Important Services and Key Practices for Safe Birth and with children 0-6 months of Age							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Safe Birth with Trained Attendants	<i>Promote Guide</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Practice Exclusive Breastfeeding	<i>Promote</i>	<i>Enforce</i>	<i>Enforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Register Birth	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>
Begin Child Vaccinations	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Provide Careful and Correct Feeding for the Sick Child	<i>Promote</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>
Drink Safe Water	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Growth Monitoring and Promotion	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Assure Appropriate Use of Community Development Programmes and Social Assistance Services	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Deliver</i>	<i>Deliver</i>	<i>Promote</i>
Promote and Provide Family Services	<i>Reinforce</i>	<i>Reinforce</i>	<i>Reinforce Planning</i>	<i>Provide service</i>	<i>Reinforce</i>	<i>Reinforce</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Important Services and Key Practices for Safe Birth and with children 0-6 months of Age							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Participate in Child Health Weeks	<i>Promote & Participate</i>	<i>Provide service</i>	<i>Promote & Participate</i>	<i>Provide service</i>	<i>Lead</i>	<i>Promote & Participate</i>	<i>Promote & Participate</i>
Promote and Guide toward [Improved] Household Food Security (Nutritious Gardening, Small Livestock, Home Food Processing, Food Preservation, Safe Food Storage)	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Assure Careful Hygiene & I Sanitation (Special care with Infant and Young Child Faeces)	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Adequate and Careful Sanitation (Special care with Infant and Young Child Faeces)	<i>Promote Guide</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Obtain and Use an Insecticide Treated Bed net (for Pregnant Woman and Child)	<i>Promote</i>		<i>Promote</i>	<i>Distribute</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Drink Safe Water	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Use Micronutrient Fortified Staples (if available)	<i>Promote</i>	<i>Deliver</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Assure Appropriate Use of Community Development Programmes and Social Assistance Services	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Lead</i>	<i>Lead</i>	<i>Promote</i>
Promote and Provide Family Planning Services	<i>Reinforce</i>	<i>Lead</i>	<i>Reinforce</i>	<i>Provide service</i>	<i>Lead</i>	<i>Reinforce</i>	<i>Reinforce</i>
Use Only Iodized Salt to Protect Normal Brain Development of Foetus and Protect Mother and Child from Iodine Deficiency Disease	<i>Promote Guide</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote Guide</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>

Field Workers' Roles Supporting Services & Practices Contributing to Preventing Stunting in 1st 1000 MCDs Important Services and Key Practices for Families with Children 7-24 months of Age							
	MAL Staff	MoH Staff	MLGH Staff	MCD&MCH Staff & Volunteers			MESVTEE Staff
				MCH	ComDev	SocAssist	
Continue to Breastfeed	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Participate Each Month in GM&P (community level)	<i>Reinforce</i>	<i>Guide</i>	<i>Reinforce</i>	<i>Provide service</i>	<i>Reinforce</i>	<i>Reinforce</i>	<i>Promote</i>
Begin and Continue Healthy and Nutritious Complementary Feeding	<i>Reinforce</i>	<i>Guide</i>	<i>Promote</i>	<i>Provide service</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Continue and Complete Child Vaccinations	<i>Promote</i>	<i>Guide</i>	<i>Promote</i>	<i>Provide service</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Provide careful and correct Feeding for the Sick Child	<i>Promote</i>	<i>Guide</i>	<i>Promote</i>	<i>Provide service</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Begin and Continue Vitamin A Supplements for Child	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Participant in Child Health Weeks	<i>Promote & participate</i>	<i>Guide</i>	<i>Promote</i>	<i>Provide service</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Deworm the young child when 12 and 24 months of age	<i>Promote</i>	<i>Guide</i>	<i>Reinforce</i>	<i>Provide Service</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>
Promote and Guide toward Improve Household Food Security (Nutritious Gardening, Small Livestock, Home Food Processing, Food Preservation, Safe Food Storage)	<i>Lead</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Provide service</i>	<i>Reinforce</i>	<i>Reinforce</i>
Assure Careful Hygiene of Pregnant Woman, Breastfeeding Mother and Young Child	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Reinforce</i>
Use Only Iodized Salt to Protect Normal Brain Development of Foetus	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>	<i>Promote</i>

Annex 1: The Essential Nutrition Action Messages

These essential nutrition messages reinforce the importance of encouraging the whole family to participate and help during the 1st 1000 MCDs. The information in these messages targets both the pregnant women and others in her family. The messages emphasise providing good nutrition and preventive health practices to protect the pregnant woman or new mother and her child. They also tell others in the family what to do to support the woman and to support and reinforce key actions, practices, and services during the 1st 1000 MCDs.

