



welt
hunger
hilfe

For a world without hunger

Orientation Framework

Sustainable Food and Nutrition Security

Imprint

Published by:

Deutsche Welthungerhilfe e.V.
Friedrich-Ebert-Straße 1
53173 Bonn
Tel. +49 (0)228 2288-0
Fax +49 (0)228 2288-333
info@welthungerhilfe.de
www.welthungerhilfe.de

Responsible:

Ute Latzke, Senior Advisor Food and Nutrition Security, Sector Strategy,
Knowledge & Learning

Authors:

Dr. Claudia Trentmann, Ute Latzke, Ema Jülich, Constanze von Oppeln

Editing:

Proofreading and Language Revision: Priya Behrens-Shah, Leloup Translations

Picture Editorial:

Rudi Laschet

Cover Photo:

Mali, Source: Grossmann/Welthungerhilfe

Production:

Carsten Blum

Status:

Bonn, February 2015

Order Number:

460-0010

PDF Download:

www.welthungerhilfe.de/food-nutrition-security



The seal of approval of the German Institute for Social Issues (DZI) certifies the efficient and responsible handling of the funds that have been entrusted to the organisation. As a sign of this trust, Welthungerhilfe has held the seal of approval since 1992.



Welthungerhilfe has received numerous awards for its transparent reporting and the excellent quality of its information.

Table of Contents

Foreword	5
Abbreviations	6
WELTHUNGERHILFE'S STRATEGY	8
1. Staying Engaged on Sustainable Food and Nutrition Security	9
1.1 Today and Tomorrow: Where does Welthungerhilfe stand?	9
1.2 Purpose of the Orientation Framework "Sustainable Food and Nutrition Security"	12
1.3 Structure of the Orientation Framework	12
BASIC CONCEPTS	13
2. The Conceptual Framework of "Sustainable Food and Nutrition Security"	14
2.1 Facts and Figures on Food Insecurity and Malnutrition	14
2.2 Key Concepts and Terms: Food Security, Nutrition Security, the Multiple Dimensions of SFNS and Causes of Malnutrition	14
2.3 What we already Know: Evidence from Science and Practice	24
PROGRAMMING PHASE	26
In Focus: State of Welthungerhilfe's 2013 Portfolio in Food and Nutrition	26
3. Integrating Sustainable Food and Nutrition Security into Regional and Country Portfolio	28
3.1 Situation Analysis at Country, Regional and Project Level	30
3.2 Analysis of the Current Welthungerhilfe Portfolio	34
3.3 Adjustment and Programming of Country and Regional Portfolios	34
3.4 Preparation, Formulation, Planning and Monitoring of New SFNS Interventions at Project Level	36
3.5 Interpretation of Data and Measuring Success	43
IMPLEMENTATION PHASE	48
In Focus: Nutrition-specific or nutrition-sensitive Interventions?	48
4. Addressing the Immediate Causes of Malnutrition through nutrition-specific Interventions	49
4.1 Preventing Malnutrition: Providing nutritious food for Children and Pregnant and Breastfeeding Women	49
4.2 Treating Malnutrition: Rehabilitating Malnutrition through Community Approaches	52
4.3 Reducing Diseases and Malnutrition through Health Interventions	55
4.4 Emergency Nutrition: Ensuring Good Nutrition in Emergency Aid	57
IMPLEMENTATION PHASE	62
5. Addressing the Underlying Causes of Malnutrition through nutrition-sensitive Interventions	63
5.1 More Food at Household Level: Diversified Sustainable Agricultural Production for better Nutrition	63
5.1.1 Investment in Smallholder Agriculture – Potentials for Sustainability and Nutrition	64
5.1.2 Home Gardens – A Source of Nutritionally Rich Food	68
5.1.3 Promotion of Integrated Livestock and Fish Production	72
5.1.4 Post-harvest Management (Conservation, Processing and Storage)	77

Table of Contents

5.2	More Access to Nutritious and Healthy Food	79
5.2.1	Income-generation from the Agricultural and Non-agricultural Sector	79
5.2.2	Productive Infrastructure and Transport for Local Markets	82
5.2.3	Social Protection through Cash Transfer and Voucher Programmes	84
5.3.	Better Caring Capacities for Vulnerable Groups	86
5.3.1	Women's Role for Care – Women's Need for Care	86
5.3.2	Caring Practices and Infant and Young Child Feeding (IYCF)	86
5.4	Improved Water Access, Hygiene and Sanitation and Food Safety	89
5.4.1	Water Handling Measures to Preventing Diarrhoea	89
5.4.2	Better Hygiene and Healthy Environments	90
5.4.3	Adequate Food Quality and Safety	90
5.5	Empowering People and Communities through Behavioural Change	92
5.5.1	Supporting Women's Status through Education, Agriculture and Health	92
5.5.2	Designing a Communication Strategy in Nutrition and Health	93
IMPLEMENTATION PHASE		96
6.	Addressing the Basic Causes of Malnutrition: Creating an Enabling Environment for Sustainable Food and Nutrition Security	97
6.1	Focusing the Basic Causes for SFNS	97
6.2	Integrating Biodiversity, Sustainable Agriculture and Integrated Rural Development for the Protection of the Environment	99
6.3	Strengthening Civil Society through Capacity Building and Advocacy	101
6.4	Promoting a Human Rights Approach towards Nutrition Security	102
6.5	Improving Resilience of People and Systems	105
CHALLENGES & ALLIANCES		113
7.	Setting the Agenda for Achieving Sustainable Food and Nutrition Security	114
7.1	Challenges: How to Achieve Sustainable Food and Nutrition Security?	114
7.2	Initiatives, Movements and Alliances for Improving Sustainable Food and Nutrition Security	115
7.3	Specific Approaches and Instruments in Welthungerhilfe's Work	121
Annex		
Glossary		124
References		128
List of Graphics and Tables		135

Foreword

Despite significant advances over the past two decades, malnutrition still poses a major public health and development challenge. The Food and Agriculture Organization (FAO) estimates that from 1990–1992, the number of undernourished people in developing countries declined from 980 to 852 million, albeit that this figure still represents 15 per cent of the developing world's population (FAO, 2012). The latest FAO estimates indicate that progress is being made but still about 805 million people are chronically undernourished in 2012–14. Almost 80 per cent of those affected reside in rural areas – in other words, where food is produced. Most of these people live in small farming families that are unable to feed themselves adequately from what they cultivate, harvest and sell.

Welthungerhilfe considers access to adequate food as a human right, vital to achieving sustainable, long-term food and nutrition security. According to the FAO, the world produces enough food to feed its entire population. The root cause of hunger and malnutrition is therefore not directly attributable to a lack of food. Poverty, inequity, social exclusion and discrimination often undermine people's access to nutritious food, not only in low income countries but also in several economically developed countries which have an abundance of food. The proper use and utilisation of food depends on education levels and to a great extent, on the role and status of women.

Malnutrition (in all its forms) is one of the main pathways through which poverty is transmitted from one generation to the next. The still unacceptably high level of malnutrition is a result of nutrition's multi-sectorial nature and also due to chronic underinvestment, which has made breaking the vicious cycle of undernutrition very challenging. A lack of coordination at the highest levels (both nationally and internationally), as well as a lack of understanding about the complex interrelationships of malnutrition's causes, has led to poorly targeted assistance and a focus on short-term food aid.

The purpose of this Orientation Framework is to help transform Welthungerhilfe's programmes towards achieving more progress in addressing food and nutrition insecurity. Therefore, this Orientation Framework provides the necessary conceptual background and guidelines for Welthungerhilfe's staff and partners, on how to better integrate nutrition-related objectives into food security and livelihood interventions, as well as on how to increase collaboration between sectors and utilise multi-dimensional approaches for programme planning in order to maximise their nutritional impact.

This Orientation Framework provides orientation for programme countries to increase their range of proven nutrition-sensitive interventions and create an enabling environment for sustainable food and nutrition security, thereby empowering Welthungerhilfe and its partners to more effectively combat hunger and malnutrition.

We will continue to increase our efforts to produce tangible improvements for those most affected by hunger and malnutrition.

Mathias Mogge

Executive Director, Programmes
Welthungerhilfe

Abbreviations

AFC	Action contre la Faim
ASF	Animal Source Foods
BMI	Body Mass Index
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit
CBO	Community Based Organisation
CFW	Cash for Work
CFS	Committee on Food Security
CGIAR	Consultative Group of International Agricultural Research
CMAM	Community Management of Acute Malnutrition
CSI	Coping Strategy Index
DG DEVCO	Directorate General for Development and Cooperation of the EU
DFID	Department for International Development
EU	European Union
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agriculture Organization
FARN	Foyer d'apprentissage pour la Réhabilitation Nutritionnelle
FAO	Food and Agriculture Organisation
FCS	Food Consumption Score
FFW	Food for Work
FHFI	Fight Hunger First Initiative
GFFA	Global Forum of Food and Agriculture
GHI	Global Hunger Index
GIZ	Gesellschaft für Internationale Zusammenarbeit
HDDS	Household Dietary Diversity Score
HFCS	Household Food Consumption Score
IAASTAD	International Assessment of Agricultural Knowledge, Science and Technology for Development
IDDS	Individual Dietary Diversity Score
IDR	Import Dependency Ratio
IFPRI	International Food Policy Research Institute
IGA	Income generation activity
IMCI	Integrated Management of Child Illnesses
IPC	Integrated Food Security Phase Classification
IYCF	Infant and young child feeding
KAP	Knowledge, Attitude and Practice Survey
LANN	Linking Agriculture, Natural Resources Management and Nutrition
MAHFP	Months of Appropriate Household Food Provision
MAM	Moderate Acute Malnutrition
MDG	Millennium Development Goals
NLIS	Nutrition Landscape Information System
NGO	Non-Governmental Organisation
ODI	Overseas Development Institute
OECD	Organisation of Economic Cooperation and Development
OF/OR	Orientation Framework/Orientierungsrahmen
RUTF	Ready-to-use therapeutic food
SAFS	Self-Assessed Food Security
SAM	Severe Acute Malnutrition
SCN	Sub-Committee on Nutrition
SD	Standard Deviation
SDG	Sustainable Development Goals
SFNS	Sustainable Food and Nutrition Security

SLE	Seminar für Ländliche Entwicklung
SOFA	State of Food and Agriculture Report of the FAO
SOFI	State of Food Insecurity in the World Report of FAO
SSR	Self-Sufficiency Ratio
SUN	Scaling-up Nutrition
UN	United Nations
UNHCR	United Nation High Commissioner of Refugees
UNICEF	United Nations Children's Fund
USAID	United States Aid Organization
VAM	Vulnerability Analysis and Mapping
WASH	Water, Sanitation and Hygiene
WFP	World Food Program
WHI	World Hunger Index
WHO	World Health Organization

1

STAYING ENGAGED

Welthungerhilfe's Strategy on Food and Nutrition Security



Laos/Welthungerhilfe, Source: Haeberle/Welthungerhilfe



Source: Barbara Fromman/
Welthungerhilfe

Welthungerhilfe Statement:

"The need to develop this Orientation Framework became obvious in light of Welthungerhilfe's current strategy and its clear focus on nutritional achievements in food security and livelihood interventions. The multi-dimensional and complex nature of food and nutrition security requires their increased conceptual understanding in order to strengthen the focus of aid interventions towards positive impact on the nutritional situation of individuals, particularly those who are most affected by food insecurity and malnutrition".

Mathias Mogge

Executive Director, Programmes
Welthungerhilfe

1. Staying Engaged on Sustainable Food and Nutrition Security

1.1 Today and Tomorrow: Where does Welthungerhilfe stand?

The primary goal of **Welthungerhilfe's Strategy 2012–2016** is to improve sustainable food and nutrition security as part of its overall mandate to fight hunger and poverty. Malnutrition, in all its forms, is one of the main pathways through which poverty is transmitted from one generation to the next. Welthungerhilfe regards access to adequate food as a human right – vital to achieving sustainable food and nutrition security.