These essential nutrition messages, developed in Malawi and adapted by Zambia, reinforce the importance of encouraging the whole family to participate and help during the 1st 1000 MCDs. Zambia can use these messages to improve the nutrition and health of women and young children. Evidence has shown that these Essential Nutrition Actions effectively contribute to reducing child mortality.

The seven Essential Nutrition Actions promoted by these messages are:

1. Optimal breastfeeding
2. Complementary feeding to breastfeeding
3. Feeding of the sick child
4. Women's nutrition
5. Control of vitamin A deficiency
6. Control of anaemia
7. Control of iodine deficiency disorders

Where to Use the Essential Nutrition Action Messages

The Essential Nutrition Action Messages can be given at any point where a Field Worker from any Ministry or NGO comes into contact with women who are having children and their families. These are important action messages about nutrition for the pregnant women, mothers of young children and for their families. They cover nutrition and other related services and practices. These messages should be given to promote and reinforce good nutrition and preventive health. Health care workers should be sure a woman and her family receive these Essential Nutrition Action Messages on many occasions such as:

- *During pregnancy at antenatal care clinic*
- *During labour and delivery*
- *In postnatal wards*
- *On a mothers discharge from a health facility after delivery*
- *During postnatal check-up*
- *During family planning visits*
- *During immunisation activities at health facilities and community immunisation*
- *During growth monitoring and promotion bat the clinic and in the community*
- *When the child is sick/IMCI*
- *CTC, standalone nutrition rehabilitation unit, supplementary feeding centres.*

The messages can and should also be disseminated and used by Fieldworkers from other sectors and by community leaders whenever they have an opportunity. Such opportunities may include:

- *Agriculture Field Days,*
- *Village or Community shows,*
- *Community meetings such as VDC meetings,*
- *Community functions and training sessions for service providers and communities.*
- *These Essential Nutrition Action Messages can further be disseminated through various media channels including community radio, posters, television and through schools.*

The Essential Nutrition Action Messages promote simple doable actions that facilitate the adoption of recommended practices by pregnant women and new mothers and their families. The actions promoted also improve demand and coverage of services that are vital to the good nutrition of women and young children.

Messages for promoting nutrition among women

These messages should be given to the mother, spouse, family members, communities through various contact points such as antenatal clinic, labour and delivery, postnatal ward, on discharge, postnatal checkup, under-five clinic, family clinic, outreach clinic, Out Patient Departments, community education, household and village visits, maternal and child health campaigns, food distribution points, village shows, Agriculture shows and other community functions.

Key Messages

- 1. Mother:** Eat a variety of foods from each food group every day for the baby to get more in total and a variety of nutrients.
 - *Eat a variety of foods from each food groups such as meat, milk, eggs, fruits, vegetables, legumes, avocado pear, and staples (nshima, cassava, sorghum, millet rice) for the child to grow well and your wellbeing.*
 - *Eat foods rich in vitamin A, such as meat, yellow fruits (mango, pawpaw, pumpkin),*

and vegetables (rape, pumpkin leaves, sweet potato leaves, amaranthus, black jack), fish to strengthen the body's ability to fight infections and to prevent night blindness

- *Vitamin A from plant sources needs fat to work well in the body. Therefore, eat fruits rich in vitamin A such as pawpaw, mangoes, and pumpkin with a meal that contains some fats. Also, prepare vegetables rich in vitamin A such as carrots, green leafy vegetables with cooking oil or flour from groundnuts, soya, or pumpkin seeds to help the body to effectively use vitamin A.*

2. Pregnant woman: Husband and other family members: Ensure that the pregnant woman has one additional meal every day for proper physical and mental growth of the foetus and to maintain her strength and wellbeing.

- *A pregnant woman needs more nutrients for proper growth of the child and for her to be strong and remain healthy.*
- *Pregnant women need to eat a variety of foods from the six food groups every day.*
- *Eat foods from animals (meat, milk, eggs, etc.), plus fruits (guava, oranges, bananas, masuku, masau, mabuyu) and vegetables (pumpkin leaves, sweet potato leaves, amaranthus) to get more vitamins and minerals. Pregnant women should eat more food than usual rather than decrease their intake.*
- *Eat one additional meal made from a variety of*

foods in addition to the usual 3 meals a day.

3. Pregnant women: Take iron/folic tables every day to have adequate blood in your body throughout pregnancy.

- *Taking iron/folic tablets every day for at least six months during pregnancy will help to prevent anaemia, and it will also help the baby to grow well.*
- *Eat iron rich foods such as liver, red meat, and green leafy vegetables*
- *Iron that is found in plant sources need vitamin C to work well. Therefore eat vitamin C rich foods such as guava, oranges, lemon, baobab fruit, raw tomatoes, masuku, masau, with a meal to help the body to use the iron properly.*

4. Pregnant woman, husband and family members: Make sure the woman who is pregnant receives and takes iron/folate tablets to maintain her strength during the pregnancy.

- *Remind your wife to receive iron/folate tablets every antenatal clinic for over a period of six months.*
- *Ask your wife to take her iron/folic tablets every day for at least six months during the pregnancy.*
- *Pregnant women have increased needs for iron.*
- *Iron/folate tablets are important to prevent anaemia in a pregnant woman and will help to keep her and the new baby healthy.*
- *Liver, red meat, green leafy vegetables are also*

good sources of iron for pregnant women.

- *Encourage your wife to take vitamin C rich food such as guava, mango, raw tomatoes, orange, masuku with a meal to help the body to use iron from plants.*
- *Vitamin A is very important for the good health and strength of the baby.*
- *Vitamin A helps to fight against infections and gives proper eyesight.*

5. Mother who is breastfeeding: Take a variety of foods from various food groups with two extra meals every day to recover from pregnancy, maintain lactation, proper growth, and development of the child and for your strength and the health of the baby

- *Breastfeeding women should eat a wide variety of foods, from the various food groups.*
- *Should also eat more animal products (meat, milk, eggs, Insects [caterpillar, grasshoppers, and ants]), fruits, and vegetables.*
- *Ripe pawpaw, guava, mango, orange, carrot, and pumpkin are especially good for the mother.*
- *Eat five times (breakfast, mid-morning meal, lunch, mid-afternoon meal, and supper) a day to meet the increased demand for energy and other nutrients. All meals should be made from a variety of foods.*

6. Woman, Husband, and family members: Ensure that the woman who is breastfeeding has two extra meals a day to recover from pregnancy, maintain her health and the health of the baby.

- *Breastfeeding women should eat a wide variety of foods from the various food groups,*
- *They should eat foods from animals or their products (meat, milk, eggs, insects, etc.), fruits, vegetables every day.*
- *Ripe pawpaw, guava, baobab fruit, mango, orange, carrot, and pumpkin are especially good for the mother.*

- 7. All family members:** Sleep under insecticide treated net (ITN), especially pregnant women and children, to prevent getting malaria.
- *Malaria causes anaemia that will make members of your family unwell.*
 - *Family members with fever need to be taken to a health facility for immediate treatment.*

Key Messages on Optimal Breastfeeding from 0 to 6 months

- 1. Mother:** Put your baby on the breast immediately after birth, within 30 minutes even before the placenta is expelled, to stimulate your breast milk production.
- *Initiating breastfeeding within 30 minutes of birth will help to expel the placenta and reduce post-partum bleeding.*
 - *It facilitates early establishment of breastfeeding.*
 - *It also ensures that the baby gets colostrum.*
 - *Artificial feeds (such as glucose water, sugar*

water, water, formula milk, gripe water, freezes, flour mixed with water are not necessary and may interfere with establishing good breastfeeding practices during the first days of the baby's life. Early introduction of these fluids and foods to the child before six months increase the baby's susceptibility to diseases such as diarrhoea.

- 2. Mother:** Give the first breast milk which is made especially for the new-born as it will protect your baby from illness.
 - *This first milk (colostrum) will help to expel your baby's first dark stool to prevent jaundice.*
 - *Colostrum protects your new baby from various diseases. It is called first immunisation.*
 - *It also contains nutrients in adequate amounts and in a form that the child can easily digest and absorb.*

- 3. Mother:** Feed your baby only breast milk for the first six months of life without giving any other foods or fluids not even water.
 - *Feeding the baby only breast milk provides the best nourishment possible for baby and will protect her/him from diseases such as diarrhoea and respiratory infections (pneumonia).*
 - *Giving the baby water or other fluids and foods may make your baby sick with diarrhoea.*
 - *If the baby takes other foods, water, or other fluids, it sucks less on the breast leading to*

poor growth. This may also lead to low milk production by the mother. Generally, the more the child breastfeeds and empties the breasts, the more milk is produced.

- *Breast milk will satisfy all your baby's thirst for the first six months even in very hot weather.*

4. Mother: Breastfeed your baby on demand, at least 8-12 times day and night, to produce enough milk for your baby to grow healthy.