Sustainable Food and Nutrition Security (SFNS) is a multi-dimensional concept which includes dimensions such as the **availability** of food through agricultural production, physical and economic **access** to food, as well as adequate **use and utilisation** of available food by individuals, throughout the year (**stability**). Any dysfunction within this system can lead to malnutrition, incl. undernutrition as well as overnutrition and obesity, often combined with micronutrient deficiency (see Chapter 2). The complex interrelationships between food and nutrition security must be thoroughly understood by decision-makers, planners and field staff, if malnutrition resulting from food insecurity, inadequate nutrition or health is to be significantly reduced in the world. While the levels of obesity and overweight are also alarmingly high in many poor countries where Welthungerhilfe works, undernutrition combined with specific micronutrient deficiencies is still a major concern and, therefore, the primary focus of Welthungerhilfe's Food and Nutrition Security approach.

Over the last decades, Welthungerhilfe has developed a large and diverse portfolio in this field, addressing hunger, food insecurity and nutritional deficiencies in different population groups, at the individual, household or community and regional levels. Welthungerhilfe has also implemented humanitarian and short-term interventions to respond to acute humanitarian crises during conflicts, after shocks and following extreme weather events. However, Welthungerhilfe's main focus has always been on the long-term capacity development of people, institutions and societies, in order to reduce their vulnerability against shocks and sustain their livelihoods and environments.

Promoting sustainable food and nutrition security is not a new approach for Welthungerhilfe. It has always played a major role for the organisation. Nevertheless, most of the rural development programmes have focused on food security, emphasising agricultural production, productive infrastructure, and making more diverse food available for households, to improve household food security. However, the link to tangibly improving nutrition and effectively reducing malnutrition still remains a challenge. Other non-food related determinants of nutritional wellbeing such as health, water, sanitation and hygiene (WASH) or care, that tremendously influence nutritional status, have also not been given as much attention. There is still an unacceptably high prevalence of malnutrition in many of Welthungerhilfe's partner countries, despite economic growth and improved food availability within the countries and for households. The question of how to achieve nutrition security has once again been put under the spotlight by the international community, and also within Welthungerhilfe.

This focus goes along with the current global discussion on **Sustainable Development Goals (SDG)**. Poverty eradication, **changing unsustainable and promoting sustainable patterns of production and consumption**, and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development, as pointed out in the 2013 Open Working Group documents on the SDG debate.

Tomorrow, Welthungerhilfe's approach will be more nutrition-focused and comprehensive in terms of sustainable food and nutrition security. This will be achieved through a renewed understanding of SNFS and through the integration of nutrition-related objectives into operational planning at all levels, from headquarters to the field.

While Welthungerhilfe's work is predominantly focused in rural settings – since the majority of poor and undernourished people live in the rural areas –, urban food security complexities also require further attention. Urbanisation is increasing at a tremendous speed and poses a huge challenge for global development. As a result, Welthungerhilfe considers food and nutrition security in urban settings an emerging challenge and will directly address these, as appropriate.

In order to deepen the focus on “Sustainable Food and Nutrition Security” as THE core competence of the organisation, **Welthungerhilfe will adopt the following principles:**

1. Promoting a rights-based approach

The right to adequate food is a human right. A rights-based approach integrates the norms, standards and principles of the international human rights into the plans, policies and processes of development cooperation. This requires a change in perspective: target groups must become rights holders rather than merely the beneficiaries of aid. Building their capacities to address the root causes of food and nutrition security problems must become a central element of interventions. Additionally, Welthungerhilfe will support partner organisations and civil society to advocate and lobby for appropriate access to income and resources, market transparency, and for food quality and safety standards.

2. Bridging the link between nutrition and agriculture by implementing nutrition-sensitive programmes

Agricultural advances can provide more and better quality food, as well as income, however, this does not automatically result in improved nutrition for individuals and households. There is a missing link between improved agriculture and nutritional outcomes at household level. Bridging this gap through the promotion of nutrition-sensitive agricultural production will contribute to adequate and appropriate household food consumption and increased income for the purchase of nutritious food and health services. This may eventually support improved women's health, education and social status, as well as improving family caring capacities.

3. Promoting 'nutrition security' through behaviour change

Experience suggests that positive nutritional outcomes can only be achieved when people access more and better food, as well as change their attitudes and practices towards improved nutritional behaviour. Sound knowledge of the cultural aspects, barriers and drivers for food consumption habits, food and water handling, hygiene practices and health seeking behaviour are critical for successful nutrition programming. Better nutritional knowledge is also essential, though not in itself sufficient, for people to change their attitudes and practices to overcome malnutrition (both undernutrition and overnutrition). Motivational and impeding factors must be analysed and the individual understanding of the personal benefits of a change in behaviour is crucial. Welthungerhilfe will promote good practices and demonstrate how to use food adequately, creating active, systematic networks and a knowledge management approach for SFNS within civil society organisations, line ministries and above all, with individuals.

4. Linking the multiple dimensions of food and nutrition security with sustainability

In order to generate tangible and sustainable improvements in food and nutrition security, regional and country programmes must consider and integrate all four dimensions of SFNS (i.e. availability, access, use/utilisation and stability) and address the underlying and basic causes of malnutrition through long-term interventions. This includes an integrated approach across sectors and in close coordination with other stakeholders, organisations and institutions, including private sector where appropriate. In circumstances where social and economic shocks are frequent, short-term interventions implemented as an immediate response must strongly link to long-term outcomes.

5. Empowering women for food and nutrition security

The social status of women and their education levels are the most crucial determinants of malnutrition in children. Women are usually the main caretakers for the family, especially for young children. They play a major role in agricultural production, food processing and food preparation. Yet women themselves are often subject to malnutrition due to their physiological and social vulnerability. The Global Hunger Index 2009 showed that high rates of hunger and malnutrition tend to go hand in hand with gender inequality in areas such as economic participation, education, political empowerment and health. Evidence shows that lower levels of hunger are associated with higher literacy rates and access to education for women. Reducing gender disparities in key areas, particularly in education and health, is thus essential to reducing levels of malnutrition and hunger. Empowerment of women in regard to economic decision making is also key to improving the nutritional situation of both children and women. This is also important for the nutritional status of adolescent girls in their roles as future mothers to prevent further maternal and child malnutrition.

6. Strengthening the resilience of communities

Measures to adapt to climate change and the promotion of early warning and disaster risk reduction (DRR) strategies may also contribute to strengthening people's resilience against natural disasters such as floods, thunderstorms, landslides and others. All SFNS interventions should thus be designed to strengthen adaptation capacities and the resilience of communities.

7. Considering political processes, market conditions and private sector engagement to build up multi-stakeholder partnerships

Welthungerhilfe has long-standing collaboration experience with local partner organisations and interacts with country-based political actors, public service providers and civil society organisations. Contributing to SFNS today requires a broad understanding of policy and processes, as well as in global market trends that influence malnutrition. A multi-level approach is required to respond to changes of global food systems and changing food value chains. It is critical to go beyond rural household perceptions, by using appropriate technologies, communication strategies and investments, to achieve SFNS within the global structural transition of societies. This requires investment for access to markets, maybe also public private partnerships, as well as productive and sometimes critical relationships of Welthungerhilfe with private actors whose large roles in shaping FNS can be neglected.

1.2 Purpose of the Orientation Framework: “Sustainable Food and Nutrition Security”

The present Orientation Framework (OF) aims at contributing to Welthungerhilfe’s strategic goal to promote a better understanding of “Sustainable Food and Nutrition Security” at all levels within the organisation. The OF is designed to enhance the conceptual understanding of the complex interrelationships between different aspects of SFNS. It also provides practical guidance for the integration of these aspects into programme planning and implementation, in order to improve current and future regional and country portfolios. The document introduces the concepts, definitions and terms related to food and nutrition security, as well as a causal model of malnutrition as an analytical tool for analysis, planning and monitoring. With a description of Welthungerhilfe’s typical interventions to address the underlying and basic causes of malnutrition, a toolbox has been developed for Welthungerhilfe’s regional and country programmes, project managers and field staff, as well as partner organisations. The OF also intends to inform the interested public about Welthungerhilfe’s positions, approaches and working principles in relation to sustainable food and nutrition security.

1.3 Structure of the Orientation Framework

The first part, Chapter 1 and 2, deal with **“Welthungerhilfe’s Understanding of Key Concepts and Terms”**. Following a brief description of Welthungerhilfe’s positions on SFNS in Chapter 1, the key concepts and necessary definitions needed to understand the holistic concept of “Sustainable Food and Nutrition Security” are explained in Chapter 2.

In the second part of the OR, the **“Programming Phase”** provides programming information for decision-makers: Chapter 3 describes the systematic steps for nutrition-related programming. It also provides useful background information for analysis, planning and action.

The third part, the **“Implementation Phase”**, presents the possible options for nutrition-related interventions at different levels, following UNICEF’s causal model. Chapter 4 presents examples of nutrition-specific interventions addressing the immediate causes of malnutrition. In Chapter 5, nutrition-sensitive approaches provide examples for addressing the various underlying causes of malnutrition, whereas Chapter 6 focuses on the basic causes of malnutrition and discusses the approaches and available measures to address these.

Finally, Chapter 7 discusses the upcoming **challenges**, current **movements**, and presents Welthungerhilfe’s current **initiatives** aimed at improving SFNS in both programme and policy work within countries and internationally.

BASIC CONCEPTS

The Conceptual Framework of “Sustainable Food and Nutrition Security”

Chapter

2

STAYING ENGAGED

BASIC CONCEPTS

PROGRAMMING PHASE

IMPLEMENTATION PHASE

IMPLEMENTATION PHASE

IMPLEMENTATION PHASE

CHALLENGES & ALLIANCES

Vicious Cycle of Malnutrition

Malnutrition is the cause of about 43 per cent of child deaths and a driver of chronic diseases and low productivity, for millions of people in both poor and rich societies.

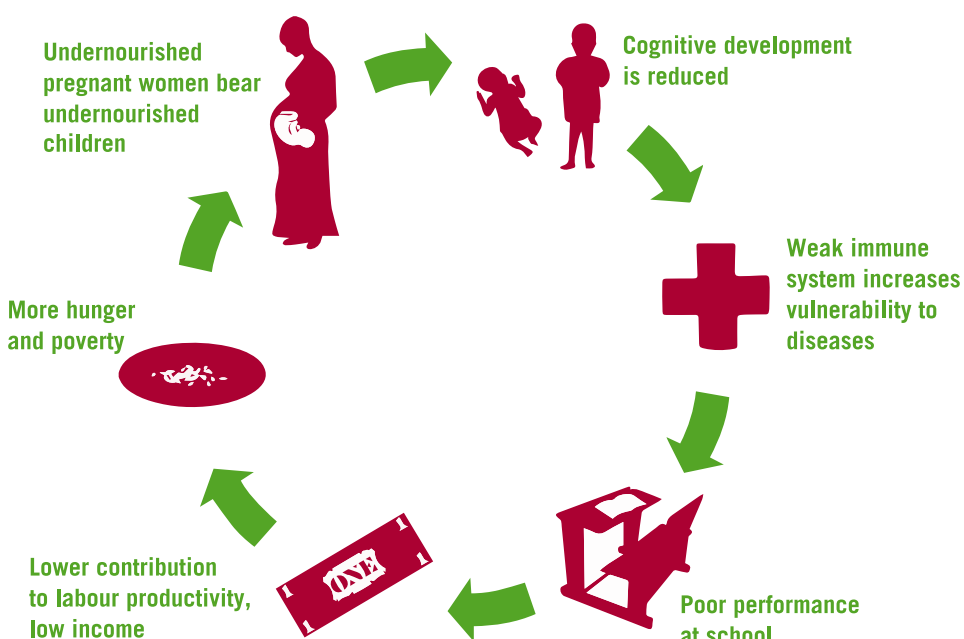


Figure 1, Source: Welthungerhilfe

Understanding the complex nature of the problem

“For effective identification of situation-specific food and nutrition security gaps and addressing them by appropriate interventions, decision makers and planners need to understand the complex nature of the problem, its manifold and interrelated causes on different levels varying from one context to another. Awareness on the holistic nature of the food and nutrition security and a certain level of technical knowledge are required to effectively address the complex systems determining the nutrition situation of our target groups beyond the narrowly defined food sector”.