- *Frequent breastfeeding helps the milk to flow.*
- *It also facilitates production of more milk so that the mother has enough milk to feed the child.*
- *Increases bonding between mother and child.*
- *Always ensure proper positioning and attachment of the baby on the breast so it gets adequate breast milk and to avoid breast problems such as sore and cracked nipples.*
- *Advise mothers with nipple and breast problems to seek immediate care from a Health Worker.*

5. Mother: Feed your baby on one breast first until it is empty before switching to the second for your baby to get both the fore and hindmilk

- *Foremilk quenches thirst because it is more watery.*
- *Hindmilk is richer and satisfies baby's hunger so that it will not cry as much.*
- *Hindmilk contains a lot of fat for provision of energy.*

6. Husband: Ensure that your wife who is breastfeeding has enough nutritious food to maintain her health and the health of the baby.

- *To maintain their health, breastfeeding women need to eat a wide variety of foods from the different food groups*
 - o *Local animal foods (insects (caterpillars, grasshoppers, ants), meat, mice, milk, eggs, etc.).*
 - o *Legumes (beans, peas, cowpeas, groundnuts, soya).*
 - o *Fruits and vegetables.*
 - o *Staples like maize, cassava, sorghum millet,*
 - o *Foods containing fats such as avocado pear, groundnut or soya flour, flour from pumpkin seeds, cooking oil.*
- *Ripe pawpaw, orange, carrot, pumpkin, mango, and liver are especially good for the mothers because they provide more vitamin A.*
- *Should take lots of fluids like fresh fruit juices and water.*
- *She should have at least two additional meals containing a variety of foods every day.*

7. Mother: During illness, increase the frequency of breastfeeding for your baby to recover faster.

- *Continue to breastfeed during diarrhoea, even increasing the frequency, to replace the lost fluids.*
- *Breastfeeding more during illness will help your baby to fight the sickness and reduce weight loss.*

It will help him to recover faster.

- *Breastfeeding also provides comfort to a sick baby.*
- *Sick mothers can continue to breastfeed their baby. They can express if failing to breastfeed.*

8. Mother: After each illness, increase the frequency of breastfeeding for the baby to regain health and weight.

- *Each time a baby is sick, s/he is likely to lose weight so it is important to breastfeed as often as possible.*
- *Your breast milk is the safest and most important food you can offer your baby to regain its health and weight.*

9. All family members: Sleep under an insecticide treated net (ITN), especially pregnant women and children, to prevent getting malaria.

- *Malaria causes anaemia that will make members of your family unwell and very tired.*
- *Family members with fever need to be taken to a health facility for immediate treatment.*
- *Ensure that the mosquito nets are retreated every six months.*

Key Messages on complementary feeding for children 6 to 24 months

1. Mother and Father: Introduce complementary foods at six months of age, such as soft porridge 2-3 times a

day, for proper growth, development and wellbeing.

- *After six months, the child is growing faster and is more active, hence breast milk alone is not adequate to meet the child's nutritional requirements. The child is also ready to eat, digest, and utilise other foods and fluids since the digestive system is more developed.*
- *At 6 months, mother continues to breastfeed the child on demand until the child is 2 years and beyond. In addition the child should be given other foods and fluids such as porridge to meet his/her increased nutrition requirements.*
- *The porridge should be made from a variety of foods from the various food groups.*
- *The consistency of the porridge should be thick enough to be fed by cup.*
- *Thicken the porridge as the child grows older, making sure that it is still able to easily swallow without choking.*
- *Thin watery porridge is not good for your child as it does not provide adequate nutrients s/he needs to grow strong and healthy.*
- *When possible use milk instead of water to prepare the porridge.*
- *Foods given to the child must be stored in hygienic conditions to avoid contamination that may lead to diseases such as diarrhoea.*
- *The child should be assisted and encouraged to eat more.*
- *Common foods found in different regions that can be used to feed children 6 to 12 months of age*

include:

- *Porridge enriched with vegetable oil or margarine, sugar, mashed fruit and vegetable.*
- *Porridge from maize, millet, sorghum, cassava or rice enriched with soya or groundnut flour, milk, eggs, mashed beans, avocado pear or vegetable oil, mashed vegetable and fruit or powdered dry fish or pounded meat*

2. Mother: Continue to breastfeed your child on demand, at least 8 to 12 times, day and night until two years and beyond to maintain growth, development, and general wellbeing.

- *During the first and second year, breast milk is still an important source of nutrients for your child.*

3. Mother and Father: Enrich your child's porridge with at least 3 to 4 different types of foods at each meal (such as soya flour, groundnut flour, vegetable oil, butter, eggs, milk, fish, liver, meat, pumpkin seed flour, vegetables and fruits) for him/her to grow and get strong.

- *From 6 months onwards, feed your child a variety of foods and fluids enriched with at least 3-4 different foods at each meal, in addition to breast milk. Feed different foods each time.*
- *Mash and soften the foods so that the child can easily chew and swallow without choking.*
- *Some form of milk is important during the first two years of life. Therefore it should be given to*

the child in addition to the other foods.

- *Animal foods (meat, liver, fish, insects, mice and eggs) are especially good for your child and will keep him/her healthy and strong.*
- *Yellow fruits (pawpaw, mango) and vegetables (carrots) are good sources of vitamin A. Eat them with a meal or food rich in fat to facilitate absorption of vitamin A.*
- *Dark green leafy vegetables (cassava, pumpkin leaves, sweet potato leaves) and legumes such as beans, groundnuts contain important nutrients such as iron for child's wellbeing. Give these foods with foods rich in vitamin C to facilitate absorption of the iron.*

4. Mother and Father: From 6 to 12 months of age, in addition to the 2-3 servings of enriched porridge, also feed your child other nutritious foods (snacks) at least twice each day to ensure proper growth development and wellbeing.

- *Children have small stomachs and can only eat small amounts at each meal so it is important to feed them more frequently throughout the day.*
- *By 8 months, the child should be able to begin eating finger foods such as pieces of ripe mango, pawpaw, avocado, banana, other fruits, fritters, scone, and boiled yellow sweet potato.*
- *Feed these finger foods as snacks at least twice a day.*
- *Foods given to the child must be stored in hygienic conditions to avoid contamination that*

may lead to diseases such as diarrhoea.

5. Mother and Father: From 12 to 24 months of age feed your child at least 3-5 times a day using family foods. In addition, give the child snacks at least twice each day to ensure proper growth development and wellbeing.

- *It is very important that the family's meals are made from a combination of variety of foods from the various food groups every day.*
- *Other nutritious foods can be given as many times as possible each day*

6. Mother and Father: As the child grows older, feed them more food at each meal.

- *The following are examples of different foods and their amounts that can be fed to young children. Change these recipes each day using a variety of different foods remembering to encourage your child to eat more at each meal as they get older:*

Each day a 6 to 8 month old child can eat:

- *Children 6-8 months can eat 2 full standard tea cups of cooked soft porridge enriched with 1 teaspoon of oil, 1 tablespoon of groundnut/soya/bean/cowpea/pigeon pea flour given 2-3 times a day plus 1 tea cup of milk to drink or used to cook the porridge, plus 3 teaspoons mashed mango or pawpaw or fruit juice by the end of the day. (Note: one standard tea cup = 150 ml).*

Each day a 9 to 11 month old child can eat:

- *Children 9-11 months can eat 3 full standard cups of porridge enriched with 2 teaspoons of oil, 3 mashed leaves of rape or spinach or 1 teaspoon of groundnut/soya/bean/cowpea/pigeon pea flour, 1 egg or 1 standard tea cup of milk, half ripe mango or pawpaw or fruit juice, given 3-5 times by the end of the day. The child can also eat a piece of yellow sweet potato enriched with oil or groundnut flour as a snack in between the meals. At 12 months, give the child family foods at least 3 times a day with nutritious snacks given twice in between meals such as:*
 - *Yellow sweet potato*
 - *Mashed pumpkin*
 - *Banana*
 - *Pawpaw*
 - *Tangerine*
 - *Mangoes*

Each day a 12 to 24 month old child can eat:

- *4 full standard tea cups of porridge made with: 2 teaspoons oil, 2 tablespoons groundnut flour, 1 small onion, 1 potato and 3 leaves of rape [Feed child this amount over 3-4 meals during the day] and a snack in between the meals.*
- *2 standard tea cups of milk (given to the child to drink or used to cook porridge with instead of water) and - mashed pawpaw with the meal or as snacks and*
- *1 avocado as snacks*

- *Iodized salt to cook the food*

7. Mother: Be patient and actively encourage your child to eat all his/her food.

- *At first children may need time to get used to eating foods other than breast milk, so have patience and take enough time to feed them, even using play to help them eat. Make the time for eating special to the child and be creative.*
- *Use a separate plate to feed the child to make sure s/he eats all the food given.*
- *Forced feeding will discourage children and young children from eating.*
- *As they are too little to feed themselves, children need to be fed directly to make sure they eat all the food given to them.*
- *Even when older, young children should be supervised during mealtime to make sure they eat all the food put on their plate.*

8. Mother and Father: During illness, increase the frequency of breastfeeding and offer additional meal to your child to help him/her recover faster.