Nivedita Vashneya

Country Director, Welthungerhilfe,
India



2. The Conceptual Framework of “Sustainable Food and Nutrition Security”

2.1 Facts and Figures on Food Insecurity and Malnutrition

Malnutrition affects millions of people every year, all over the world. **Based on the FAO’s State of Food Insecurity in the World report (FAO, 2013)**, the situation can be summarised as follows:

- Between 2011–2013, a total of 842 million people were estimated to be suffering from chronic hunger – regularly unable to take in enough food for an active and healthy life. This represents a decline from between 2010–2012 and a 17 per cent fall since 1990.
- Most of the world’s undernourished people, both in total numbers as well as in percentage terms, reside in South Asia, closely followed by sub-Saharan Africa and East Asia.
- Despite overall progress, marked differences persist across regions. Sub-Saharan Africa remains the region with the highest prevalence of undernourishment, having made only modest progress in recent years. West Asia shows no progress, while South Asia and North Africa show some signs of progress. Significant reductions in the prevalence of undernourishment have occurred in most countries in East and South-East Asia, as well as in Latin America.
- More than 2 billion people are deficient in micronutrients, particularly in vitamin A, iron, iodine and zinc. Many are likely to suffer from multiple micronutrient deficiencies. Micronutrient deficiencies are not often easily visible, however, they affect proper bodily function, as well as cognitive and mental development (hidden hunger).

2.2 Key Concepts and Terms: Food Security, Nutrition Security, the Multiple Dimensions of SFNS and Causes of Malnutrition

While the term **‘food security’** refers to the supply and access of food at national, community and household level, **‘nutrition security’** refers to the consumption and proper utilisation of food in the body. Secure access to an appropriate and nutritious diet can only lead to good nutrition if coupled with sufficient care and good health.

Key definitions related to “Food and Nutrition Security”

Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2006).

Food insecurity exists when people do not have adequate physical, social or economic access to food, as defined above (FAO, 2009).

Nutrition security exists when food security is combined with a sanitary environment, adequate health services and proper care and feeding practices, to ensure a healthy life for all household members (SCN, 2010; Shakir, 2006).

In the aftermath of the 2008 world food price crisis, international attention was drawn to the problem of malnutrition. New initiatives were set up in order to more effectively mainstream nutrition considerations into national and international policies, to achieve food and nutrition security for all.

After a long international debate which resulted in the development of the Global Strategic Framework for Food Security and Nutrition, FAO's Committee on Food Security reformulated the different concepts and recommended today's broadly accepted definition of "Food and Nutrition Security", as follows:

Definition "Food and Nutrition Security"

Food and nutrition security exists when all people, at all times, have physical, social and economic access to food, which is safe and consumed in sufficient quantity and quality to meet their dietary needs and food preferences, and is supported by an environment of adequate sanitation, health services and care, allowing for a healthy and active life (CFS, 2012).

The multiple dimensions of "Sustainable Food and Nutrition Security"

Four main dimensions were identified by the FAO (based on FAO's Policy in Brief, 2006):

1. **Food availability:** the availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid), storage or trade;
2. **Food access:** physical or economic access by individuals or households, to adequate resources (entitlements) for acquiring appropriate food for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command, based on the legal, political, economic, and social arrangements of the community in which they live (including traditional rights such as access to common resources);
3. **Use and utilisation of food:** (1) **use** of food refers to the household level and considers the adequate composition of diets and the preparation of healthy meals, aspects of food processing and conservation. Diet diversity, nutritional "literacy" and behaviour change, in terms of adopting appropriate dietary practices, play a major role. This dimension highlights the importance of social and non-food related aspects in food and nutrition security; (2) the biological **utilisation** of food refers to individuals. To reach a state of nutritional well-being and health, whereby all physiological needs are met, diets must be adequate – depending on individual dietary needs (lifecycle). How nutrients are utilised in the body is influenced by the health status of the individual, which depends on safe water, hygiene and sanitation, as well as sufficient health services;
4. **Stability:** the concept of stability refers to the temporary dimension of all other dimensions. To be food secure, a population, household or individual must have stable access to adequate food at all times. They must be resilient enough to withstand shocks and hazards affecting other SFNS dimensions. Some food insecurities can be acute (due to crisis and shocks), temporary and seasonal (e.g. the "lean" period before the next harvests) or chronic. They require differing approaches to overcome them.

Sustainable food and nutrition security can only be achieved when all four dimensions are fulfilled simultaneously. If this is not the case and the situation at national, household or individual level, in one or more of these dimensions, is not covered adequately, food and nutrition insecurity may eventually occur, leading to symptoms of malnutrition, especially for those who are vulnerable. However, these well-defined dimensions of the food and nutrition security concept must be viewed in a dynamic context. Food and nutrition insecurity often affects the resilience of poor people or countries during abrupt external shocks. Besides the importance of the ecological context for SFNS, the political dimensions (e.g.

social exclusion and marginalisation) also play a crucial role and should be taken into account. For this reason, a broader perspective for food and nutrition security, which includes new challenges in the world food system, is now required to effectively tackle the malnutrition problem (von Braun, 2013).

The Triple Burden of Malnutrition

The term 'malnutrition' encompasses any nutritional disorder in an individual. It describes the consequences of both under and overnutrition, as well as micronutrient deficiencies (hidden hunger). These three forms of malnutrition often occur in the same country, community or household: hunger or undernourishment as a consequence of energy and protein deficiency; hidden hunger as a consequence of specific micronutrient deficiency, and overweight; and obesity as a consequence of excessive energy intake through unbalanced diets. These phenomena are collectively referred to as the "Triple burden of malnutrition" (Pinstrup-Anderson, 2013).

Coupled with economic growth, societies now face a so-called '**nutrition transition**', a term used to describe the change in diets in developing countries: from traditional diets high in cereal and fibre, to more Western diets high in sugars, fat, and animal-sourced foods, as well as a shift from traditional diets of whole or minimally processed foods, to highly processed foods and drinks. These shifts in dietary consumption coincide with changing food systems, higher energy consumption, demographic and epidemiological changes.

It is estimated that more people now suffer from one or both of the latter two forms of malnutrition, as compared with the 852 million people who are undernourished – although there is considerable overlap between the different categories. Micronutrient malnutrition, for example, can coexist with excessive consumption of macronutrients, leading to overweight and obesity. All three forms of malnutrition impose enormous economic and social burdens on countries.

Long-term and short-term food insecurity lead to different forms of malnutrition, each with their own clinical signs. The different terminology used in publications referring to malnutrition can be confusing. The following box provides an overview of the commonly used definitions:

Commonly Used Definitions of Different Types of Malnutrition

Malnutrition is an abnormal physiological condition caused by inadequate, unbalanced or excessive consumption of macronutrients which provide dietary energy (carbohydrates, proteins and fats) and micronutrients (vitamins and minerals). They are essential for physical and cognitive development. Malnutrition includes undernutrition as well as overnutrition (overweight and obesity), often combined with micronutrient deficiency. It manifests as a result of food and nutrition insecurity and is usually measured by anthropometric indicators for children and adults (SCN, 2010; Shakir, 2006).

Hunger is usually defined as the discomfort associated with a lack of food.

Undernourishment refers to food intake that is insufficient to meet dietary energy requirements for an active and healthy life. The FAO defines 'undernourishment' as food intake below 1,800 kilocalories per day – the average minimum energy intake for survival (FAO-SOFI, 2013). Although undernourishment data are based on a calculation of national level data, they may be used as a proxy for food consumption in contexts where regional or household level data are unavailable or unreliable.

Undernutrition is the result of an inadequate intake of food – in terms of either quantity or quality –, the poor utilisation of nutrients due to infections or other illnesses, or a combination of these factors. These in turn are caused by household food insecurity, inadequate maternal health or childcare practices, or inadequate access to health services, safe water, and sanitation (WHI, 2013).

Micronutrient deficiencies ('Hidden Hunger') are specific nutritional disorders occurring when the body does not receive sufficient amounts of essential vitamins or minerals. This is due to either insufficient intake from the diet, insufficient absorption, the suboptimal utilisation of micronutrients by the body, or a combination of these. Deficiencies of different micronutrients lead to specific sub-clinical or clinical disorders, depending on their specific function in the body's metabolism.

Chronic malnutrition ('Stunting'): Stunting is generally an indicator of chronic (long-term) insufficient energy, protein or micronutrient intake, that results in a child being very short (relative to his/her age), as well as cognitive and mental impairment – although it also has many non-nutritional causes, such as frequent or chronic infection. It can be measured by anthropometric indicators (height-for-age) in comparison to international growth standards for children below five years of age.

Acute malnutrition ('Wasting'): Wasting (severe weight loss) is a symptom of recent periods of acute food insecurity at the household level, inadequate food intake, or chronic infection diseases which lead to rapid weight loss or a failure to regain weight. It is measured by anthropometric measurements (weight-for-height), predominantly in children below the age of five, but also in adults (Body Mass Index). Both forms of acute malnutrition can quickly lead to death and require immediate response. Wasting is reversible when treated adequately. "Moderate Acute Malnutrition (MAM)" refers to the classification of wasted children below the cut-off point of -2 Standard Deviations (S.D. or Z-Score), as compared with the reference population. "Severe Acute Malnutrition (SAM)", by contrast, classifies malnutrition in children below the cut-off point of -3 Standard Deviations, as compared to normal.

Global malnutrition (or underweight) describes the general global malnutrition of children under the age of five, through the weight-for-age indicator. It includes the clinical consequences of acute and chronic malnutrition. Evidence has shown that even children mildly underweight have a higher risk of death. Global malnutrition is less specific since it makes no distinction between chronic and acute malnutrition.

Maternal undernutrition: inadequate diets results in the poor nutritional status of mothers during preconception, pregnancy and during the post-natal stage. Maternal undernutrition is indicated by a low Body-Mass-Index (BMI) and symptoms of micronutrient deficiencies. It may lead to low birth weight in babies.

Low birth weight (LBW): a weight of less than 2.5kg at birth. This is often the consequence of maternal undernutrition, premature birth before 37 weeks gestation or intra-uterine growth retardation (babies born at full-term who are underweight).

Anthropometry is the science of the measurement of the human body. Anthropometric indices can be single measurements (e.g. mid-upper-arm circumference (MUAC), or combinations, such as weight and height, which measure the nutritional status of a person. The most commonly used anthropometric indices include “Height-for-Age” (Stunting), “Weight-for-Height” (Wasting), “Weight-for-Age” (Underweight), MUAC (measures only acute malnutrition (wasting) and is used for rapid assessments during emergencies), and the Body-Mass-Index (BMI: kilogramme body weight, divided by the square of body length kg/m²) as an indicator that measures underweight in adults (especially for women during pregnancy). Overnutrition in children, and under and overnutrition in adults is also measured using the Body Mass Index (BMI).

Sources: FAO, 2013; WHI, 2013; ACF, 2012; SCN, 2010; adapted by the authors

As pointed out in Chapter 1, the major concern and primary focus of Welthungerhilfe’s Food and Nutrition Security strategy, is to reduce undernutrition that is often combined with specific or general micronutrient deficiencies. However, measures such as nutrition and health education aiming at behaviour change and diversification of diets also address problems of overnutrition, caused by the nutrition transition associated with high levels of obesity and non-communicable diseases that may exist in the same societies.

Nutritionally vulnerable groups

Certain population groups are particularly susceptible to food insecurity and nutritional problems due to the following reasons:

Vulnerability due to high nutritional needs

In general terms, young children and pregnant or lactating women have higher nutritional requirements and needs – from a physiological point of view. They are therefore more prone to undernutrition and deserve special attention.

- Young children below the age of five are especially vulnerable due to their intensive physical growth and brain development.
- Infants and young children under two years of age have high nutrient needs. However, they also have a limited capacity to consume large amounts of food to meet these needs. For this reason, exclusive breastfeeding during the first six months and the subsequent introduction of appropriate complementary food is crucial for their wellbeing and survival.
- Pregnant and breastfeeding mothers have high additional nutrient needs to feed unborn and newly-born children.
- Young girls, in their role as future mothers, also require special attention: in order to break the intergenerational cycle of malnutrition, they should be well-nourished by the time they are pregnant and throughout pregnancy (see Chapter 1).

Children and women are socially more vulnerable than other groups. During situations of crop failure, droughts, loss of land, or during crisis and disasters, they are much more vulnerable when they are unprotected. For this reason, they should be specially targeted.