- *Fluid and food (nutrients) requirements are higher during illness.*
- *Patently encourage your sick child to eat as his/her appetite may be decreased.*
- *It is easier for a sick child to eat small frequent meals, so feed the child foods s/he likes in small quantities throughout the day.*
- *It is important to continue breastfeeding and*

giving complementary foods to your child during illness to maintain his/her strength and reduce the weight loss.

- 9. Mother and Father:** When your child has recovered from an illness, give him/her one additional meal of solid nutritious food each day during the two weeks that follow to help him/her recover quickly.
- *A child who has been sick needs extra food and should be breastfed more frequently to regain the strength and weight lost during the illness.*
 - *Take enough time to actively encourage your child to eat this extra food as s/he may not appear hungry due to the illness.*
- 10. Mother and Father:** Feed your child using a clean cup, never use a bottle as this may cause your child to get diarrhoea.
- *Nutritious porridge for the child should be thick enough to be fed by cup.*
 - *Do not use bottles for feeding the child because they are very difficult to keep clean and can make your child sick with diarrhoea.*
 - *Cups are easy to keep clean and cheaper to buy than a bottle.*
- 11. Mother and all family members:** Wash your hands with soap or ash using clean safe running water before preparing food, eating, and feeding young children to avoid diarrhoea.
- *Touching food with unclean hands can cause diarrhoea.*

- *Utensils for feeding the child should also be clean.*
- *Foods given to the child must be stored in hygienic conditions to avoid diarrhoea and other illness.*

12. Mother and Father: When your child is 6 months old, make sure s/he receives vitamin A supplements every six months

- *Ask a Health Worker to give vitamin A supplements every six months to your child between 6 to 59 months of age.*
- *Vitamin A is important for your child's eyesight and will help your child prevent/fight illnesses.*
- *A child who has vitamin A Deficiency is more likely to have lowered immunity and increased frequency and severity of infectious diseases.*
- *Caregiver should make sure to bring his/her child to growth monitoring clinics regularly and Child Health Days for vitamin A supplementation.*

13. Mother and Father: Feed your child foods rich in vitamin A such as yellow fruits, dark green leafy vegetables and animal-sources foods (liver, milk).

- *Yellow fruits, dark green leafy vegetables and animal-sources foods (liver, milk) are good sources of vitamin A and other nutrients that will help the child grow and develop properly.*
- *A child should eat these foods every day.*

14. Mother and Father: Deworm the child every six month from one year up to five years of age.

- *Deworming helps to eliminate intestinal parasites*

that may cause young children to become anaemic.

- 15. All family members:** Sleep under an insecticide treated net (ITN) every day to prevent malaria.
- *Malaria causes anaemia. In pregnant women anaemia can lead to poor pregnancy outcomes such as stillbirth, abortion, impaired brain development, and miscarriages. In children it causes retardation of physical and mental growth, general body weakness, and tiredness. Therefore pregnant women, lactating mothers, and children should sleep under insecticide treated net.*
 - *Family members with fever need to be taken to a health facility for immediate treatment.*
- 16. Mother and Father:** Always use iodized salt when preparing family foods.
- *Iodine is needed for child brain development during pregnancy. If a woman has iodine deficiency during pregnancy she is more likely to give birth to a child with mental impairment. In severe cases such children may be cretins.*
 - *Iodized salt also helps to prevent the child and the entire family from developing goitre.*

Key Messages on Feeding a Child during and after Illness

Children Less Than 6 Months (after illness)

- 1. Mother and Father:** During illness, increase the frequency of breastfeeding for your child to recover faster.
 - *Continue to breastfeed even if the child has diarrhoea; increase the frequency, to replace the fluids lost.*
 - *Breastfeeding more during illness will help your child to fight the sickness and not lose weight.*
 - *Breastfeeding also provides comfort to a sick child.*
 - *If the mother is sick she should continue to breastfeed their child unless medically indicated.*
- 2. Mother:** After each illness increase the frequency of breastfeeding for the child to regain health and weight.
 - *Each time a child is sick, s/he will lose weight so it is important to breastfeed as often as possible.*
 - *Your breast milk is the safest and most important food you can offer your child to regain his/her health and weight.*

Children 6 to 24 Months (after illness)

- 3. Mother and Father:** During illness, increase the frequency of breastfeeding and offer additional foods and fluids to your child to help him/her recover faster.