Vulnerability due to social marginalisation or exclusion

- Households with no/limited access to land (e.g. the urban poor, the rural landless, pastoralists and many small-scale farmers) and/or with limited access to sources of income
- Poor households who spend a large proportion of their income on food, in both rural and urban settings
- Female or child-headed households
- Socially marginalised households (e.g. due to their ethnicity, caste or occupation)
- Households with chronically ill members (HIV/AIDS and others)
- Households located in drought-prone regions or other fragile agro-climatic regions
- Displaced persons, refugees and those socially isolated, blocked or confined
- Unequal distribution of food within the household: women and children often eat last and consume less nutritious food

How malnutrition can manifest

Only objective measurements and combined indicators can define the exact nutritional status of an individual. Due to their high nutritional needs, children under five years of age are particularly vulnerable to food insecurity. This age group can quickly develop clinical symptoms that can serve as indicators for food and nutrition insecurity. These can be identified and assessed by taking specific anthropometric measurements which can then be compared with international standards on individual and public health level.

Children < 5 Years

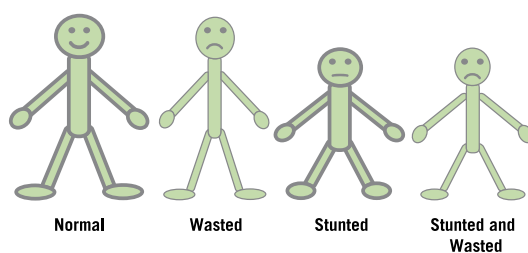


Figure 2: Children > 5 Years

If a child is wasted/underweight (i.e. thinner than normal), this may be related to acute inadequate food intake or (infectious) diseases. If a child is short for his/her age (stunted) and/or thinner AND shorter than the reference age group (underweight), severe food insecurity or health problems over a longer period are most likely the causes.

Stunting – all children are the same age



Effects of Chronic Malnutrition:
These children are the same age!

Source: Roger Parkes/Alamy

Essential vitamins and minerals have important functions in the body's metabolism. They cannot be produced by the body and therefore need to be sufficiently provided through diet. **Deficiencies of different micronutrients** lead to typical clinical signs, depending on their requirements for specific bodily functions. Measuring less severe (sub-clinical symptoms) micronutrient deficiencies (MND) is only possible through the testing of serum levels in blood samples. In severe cases they are indicated through typical clinical symptoms:

- Vitamin A deficiency can lead to night blindness, as well as total blindness.
- Iodine deficiency can lead to a visible goitre and a number of less specific physiological symptoms. Severe cases in women during pregnancy can cause mental impairment of their children (cretinism).
- Iron deficiency can lead to nutritional anaemia (low levels of haemoglobin in the blood) and fatigue, which negatively affects the immune system and reduces body strength.
- Zinc deficiency can lead to lack of appetite, apathy and may affect the skin and hair negatively. It also aggravates diarrhoea, especially in young children.
- Deficiency of vitamin B12 and folic acid during pregnancy can lead to damages in the cognitive and physical development of foetuses.
- Full blown clinical pictures of vitamin deficiencies include beriberi (lack of vitamin B1), pellagra (lack of vitamin B3), scurvy (lack of vitamin C) and rachiotis (lack of vitamin D).

The causes of malnutrition

The most comprehensive model to aid the understanding of the interlinkages between the different causes of malnutrition that occur at various levels within the society was developed by UNICEF in 1990. This model is still being widely used as well as amended in latest publications (i.e. LANCET 4/ 2013). It explains malnutrition both in rural and urban settings.

All forms of malnutrition share a common cause: inappropriate diets that provide inadequate or excessive macronutrients or micronutrients. However, many other factors also play a role in malnutrition at different levels – as identified by the model:

- The immediate causes include inadequate dietary intake and disease, which directly impact on an individual's nutritional status;
- These primary causes are influenced by underlying causes such as food access and availability at household level, healthcare, water and sanitation, and care, particularly young children, but also women (breastfeeding practices, hygiene practices, women's workload etc.) at the household or community level. Education levels – both formal and informal incl. life skills – play a determining major role;
- The basic causes of malnutrition are wide-ranging, from structural and natural resources, to social, economic and legal environments, and political and cultural contexts across regional, national and international levels.

Causal Model of Malnutrition

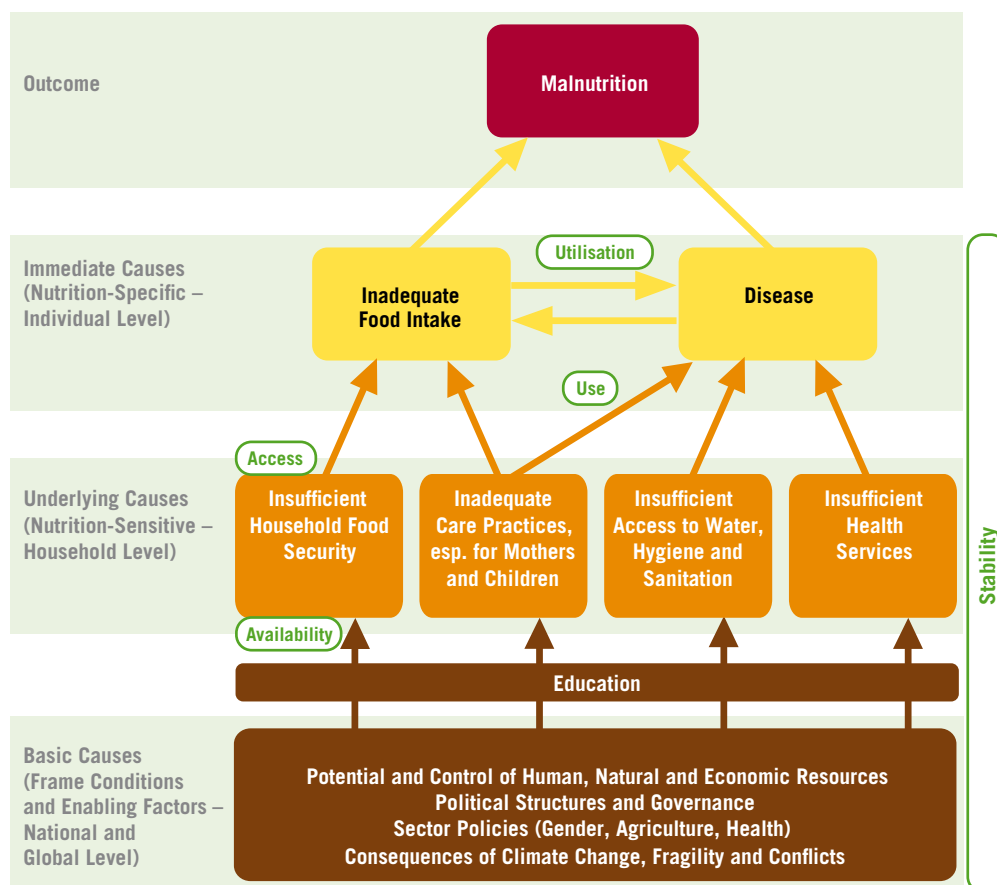


Figure 3, Source: adopted from UNICEF, 1991

This model was developed at a point in time when the nature and understanding of the problems were different. Much has been learned since then about the root causes of hunger and malnutrition. Today, the influence of socio-economic conditions on SFNS have increased, climate change impacts pose risks, the rights-based approach has been codified in voluntary guidelines and national constitutions, and more than half of the world population now live in urban areas. The role of market access and value chains have also become common and complex, as compared with subsistence agriculture. All these factors are now part of the basic causes of malnutrition – they have to be continuously assessed and monitored in view of their influence on global food and nutrition systems.

Despite these changes, the well-known UNICEF model helps to analyse the situation and understand causal relationships leading to malnutrition – including the four dimensions of FNS. Generally, the probability of a cause being responsible for the poor nutritional condition of individuals becomes smaller as one progresses along the different levels of causes, and as one moves further away from the core problem. Consequently, it makes little sense to merely follow one branch of the tree down to the details e.g. following the supply of nutrients at the household level, if other branches remain neglected (health services or environmental conditions). The model can be used to determine at which level (individual, household, community, regional or national), nutrition-related problems manifest themselves and how these should best be addressed.

Each level requires appropriate **nutrition-specific** or **nutrition-sensitive** interventions (see Chapter 4):

- **Nutrition-specific interventions** refer mainly to direct measures aimed at tackling the immediate causes of malnutrition. They address the dimensions of use and utilisation of food at individual and household level.
- **Nutrition-sensitive interventions** refer to indirect measures at household or community level tackling the underlying and basic causes of malnutrition. They refer mainly to the dimensions of **availability** and **access** to food, **use** as well as **stability**.

In Focus: Nutrition-specific or nutrition-sensitive interventions?

As pointed out earlier, **nutrition-specific interventions** refer to direct measures at individual level and sometimes household level, aimed at tackling the immediate causes of malnutrition in an individual. In contrast, **nutrition-sensitive interventions** refer to indirect measures predominantly aimed at tackling the underlying and basic causes of malnutrition at the household, community or national level.

Within the food and nutrition security discussion, **both fields of interventions – the nutrition-specific and nutrition-sensitive – each have their own rationale**. The need for nutrition-specific interventions are, without a doubt, necessary during critical situations after conflicts, disasters or economic shocks. In this context, nutrition-specific interventions, such as the prominent “ready-to-use therapeutic food” (RUTF), general supplementation of specific micronutrients, or a mixture of several micronutrients, should be planned. They tend to target children or women, in order to immediately respond to acute malnutrition to avoid deaths and severe illnesses and are largely supported by the international humanitarian community. Nutrition-specific interventions are also part of national public health systems, but all too often, service provision is insufficient.

There is currently a broad discussion on alternatives at community level, as well as the integration of nutrition-specific interventions into long-term development programmes. Furthermore, home-made supplementary food, the fortification of staple foods and supplementation, are also available options for improving the consumption of nutritious food and specific nutrients at the individual or family level.

There is evidence of the positive outcomes and the efficiency of direct nutrition-specific interventions at individual level, such as the provision of micronutrients to children and women within the first 1000 days. However, even if nutrition-specific interventions are delivered successfully at scale, they will be unable to provide a sustainable solution to the global problem of malnutrition. This means that solutions for undernutrition must go beyond the provision of specific nutrients, treatment and direct prevention: there is a need for nutrition-sensitive development in different contributing sectors, such as the empowerment of women, nutrition-sensitive agriculture, employment, health and social protection. This trend has been confirmed by the recent 2013 Lancet series focused on malnutrition. Furthermore, the EU and UNICEF recently stated that a multi-sectorial approach is required to achieve a full nutritional outcome for child development, combining both categories of interventions: nutrition-specific interventions are needed to accelerate progress in the critical sectors and the dimensions of SFNS – agriculture, education, social welfare and public health – are relevant to secure the sustainability and coverage of nutritional short-term achievements (EU-UNICEF Briefs, 2014).

Since Welthungerhilfe follows a SFNS strategy, nutrition-specific interventions should be designed and implemented carefully, together with a responsible health structure in place, to ensure a long-term perspective. Nutrition-specific interventions should be integrated as short-term responses, alongside development activities towards SFNS.

Table 1: Typical Nutrition-specific and Nutrition-sensitive Interventions for Improving Nutrition Security

Nutrition-specific	Nutrition-sensitive
<ul style="list-style-type: none"> ■ Preparation of micronutrient enriched meals ■ Supplementation of vitamins and minerals (vitamin A, iron, folic acid etc.) for specific vulnerable groups ■ Provision of 'ready-to-use food' or take-away 'food aid rations' for malnourished children and women ■ Community-based rehabilitation of malnutrition (CMAM) ■ Deworming campaigns to improve health and nutritional absorption ■ Water handling measures to prevent diarrhoea ■ Specific nutritional education and breastfeeding practices (the cheapest foods) in combination with the provision of nutritious food items 	<ul style="list-style-type: none"> ■ Local small-scale food production with diversified crops and integrated animal rearing ■ Home and kitchen gardens for producing vegetables ■ School feeding combined with school gardening and nutrition education ■ Promotion of integrated livestock and fish production (poultry, small ruminants, fish ponds) ■ Improving post-harvest handling and storage facilities ■ Social transfers through infrastructure (FFW) ■ Nutritional education, behaviour change, ■ Improving basic education and women's empowerment ■ Improving caring capacity and nutritional behaviour ■ Improving medical services ■ Provision of safe water, improved hygiene and sanitation at household and community level through WASH interventions

In the past, Welthungerhilfe has predominantly focused on improving food availability and access in its programmes. With its recent strategy, the organisation has decided to increasingly integrate the dimensions of **use** and **utilisation** of food as well as **stability** into its programme work in order to contribute to sustainable food and nutrition security. In order to achieve this, decision-makers and programme planners require a profound understanding of the multi-dimensional aspects and causal relations of malnutrition, especially its underlying and basic causes. They also require the necessary knowledge for designing adequate and sustainable food and nutrition security interventions.

2.3 What we already Know: Evidence from Science and Practice

The consequences of malnutrition for individuals, as well as for the society, are multi-faceted:

- **The 1,000 day window of opportunity:** Research findings reveal that the first 1,000 days between conception and a child's second birthday are the most critical period in the development of human beings. During this time, inappropriate nutrition can lead to impaired physical and mental development, with negative long-term consequences. Pregnant women, lactating women and young children are most vulnerable to malnutrition – including hidden hunger – because they have a relatively greater need for vitamins and minerals and are more susceptible to nutrient deficiencies. Improving nutrition in this period of life is the most effective way of preventing stunting, as well as other irreversible cognitive disorders (Lancet, 2013).
- **Malnutrition is often perpetuated during life-cycle:** When undernourished – and often very young – girls/women fall pregnant, their babies are likely to be born with low birth weight. Their babies have a difficult start in life, potentially aggravated by recurrent even aggravated through recurrent episodes of inadequate nutrition and frequent diseases due to their weak immune system. This may ultimately lead to irreversible impairment of their physical, mental and cognitive development. A malnourished female child will grow up into a malnourished young girl/women and when she becomes a mother herself, the vicious cycle perpetuates.
- **Low performance at school** due to limited cognitive abilities and learning capacities through malnutrition contributes to low education levels, low labour productivity and limited job opportunities in life. This in turn, is directly linked to reduced income in the future. Thus, malnutrition affects **human productivity and wellbeing**, both in the short and long run: people's human and economic potential may not be fully utilised, resulting also in massive productivity losses for a country's economy.
- Frequent disease episodes caused by **weak immune systems** lead not only to human suffering, but also to high costs for medical treatment and rising mortality rates.
- Recurrent **shocks** compromise food and nutrition security, especially in already critical circumstances. Losses of food crops and livelihoods lead to malnutrition or exacerbate it, if already present. Security problems in emergencies often aggravate the already difficult situations of food insecurity, by reducing access to food and putting lives in danger.
- During conflicts and after shocks, existing **traditional safety nets** for secure food and nutrition security at household and community level are often overstretched or even destroyed. When traditional coping strategies fail, this may lead to deprivation, the sale of assets, falling into absolute poverty and finally to migration, resulting in enormous human suffering, additional economic and social losses for communities and societies.

The most evident interventions and leverages for success recently discussed internationally are outlined below:

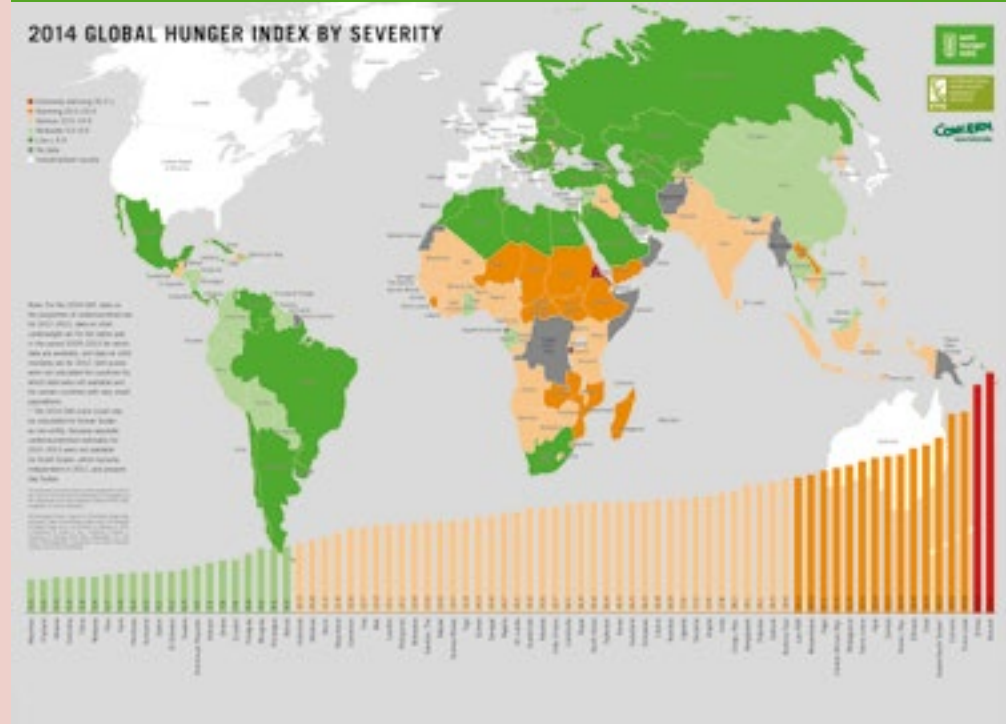
- **Women's education and status** is strongly correlated to malnutrition levels and should therefore be in the focus of planning and design of food and nutrition programmes. Despite their importance, food availability and health does not have a strong impact on child malnutrition, as compared with women's education and status – as has been demonstrated in many research publications (IFPRI, 2000). According to Global Forum on Agricultural Research (GFAR), **women represent 43 percent of the world's agricultural labour force and 47 percent of the global fisheries labour force**. If access to new technology and resources is made available to women farmers, yields could increase by 20 to 30 percent according to the FAO. Measures aiming to overcome the gender gap in agriculture as well as optimise women's nutrition, time allocation, physical and mental health as well as their status and role in society through empowerment are therefore crucial.
- **Nutrition-sensitive interventions help to accelerate progress in improving child and maternal malnutrition:** This was one of the main results arising out of evidence-based research in the past years (Lancet, 2013). One outcome is that nutrition-sensitive approaches help to upscale direct nutrition-specific interventions, considerably enhancing their coverage and effectiveness.
- **Investments** in boosting and diversifying **agriculture** can increase income and maintain low prices, improving access to food and food diversity by poor households. This does however not necessarily lead to better nutrition. Research also revealed that only **in combination with nutrition-sensitive measures** including appropriate and correct targeting, broad and adequate participation, strengthened nutrition specific goals and actions – including empowerment of women – can sustainable nutritional improvements be expected.
- **Only collective action by all concerned stakeholders can end malnutrition:** This was the main finding of the Lancet series in 2013. All relevant stakeholder need to be part of the solution for the fight against malnutrition: **Governments** need to lead and apply appropriate policies and legal frameworks, **civil society** organisations should support citizens and community organisations in monitoring these policies in a transparent way by claiming accountability from leaders, the **private sector** needs to identify its role in employment models, or the provision of nutritious food and the scientific **research community** needs to keep practitioners and politicians focused on evidence about what works (Lancet Series, 2013).

3

PROGRAMMING PHASE

Integrating Sustainable Food and Nutrition Security into Regional and Country Portfolios

Assess the situation and maximise the positive impact of interventions on nutrition



Source: Welthungerhilfe, GHI 2014



"We need to analyse and fully understand the specific food and nutrition insecurity situation in our programme areas in order to integrate more effective nutrition-related interventions into our portfolio, define appropriate and effective measures and monitor their impact".

Ute Latzke

Senior Advisor Food and Nutrition Security,
Welthungerhilfe

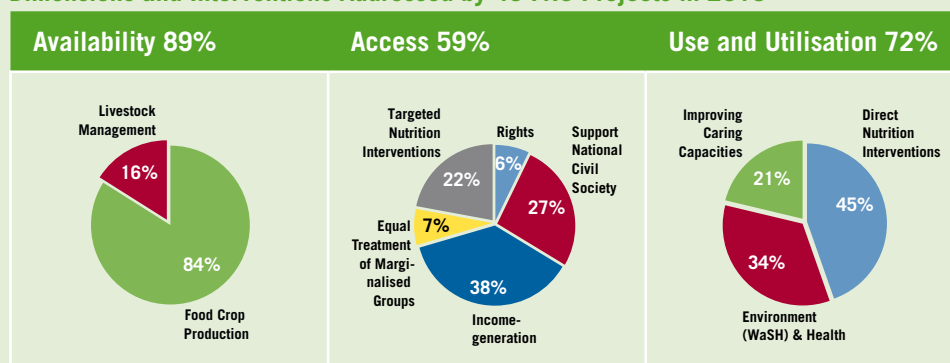
In Focus: Status of Welthungerhilfe's 2013 Food and Nutrition Portfolio

Planning documents from 46 current food and nutrition security-related projects were analysed as part of an internal assessment and analysis of FNS interventions in 2013: seven in Latin America (Nicaragua, Haiti and Cuba), 14 in Asia (Afghanistan, Cambodia, India, Myanmar, North Korea, Pakistan and Tajikistan), 14 in West and Central Africa (Burundi, DRC, Liberia, Mali, Niger, Sierra Leone and Uganda), as well as eleven in East and South Africa (Ethiopia, Mozambique, South Sudan, Sudan and Zimbabwe).

- The majority of projects (89%) address more than one of the four dimensions of FNS
- 89% address **'Availability'** (16% livestock interventions, 84% food crop production)
- 59% address **'Access'**
- 72% address **'Use & Utilisation'**
- 54% address the cross-cutting dimension of **'Stability'**

The following graphics illustrate the distribution of typical interventions according to dimensions of FNS:

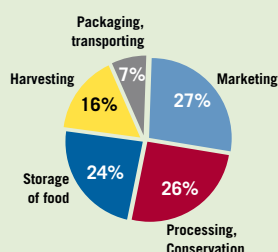
Dimensions and Interventions Addressed by 46 FNS Projects in 2013



Source: own data 2013

The different interventions describe the FNS portfolio that Welthungerhilfe is currently implementing through its partner organisations, or alone. Activities addressing 'Availability' and 'Access' are common in Welthungerhilfe programmes. Less frequent interventions include those aimed at addressing the dimension of 'Use and Utilisation'. The crucial aspect of improving caring capacities was only tackled by one fifth of the projects aimed at addressing use and utilisation (21%); interventions included the improvement of women's status and education, the reduction of women's workload and social security nets. The main focus of measures addressing use and utilisation are direct nutritional interventions, such as the treatment of malnutrition, enriched complementary feeding, measures focused on the first 1,000 days, nutrition education aimed at improving dietary diversity and the promotion of behaviour change.

Stability 54% (of 46)



For the dimension 'Stability', only post-harvest management was captured. Typical interventions include improved harvest techniques, storage facilities to reduce post-harvest losses, packaging and transport to local food markets, food processing and conservation procedures.

3. Integrating Sustainable Food and Nutrition Security into Regional and Country Portfolios

Since 2012, Welthungerhilfe has been implementing its new strategy with a central focus on SFNS. As a result, Welthungerhilfe's regional offices have started to systematically integrate SFNS into country portfolios and new projects. There are currently two approaches for integrating nutrition-related interventions into regional and country portfolios:

1. **The adjustment of current country programmes** through the addition of activities that are more likely to result in nutritional outputs/outcomes or synergies, into the current programme components and their main activities e.g. agricultural production, income-generation, natural resources management or WASH interventions.
2. **The conception of new projects/programmes** including an integrated approach to SFNS from the outset.