- *The child requires more foods and fluids during illness.*
- *Take time to patiently encourage your sick child to eat as his/her appetite may be decreased because of the illness.*
- *It is easier for a sick child to eat small frequent meals, so feed the child foods and fluids s/he likes in small quantities throughout the day.*
- *It is important to continue breastfeeding and feeding complementary foods to your child during illness to maintain his/her strength and reduce the weight loss.*

4. Mother and Father: When your child has recovered from an illness, give him/her one additional meal of solid food each day during the two weeks that follow to help child recover quickly. Mother should continue to breastfeed more frequently.

Summary of Feeding Recommendations to Health Workers in Zambia for infants and young children based on HIV-status of their mother

- *If Mother's HIV status is unknown*
- *Promote HIV testing and counselling (HTC).*
- *Promote breastfeeding.*
- *Help the mother to breastfeed as safely as possible following appropriate lactation management skills such as:*
 - o *Correct positioning and attachment.*
 - o *Exclusive breastfeeding.*
 - o *Prevention and early treatment of breast*

conditions.

- o Counsel the mother on how to avoid exposure to HIV among other things by having protected sex all the time.*

If HIV negative mother

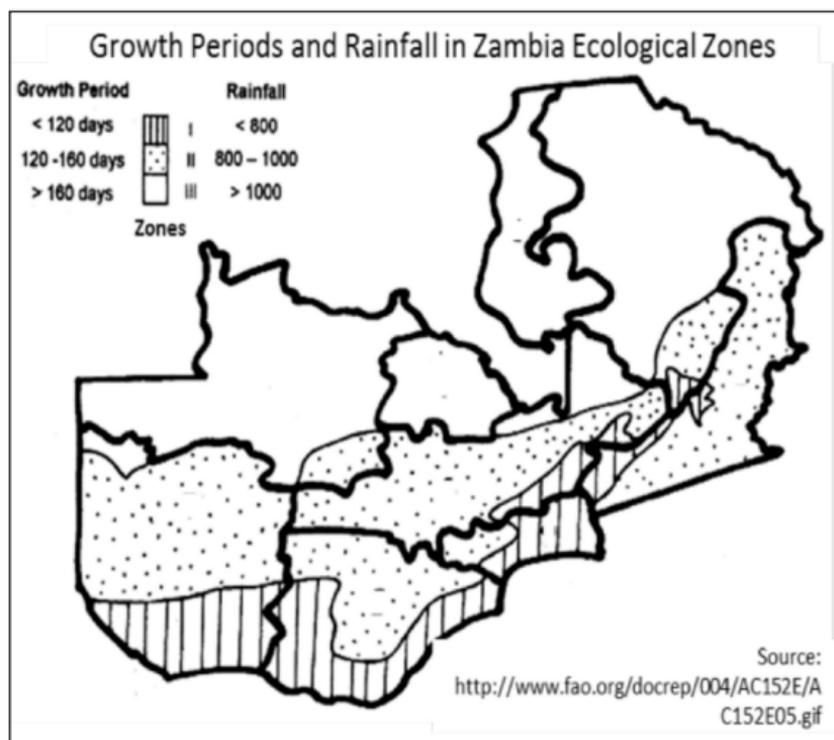
- Promote breastfeeding.*
- Help the mother to successfully breastfeed by following appropriate lactation management practices and skills such as:*
 - o Exclusive breastfeeding.*
 - o Breastfeeding on demand.*
 - o Correct positioning and attachment.*
 - o Prevention and early treatment of breast conditions.*
- Counsel the mother on how to avoid exposure to HIV among other things by having protected sex all the time.*