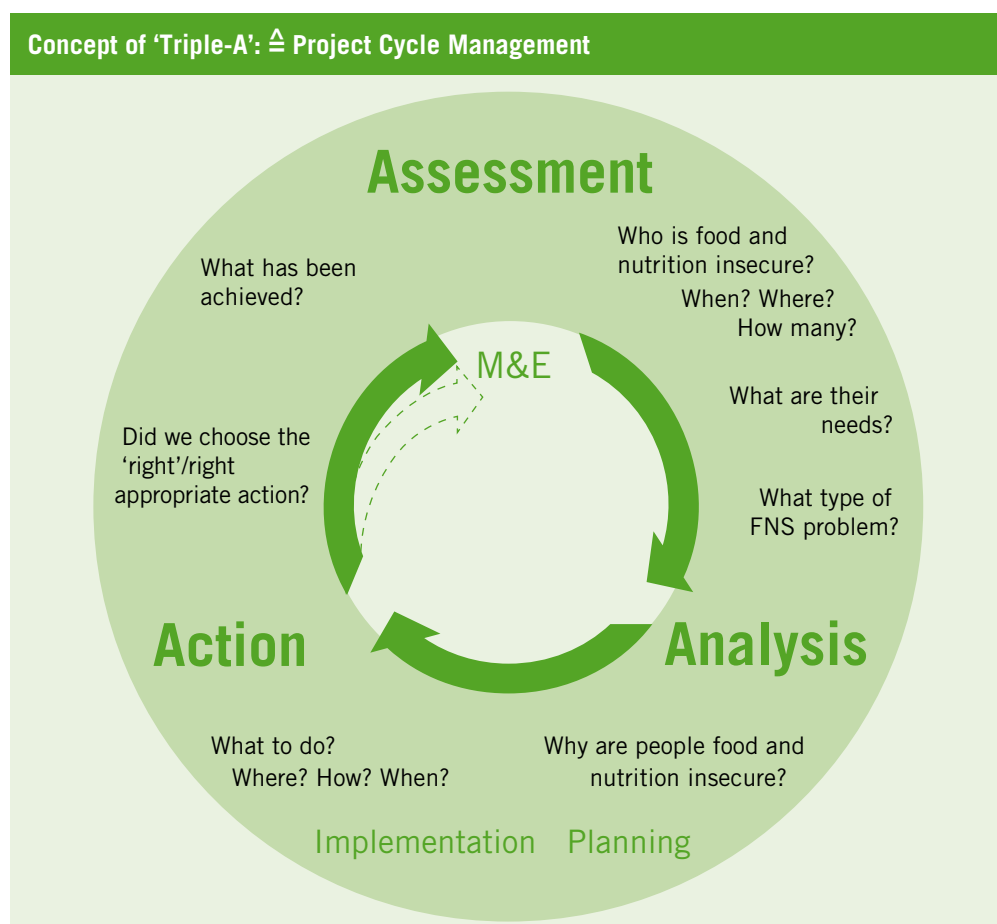
Both options require equally high levels of technical knowledge and understanding and the ability to use methodologies appropriately, to assess the context, the specific problems and their causes, in order to plan appropriate measures. This chapter describes methodologies and approaches for conducting suitable situation analyses to detect food and nutrition security-related problems and their manifestations. Furthermore, this chapter outlines methods and key questions for planning appropriate interventions.

Integrating food and nutrition security into regional and country portfolios systematically, can only be done if nutrition-related issues are integrated into the whole **project cycle**: from 'Assessment' to 'Analysis' and 'Action', right from their inception:

- **Assessment:** who is food insecure and when? Who is affected by malnutrition and when? How many people are affected? What are their needs?
- **Analysis:** what type of FNS problems have been identified? What are the reasons for these? What are their immediate, underlying and basic causes? Who is the population group to be targeted?
- **Action: For initial planning:** what are the most urgent and appropriate interventions to tackle the identified nutrition-related problems and their causes at different levels? Where, how and when should they be applied? Who is best qualified to implement them?

During project intervention: what has been achieved? Have the right interventions been chosen? Have interventions produced the intended impact on the FNS situation? Are the outputs properly used (as stated in the log frame)?

Figure 9: UNICEF's 'Triple-A' Concept: What kind of information do we need?



Source: FNS Training, Feldafing, Germany, 2011

The 'Triple A' approach should be applied to any intervention, regardless of the context and time pressure, i.e. in a compact form during emergency and relief operations, and extensively in rehabilitation and long-term development programming.

The analysis stage of Triple A plays a major role in project and programme management, by identifying the **causes** of food and nutrition insecurity within a population. Here, the UNICEF model (see Chapter 1) highlights the guiding impact chains which are required to understand why people suffer from malnutrition and what the best solutions are for tackling these in a sustainable way.

In the following sections, special attention is given to the assessment and analysis stages, as well as the planning phase. The possible interventions for nutrition-related 'action' will then be further detailed in Chapters 4, 5 and 6.

3.1. Situation Analysis at Country, Regional or Local Project Level

Understanding the type, magnitude and severity and causes of food security and nutrition-related problems within the population of a country or area is crucial for designing effective strategies and interventions to overcome them. Available secondary data on the nutritional and health status of the population must be considered. A thorough analysis of the national, regional and local framework conditions is also required to recognise existing national food and nutrition security policies, existing government and NGO programmes, as well as the latest trends in agricultural production/trading and the likely consequences of climate change.

All relevant information should be collected in collaboration with local staff and project teams. Regular participation in national platforms, cluster meetings, technical advisory groups and other networks, where information and data are shared, can aid this task. Consultations with relevant stakeholders at national, regional and district levels can be launched. Similarly, interviews with community leaders can also help to determine the local institutional context.

Box 1: Key Questions for Secondary Data Analysis

What is the type and scope of the food and nutrition security-related problems identified in international national strategy papers, policies or surveys?

How do they manifest? Who are the most affected population groups within the region, household or community? Does disaggregated data related to the age and gender of specific target groups exist (e.g. pregnant or lactating women, children under the age of five)?

What are the immediate, underlying and basic causes of the situation identified by the analysed data sources? Define the most crucial determinants of food and nutrition insecurity (according to the UNICEF causal model)

What are the specific nutrition-related problems identified (e.g. poor access to healthy and nutritious food such as vegetables and fruits, inadequate food consumption by young children, unfavourable food taboos, lack of knowledge for preparing healthy diets, socio-economic situation of women, time constraints of the mother, frequent infections etc.)?

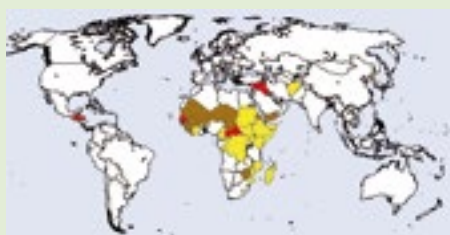
Secondary Information and Data Sources

International and national information systems can also be used to explore existing data that may describe the general food and nutrition security problems, as outlined below:

1. Global Information and Early Warning Systems (GIEWS) – published by FAO, Rome
2. Integrated Food Security Phase Classification System (IPC), by FAO and Global Partners
3. Nutritional Landscape Information System (NLIS), WHO, Geneva
4. UNICEF Country Profiles
5. The Multiple Indicator Cluster Survey (MICS) supported by UNICEF
6. National Demographic and Health Surveys (NDHS)
7. National policies, strategies and plans
8. Donor strategies for Food and Nutrition Security (FNS)

1. Global Information and Early Warning Systems (GIEWS) – published by FAO, Rome

GIEWS, 2013: 33 Countries Requiring Food-related Assistance



- Shortfall in aggregate food production/supplies
- Widespread lack of access
- Severe localised food insecurity

Source: GIEWS, 2103

- Countries facing an exceptional shortfall in aggregate food production/supplies as a result of crop failure, natural disasters, interruption of imports, disruption of distribution, excessive post-harvest losses, or other supply bottlenecks
- Countries with widespread lack of access, where a majority of the population is considered unable to procure food from local markets due to very low incomes, exceptionally high food prices, or restricted movement within the country
- Countries with severe localised food insecurity due to the influx of refugees, a concentration of internally displaced persons, or areas with combinations of crop failure and deep poverty

GIEWS keeps the world's food situation under continuous review and publishes regular reports on food supply and demand, crop prospects, food prices and crisis situations for each country, with the aim of providing early information on possible crises and assistance needed in countries lacking their own resources to cope with impending food insecurity.

The countries in the graphic are suffering from crises related to lack of food availability, widespread lack of access to food, or severe localised problems. Special attention is placed on countries which are large net importers of cereals and fuels, those with low per capita incomes, relatively high levels of malnutrition, and for those in which there is strong price volatility caused by the transmission of high international food prices (www.fao.org/giews).

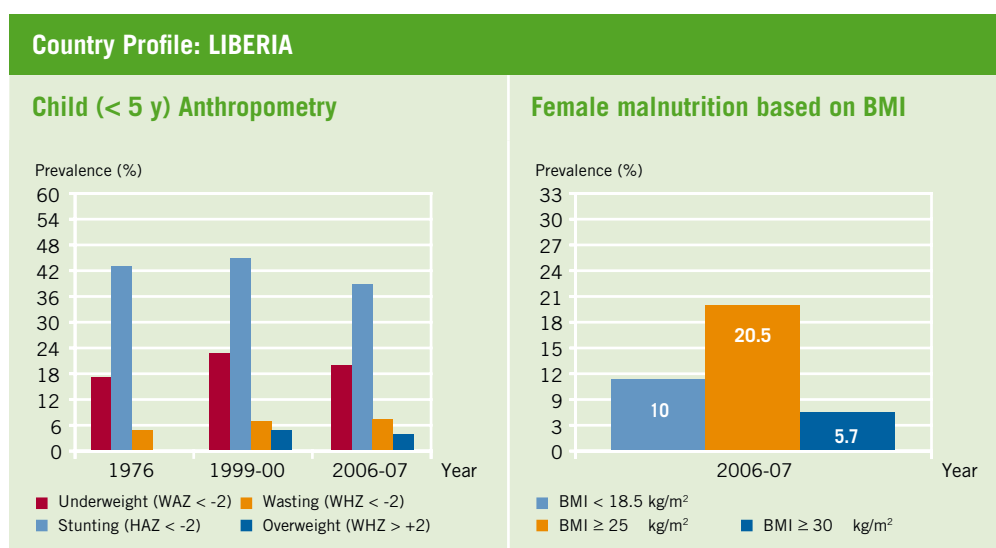
2. Integrated Food Security Phase Classification System (IPC), by FAO and Global Partners

The Integrated Food Security Phase Classification (IPC) provides a set of analytical tools to process, analyse and classify the severity of a food insecurity situation according to scientific standards. The use of a common scale which is comparable across countries, makes it easier for donors, agencies and governments to identify priorities for interventions before they become catastrophic. The IPC draws on a livelihoods approach for both analysis and response, and takes multi-sectoral aspects of food security issues including health status, civil security, structural factors, etc. into consideration. It provides key objectives for response, with the aim of better coordinating interventions within a country or region. It also contributes to greater transparency, thus enhancing the accountability of decision makers. The IPC is complemented by a forum which involves all stakeholders (government, UN, NGOs and civil society) who conduct joint food security analyses to reach consensus on the nature and severity of food insecurity in affected countries.

The IPC uses a standardised scale to define the severity of acute food security through five phases: (1) minimal, (2) stressed, (3) crisis, (4) emergency and (5) famine. The IPC phases are determined by analysing a range of outcomes based on international standards, including food consumption patterns, livelihood changes, nutritional status and mortality. These are triangulated with several factors such as food availability, access, utilisation, stability, vulnerability and hazards, and analysed within local contexts. Key stakeholders work together to consolidate wide-ranging evidence on food insecure populations (IPC Factsheet, 2013, see: www.ipcinfo.org/).

3. Nutritional Landscape Information System (NLIS), WHO, Geneva

The WHO and UNICEF Information systems focus on nutrition and health-related data, and provide useful analysis on the determinants of the nutritional and health status of vulnerable groups. NLIS brings together existing data from UN agencies, such as the WHO Global Nutrition Databases, as well as other food and nutrition-related data from partner agencies. Country profiles provide a snapshot overview of a country's nutrition, health and development situation.



NLIS provides country profiles with data on child malnutrition, micronutrient deficiencies, as well as determinants such as women's nutritional status, caring practices, health services and other factors influencing the food and nutrition security situation, including basic information on education and mortality within the population. These country profiles provide an overview of the nutritional situation and their causes, as based on the UNICEF causal model. They demonstrate changes in the most important determinants of malnutrition (www.who.int/nutrition/landscape).

4. UNICEF Country Profiles

UNICEF country profiles (www.unicef.org/countries) provide another important information source. They contain national data on demographics, nutritional status, and infant and young child feeding practices, including breastfeeding and weaning practices. These country profiles provide important information for evaluating the severity and impact of sustainable food and nutrition insecurity on different vulnerable groups.

5. The Multiple Indicator Cluster Survey (MICS) supported by UNICEF

UNICEF assists countries in the collection of data through “Multiple Indicator Cluster Surveys” (MICS). Since the mid-1990s, the MICS have enabled many countries to produce statistically sound and internationally comparable estimates on a range of indicators in the areas of health, education, child protection and HIV/AIDS. MICS findings have been used extensively as a basis for policy decisions and programme interventions, and to influence public opinion on the situation of children and women around the world (www.unicef.org/MICS).

6. National Demographic and Health Surveys (NDHS)

Demographic and Health Surveys (DHS) are based on representative sample surveys of women, men and children from sample points (clusters) throughout a country. They are designed to provide data in order to assess and monitor the population and health situation in a country, and to follow-up on the situation after three to five years. The surveys collect detailed general information on household characteristics, maternal and child health, family planning methods, breastfeeding practices, the nutritional status of women and young children, childhood and maternal mortality, as well as the awareness of people and their behaviour in relation to HIV/AIDS. The DHS are executed by the national health ministries, in collaboration with the agencies responsible for national statistics, or other supporting organisations.

7. National policies, strategies and plans

Governments of food and nutrition insecure countries often formulate food and nutrition security-related programmes and objectives aimed at addressing these issues in their **National Sector Strategies** or through **Food Security Policies and Action Plans**, to overcome food insecurity and malnutrition. These need to be considered for the framework analysis of a country or region.

Many countries recently joined the global multi-stakeholder **Scaling Up Nutrition (SUN) Initiative** in order to better coordinate development efforts with a clear focus on improving nutrition security through synergies between different actors (see more on SUN in Chapter 7). ‘Scaling up nutrition’ relies on national leaders taking ownership and responsibility for delivering sustainable solutions for improving nutrition in their countries. The international community contributes through public co-financing, technical assistance and international and national NGOs, to strengthen sectors, programmes and local civil society organisations. SUN countries follow a collaborative approach, bringing together the people and resources needed to rapidly scale up specific nutrition interventions, as well as to implement nutrition-sensitive cross-sector strategies (www.scalingupnutrition.org/sun-countries).

8. Donor FNS strategies

Another important source of information are the existing FNS-related strategies of major donors (e.g. EU, 2013 – Fight Malnutrition) for countries. These can provide valuable information in the analytical step and for co-financing (see Chapter 7)

3.2 Analysis of the Current Welthungerhilfe Portfolio

After analysing the food and nutrition insecurity situation in a region, country or district, the next step is to analyse the organisations current project or country portfolio, in order to link the existing or necessary food and nutrition-related interventions of the project and or programme to the identified problem.

Box 2: Key Questions for the Analysis of the FNS Situation in the Programme/Project Area

1. What are the **current food and nutrition security interventions in the country** or project area? What is Welthungerhilfe and what are others doing? Do other nutrition or food security-related programmes exist in the same region or at national level?
2. What kind of **food or nutrition-related problems** do these interventions (own and those of others) contribute to? Do they reach the affected target groups?
3. Do **stakeholders, partners or other organisations for cooperation** exist in the area and/or country? A single project cannot necessarily provide services and competencies in each of the required fields of intervention – potential partners from different sectors should therefore be actively sought and involved
4. Which **potential donors** could support these efforts? Discuss the possibilities to further integrate nutrition security into the portfolios of present donors. Look for new donors and potential new alliances with other NGOs (Alliance2015 partners or other NGOs supporting Food and Nutrition Security e.g. CARE and OXFAM)

3.3 Adjustment and Programming of Country and Regional Portfolios

Based on the analysis of secondary macro-level data, as well as the self-assessment of the present portfolio and/or programme, the portfolio may be adjusted and re-programmed to include more nutrition-related objectives. It has to be decided whether adjustments to current programmes are sufficient, or if (and how) major changes and new programming is required, for achieving stronger impact on sustainable FNS.

Box 3: Key Questions for Strategic Regional and Country Planning

1. To what extent does the **current portfolio** address the identified type, scope and causes of food and nutrition security-related problems? Which determinants (social determinants, immediate, underlying and basic causes) of food insecurity and malnutrition are presently addressed? Which of the four dimensions of SFNS need to be further strengthened and addressed?
2. What **nutrition-related problems and causes** can Welthungerhilfe contribute best to, to improve the situation? How can a stronger focus on nutrition security be integrated and realised? Which possible nutrition-related interventions can be identified to tackle the determinants of food insecurity and malnutrition?
3. To what extent do the current project proposals **consider nutritional outputs and outcomes**? How can projects and programmes generate more nutrition-related impact?
4. Who are the possible **supporting stakeholders and institutions** in the programme area?
5. What kind of **new approaches or programmes** could be designed for future co-financing or joint activities with other stakeholders, in order to maximise nutritional outcomes?
6. How can an **integrated approach** increase the sustainability of these results?

A comprehensive food and nutrition security strategy for a country or project region needs to take the following aspects into consideration:

Capacity and knowledge

1. What capacities and skills do Welthungerhilfe or partner staff need to implement the interventions?
2. Identify the possible gaps in capacities and knowledge on sustainable FNS of partners and Welthungerhilfe staff
3. If necessary, build up additional capacities through training on technical knowledge, assessment methods and instruments, monitoring and evaluation of nutrition-related results, and by hiring professionals
4. Determine the necessary support needed from within Welthungerhilfe or from other actors or structures

Planning interventions

1. Define a comprehensive food and nutrition security strategy for the country portfolio and the project and/or programme areas by systematically addressing all four dimensions of FNS
2. Based on the problem analysis, define at which scale Welthungerhilfe wants to tackle the immediate, underlying or basic causes: individual, household and community level, the district or regional level, or a combination of these
3. Identify the position of Welthungerhilfe within the international stakeholder community in the country and discuss how the designed interventions of Welthungerhilfe will produce synergies with other organisations
4. Define the possible nutrition-specific and nutrition-sensitive interventions based on the findings of assessments. Discuss different options for nutrition-specific and nutrition-sensitive interventions to maximise their impact on nutrition (see also “In Focus” in Chapter 4)
5. Include realistic nutrition-related outputs and outcomes, as well as corresponding nutrition-related indicators, into the country portfolio and project planning documents (log frames, operational plans, M+E plans) (see Welthungerhilfe: Guidelines, Outcome and Impact Orientation, 2008; Welthungerhilfe: SFNS Indicators, 2014)

Budget and Funding/Co-funding

1. Allocate additional funds for capacity building, nutrition-related surveys, KAP (Knowledge, Attitude, Practice) surveys, nutrition-related monitoring and evaluation, consultancies or additional technical staff
2. Allocate sufficient time for these activities and include them in operational plans
3. Identify and evaluate co-funding opportunities for nutrition-related programming, as well as possible collaboration with relevant stakeholders (alignment)

3.4 Preparation, Formulation, Planning and Monitoring of New SFNS Interventions at Project Level

Assessing the food and nutrition security situation at the country level and understanding the FNS context as well as existing nutrition-related programmes and actors, is critical. However, this alone does not provide enough detailed information for launching a specialised future programme or project. In order to plan and implement concrete project interventions, more specific and detailed information needs to be gathered through a multiple-step preparation phase. This may involve the following:

- a) **Conduct a multi-dimensional nutrition-sensitive assessment in the project area** (e.g. quantitative and/or qualitative nutrition-related surveys for baseline data¹) to determine specific manifestations, the scope and causes of food insecurity and malnutrition and possible intervention areas. A risk assessment completes the analysis
- b) **Identify the most food and nutrition insecure households and communities** (including vulnerable groups)
- c) **Analyse and integrate local perceptions, attitudes and practices** to nutrition-related behaviours such as food taboos, (breast) feeding and eating practices; intra-household food distribution, hygiene practices etc. through KAP surveys. It may also be useful to undertake a **formative research study to determine local barriers and opportunities** for promoting the adoption of appropriate production of nutrient-rich foods, food preparation and feeding practices
- d) **Incorporate nutrition-related objectives and indicators:** Nutrition-related objectives should be included and respective indicators should be chosen based on the problem analysis. Where a communication strategy for promoting behaviour change (aimed at the adoption of improved practices based on the identified gaps in food production, food preparation and consumption) is formulated, **corresponding nutrition-related indicators** can be derived and integrated into project planning and management documents
- e) **Define professional skills and staff qualification requirements** for the planning, implementation, monitoring and evaluation of SFNS-related interventions
- f) **Evaluate funding opportunities and secure the necessary budget** for nutrition-related baseline assessments and surveys, for capacity building and training on SFNS and the monitoring and evaluation of results (nutrition-related end line surveys, KAP studies, case studies etc.)

a) Conduct a multi-dimensional nutrition-sensitive assessment in the project area

A nutrition-sensitive assessment enables a deeper understanding of the living conditions of the targets groups, particularly in terms of agricultural production, access to land and resources, food consumption patterns, dietary intake and micronutrient adequacy, nutrition needs of groups at risk, gender considerations, caring practices, as well as their health and sanitary environment. Such understanding is required in order to design relevant, innovative, and nutrition-sensitive interventions. This can be done in cooperation with teams from other sectors (e.g. agriculture, WASH or health).

The elaboration of a **multi-sectoral seasonal calendar** might be helpful in order to visualise nutrition insecurity peaks and/or their interaction with other factors, during the year.

¹ This does not necessarily imply anthropometric surveys

Information on **food consumption** patterns and household practices are useful for providing hints on traditional food beliefs, on the local perception of a healthy meal and food taboos for certain household members (e.g. pregnant women, infants etc.). Data on meal frequencies should also be collected. All data should be disaggregated by age and gender to detect differences. A useful tool for an initial baseline survey may include the HDDS (Household Diet Diversity Score) or the IDDS (Individual Diet Diversity Score), or a combination of both (see Section 3.5.).

Caring practices, including gender considerations, information on decision-making processes, roles and responsibilities, and the workload of women in the household and community, need to be assessed. Key questions on maternal care, infant feeding practices and health conditions, as well as hygiene practices, should also be considered.

Box 4: Example of a Welthungerhilfe Nutritional Baseline Survey, Tajikistan, 2013

A baseline study involving interviews with 223 beneficiaries (random sample from 1,600 households across 24 villages) was conducted by Welthungerhilfe's partner organisation JOVID in northern Tajikistan during May 2013. A household questionnaire with general data on production, access to inputs and resources, and household expenditure, was designed in order to determine the achievement towards indicators (as mentioned in the log frame of the project proposal). Additionally, the survey included a section on food and nutrition security, including consumption patterns, diversity of food intake and feeding practices, with the aim of developing appropriate strategies for improvement.

7. FOOD AND NUTRITION SECURITY	
46.	Did the household have less, same, or more food available last year than the year before? (1 = Less, 2 = Same, 3 = More, 0 = Don't know/no answer)
47.	What is the main reason why food is less available? DO NOT READ ANSWERS 1 = Harvest was not good 2 = Remittances are less or have stopped 3 = Higher food prices 4 = Lack of water for irrigation 5 = Problems with food storage (food spoiled or frozen) 6 = Other (specify): 0 = Don't know/no answer
48.	How often does your family eat... 1 = Every day 2 = Very often (3-6 times a week) 3 = Sometimes (once a week) 4 = Rarely (once a month) 5 = Very rarely/never 0 = Don't know/no answer
	...vegetables
	...meat
	...fresh fruit
	...dried fruits/nuts
	...dairy products
49.	How many hot meals did you eat yesterday? (0 = none, 1 = 1 time, 2 = 2 times, 3 = 3 times, 4 = 4 times or more)
50.	Was yesterday a typical day? (1 = No, 2 = Yes)
51.	IF NO, how many hot meals do you normally eat in a day? (0 = none, 1 = 1 time, 2 = 2 times, 3 = 3 times, 4 = 4 times or more)
52.a	I would like to know about what you ate yesterday - Can you please specify the foods and drinks that were consumed by all household members yesterday, starting with the first meal of the day and including all snacks?
	Breakfast Snack Lunch Snack Dinner Snack

Source: Final Report: 'Food Security of Small Farmers in Northern Tajikistan', Welthungerhilfe and JOVID, 2013

Baseline surveys generally follow a standardised questionnaire, such as the example above. Additional qualitative data from observations, in-depth information through focus group discussions or individual interviews of key persons, are crucial for enriching the data set and for interpreting results.