HIV-infected mother who is considering her feeding options

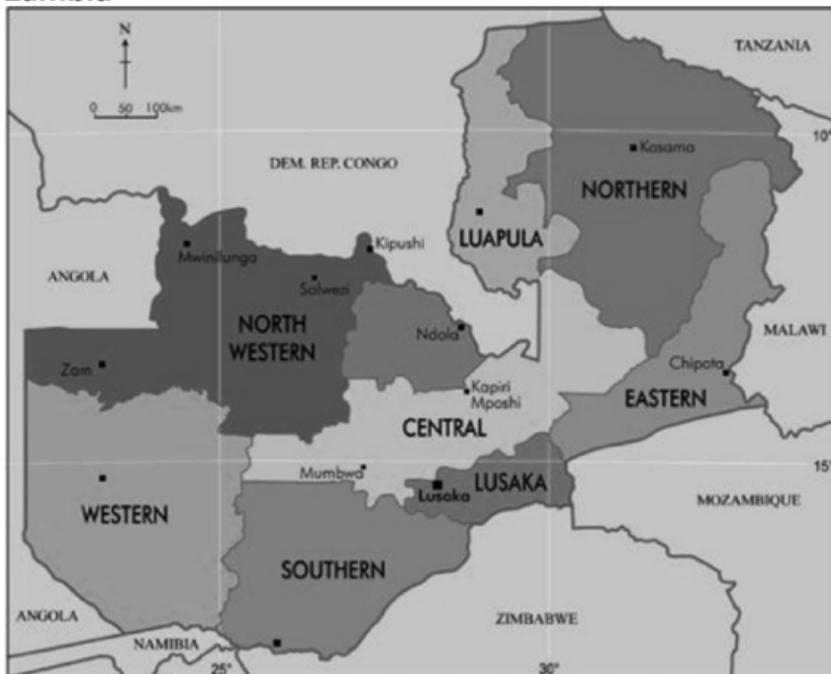
- Refer to health facility*

Annex 2: Maps

Crop Growth Periods and Rainfall - Zambia Ecological Zones



Zambia



Annex 3: District to Community Level: Government Organizational Charts

Ministry of Health Organizational Charts: Community to District Levels (January 2013)

Ministry of Agriculture and Livestock Organizational Charts: Community to District Levels (January 2013)

Ministry of Community Development, Mother and Child Health, Organizational Charts: Community to District Levels (January 2013)

Ministry of Local Government Organizational Charts: Community to District Levels (January 2013)

Annex 4: How to Obtain, Replace, or Order Copies of Field Workers' Reference Guide for 1st 1000 MCDs

This Zambia Field Workers' Reference Guide for 1st 1000 Most Critical Days to Prevent Child Stunting is available from the National Food and Nutrition Commission, Lusaka, Zambia.

The first edition of the FWRG was published in 2014 and recognized Field workers at community level associated with the Ministry of Health, the Ministry of Agriculture and Livestock, the Ministry of Community Development, Mother and Child Health and the Ministry of Local Government and Housing. Distribution of the FWRG is the responsibility of the Ministries.

Priority for the distribution of the initial printing of 26,000 copies was to Government community level Field workers. Resources were also sought to allow for distribution to newly graduating or recruited Field workers from these Ministries. The FWRG is intended to support their work. Efforts were made by the NFNC to post a free copy of the FWRG for 1st 1000 MCDs to Prevent Stunting to Field workers who had not received their copy from their Ministry or Training College.

To request a copy of the FWRG, Field workers from the listed Ministries can send a brief message as to why you want a copy of the FWRG and the following information to the National Food and Nutrition Commission:

- *Your name*
- *Employer*
- *Position*
- *Location of your work*
- *Cell number (if possible)*
- *Email address (if possible)*
- *Your mailing address*

Requests for copies should be by mail to:

Postal address: National Food and Nutrition Commission
Attn: FWRG 1st 1000 MCD P.O. Box 32669 Lusaka, Zambia
or by email to FWRG@nfnc.org.zw

Other persons and organizations who wish to have a copy of the FWRG should contact the NFNC by mail or email, providing the same information and stating how they plan to use the FWRG.

The retail cost of the 1st 1000 MCDs FWRG is K90 (US\$16). A lower price may be negotiated for Government Offices and Training Colleges who wish to provide the book to students and trainees.

For those with access to the internet the full FWRG is on line in the form of a printable .pdf on the website of the NFNC. The NFNC also includes updated supplementary information on key topics, a forum for FWRG users to discuss relevant topics and the publication and links to additional resources. The webpage address is www.nfnc.org.zm/1st1000MDCs/

Annex 5: Priority Interventions in The 1st 1000 Most Critical Days Programme

Priority Intervention	Pregnancy	0-6 months	6-23 months
1. Fe & folic acid supplementation	x		
2. Micronutrient powders (building on current pilots)			x
3. Multiple micronutrients (pilot first)	x		
4. Promotion of Breastfeeding (Early initiation, Exclusive Breastfeeding and continued breastfeeding)		x	x
5. Promotion of Complementary Feeding			x
6. Promotion of Diverse Diets for pregnant and lactating mothers	x	x	x
7. Zinc provision during diarrhoea			x
8. Promotion of safe water and hygiene and sanitation	x	x	x
9. Growth monitoring and promotion (facility and community)		x	x
10. Vitamin A supplementation			x
11. Deworming	x		x
12. Expanding Integrated management of acute malnutrition		x	x
13. Promotion of increased availability of diverse locally available and processed foods (with focus on women's empowerment)	x	x	x
14. Nutritional sensitive messages in GRZ programmes (FISP, FSP, NRWSP, SCT, SHN, WEP)	x	x	x

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