Box 5: Do we Always Need Anthropometric Data?

Anthropometric measurements capture the nutritional status of individuals, usually children below five years of age, or pregnant and breastfeeding women, at a certain point in time. Children below five years of age are often used as an indicator group, since they are the first to show symptoms of malnutrition due to their nutritional vulnerability.

Anthropometric data are used to:

1. **Determine the scope and type of malnutrition in a certain area/population group** where the percentage of malnourished children below five years of age (i.e. wasting and stunting, underweight) in a statistically representative randomised sample group, serves as an indicator for the food and nutrition security situation of a target population
2. **Determine and monitor the nutritional status of individual patients** in nutritional rehabilitation programmes for malnourished individuals (i.e. therapeutic feeding, CMAM)

The duration of the majority of Welthungerhilfe's projects is less than three years and their scope is limited. To achieve measurable and attributable changes in the nutritional status of individuals, projects require longer durations and should aim to tackle the multiple dimensions and causes of FNS. In projects addressing one or more of the underlying and/or basic causes of malnutrition (such as improving agricultural production, access to land, nutrition education or WASH), significant statistical change in the nutritional status data of the target group may or may not occur – since there may be other determinants that have not been addressed, or the duration of the programme was not long enough. For example, significant improvements in the prevalence of stunting can only be achieved if programmes have a duration of more than five years. However, if changes in the prevalence of malnutrition occur, they may be caused by other interventions e.g. health-related interventions. It is therefore difficult to clearly attribute such changes to interventions, due to the complexity of the pathways, unless monitoring is done with a control group living under the same conditions and are not being supported. However, this is questionable from an ethical point of view.

In **nutrition rehabilitation or treatment programmes**, such as therapeutic feeding or community based programmes for the management of acute malnutrition (CMAM, see Chapter 4), anthropometric data on the nutritional status of those targeted is required for the individual follow-up of patients. In this case, however, anthropometric data serves to monitor the improvement of the nutritional status of individuals.

Anthropometric surveys require a lot of resources in terms of equipment, time and most importantly, special skills on statistical methods for professional data collection and analysis. One standardised anthropometric survey tool is the **SMART methodology (Standardised Monitoring and Assessment of Relief and Transitions)** – an improved survey method that balances simplicity (for rapid assessment of acute emergencies) and technical soundness. It was developed through an inter-agency initiative launched in 2002, by a network of organisations and humanitarian practitioners working together in the UN Nutrition Cluster, and is widely used.²

² SMART advocates a multi-partner, systematised approach to provide critical, reliable information for decision-making, and to establish shared systems and resources for host government partners and humanitarian organisations. SMART Methodology draws on the core elements of several methodologies with continuous upgrading informed by research and current best practices. (http://smartmethodology.org/index.php/article/index/about_smart)

Welthungerhilfe does not expect to use anthropometric survey tools as a standard. For the project planning of development or rehabilitation programmes, anthropometric data is not obligatory for baseline and final surveys. Since the duration as well as attribution problem remains, the collection of anthropometric data is not always recommended nor regarded as necessary for most of Welthungerhilfe's FNS interventions aimed at addressing the underlying or basic causes of malnutrition.

However, in situations with high prevalence and incidence of acute malnutrition, such as in **emergencies**, the initial assessment and close monitoring of this data (global acute malnutrition (GAM) and severe acute malnutrition (SAM)), is required. In programmes addressing the immediate causes of malnutrition by food aid or feeding programmes, such as cash and voucher programmes and emergency WASH interventions, the prevention or reduction of life-threatening acute malnutrition is an immediate objective. Due to the urgency of the problem, the situation should be monitored by regular anthropometric data on the prevalence of acute malnutrition. This can be done by rapid assessments methods such as the MUAC (Mid-Upper-Arm circumference) measurement in emergencies.

Note: A risk assessment is recommended when food and nutrition security is strongly influenced by the **consequences of climate change or shocks and hazards**. The sustainability of programme results may be threatened if strategies to build up resilience are not taken into consideration right from the beginning. Risk assessments are best undertaken in a participatory way, in order to include local knowledge, strengthen local capacities and ownership, and ensure that solutions are adapted to people's needs and realities. The participatory risk assessment can be done using seasonal calendars and mapping of areas under high risk. Information on the type, scope and frequency of natural disasters in the past, helps to analyse trends for the future. Possible violent conflicts and migration resulting from the incidents should be included in the risk monitoring system. If the consequences of climate change play an important role in an area, a systematic climate proofing instrument should be used (see Welthungerhilfe: Climate Proofing, 2011).

b) Identify the most food and nutrition insecure households and communities (including vulnerable groups)

The usual Welthungerhilfe target groups for food and nutrition security interventions are poor and marginalised communities or households, or those suffering from general food insecurity. In order to improve the nutritional outcome of interventions, more specific targeting is required: to define and address the right target groups is crucial in nutrition security interventions, in order to contribute to tangible improvements.

When addressing nutrition security in addition to food security interventions, additional criteria to identify the nutritionally most vulnerable groups must be used. These may include young children, pregnant or breastfeeding women – due to their higher nutrient requirements, as well as teenage girls (future mothers). In addition to these physiologically sensitive groups within communities or households, all groups that are socially marginalised, such as those with disabilities, the elderly, sick people, ethnic minorities, landless people, very poor people, or drought-prone, displaced or enclosed population groups, are especially vulnerable to nutrition deficiencies and disorders (See Chapter 2).

Pastoralists, for example, are particularly vulnerable to long-term droughts. A clear analysis of the situation (limitations, potentials) of these groups is required in order to adequately address their specific food security and nutrition needs.

Putting the “Household as a Consumer Unit” into Focus

Whereas most studies, discussions and recommendations for food security focus on smallholder producers or farming families as the main protagonist and focal point of all reflections, this orientation framework places the “household as a consumer unit” into the centre of all considerations. The OR SFNS examines the influencing factors and causes of malnutrition at household level, as well as intra-household food distribution.

At the same time, it considers the possible ways to improve the nutritional situation of household members – especially of its most vulnerable members – in terms of quantity and quality, in Welthungerhilfe’s programme work in the rural or urban context.

Only by tangibly improving the diet of ‘consumer’ households in a sustainable way, can Welthungerhilfe realise its strategic goal to contribute to the realisation of the right to adequate food, to overcome malnutrition and its dire consequences on the livelihoods of so many people in the world, and – closely linked to this – to contribute to breaking the vicious circle of malnutrition, poverty and inequality.

c) Analyse and integrate local perceptions, attitudes and practices

It is widely accepted within behavioural theory that the behavioural change of people not only depends on their individual behaviour or information status, but also on their social and cultural environment, and other influencing factors. Why people do, or do not practice a specific behaviour, needs to be well understood. There are often many individual factors other than the nutritional perspective that lead to a certain behaviour. Understanding the influencing factors, enhancers and barriers is crucial for avoiding misunderstandings or inappropriate activities. Respective methods such as KAP (Knowledge, Attitudes and Practices survey) should be included in local assessment surveys to understand the determinants of a specific nutritional behaviour (food taboos, cultural beliefs, attitudes and practices during illness, pregnancy or lactation). The influencing groups and social conditions should also be identified to be able to formulate the necessary activities (see Chapter 5.5).

d) Incorporate nutrition-related objectives and indicators

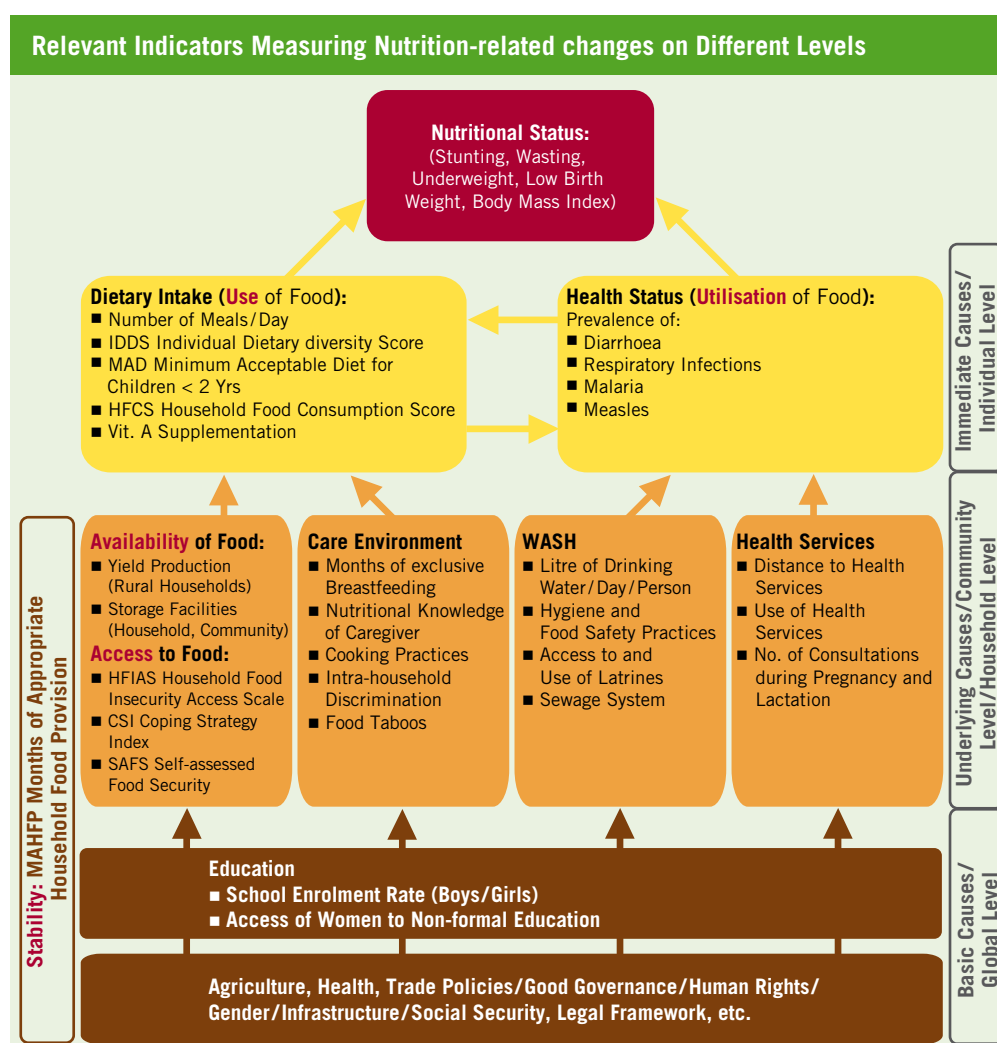
Attaining sustainable food and nutrition security or contributing to improved nutrition requires food and nutrition security-related objectives, as well as respective indicators. These should be included in the planning documents of programmes and projects. The formulation of nutrition objectives depend on the identified problems and possible planned interventions from partners, Welthungerhilfe or from other stakeholders focused on nutrition outcomes. These interventions should address each of the four dimensions of food and nutrition security (availability, access, use and utilisation, and stability) in a systematic and integrated approach. Only if interventions specifically address the identified nutritional problems can nutritional outcomes be measured.

How to measure nutritional impact, outcome or output (indicators sensitive to nutrition)

To be able to monitor and evaluate the outcome and impact of FNS interventions on nutrition-related problems, nutrition-related indicators need to be included into the planning process. These indicators allow decision makers to measure relevant nutrition-related changes on different levels: individual, household/community, district or country level. In most of Welthungerhilfe's projects, improvements focused at the household level may include those which can be realistically achieved. Except through treatment programmes, it is not realistic to expect measurable contributions in the nutritional status of individuals (see Box on Anthropometric Measurements).

Welthungerhilfe has compiled a toolbox for nutrition-related indicators. Most of these indicators are derived from research projects in which they have been tested and their functionality has been proven (see USAID's FANTA project). They can be grouped according to the different causes and levels within the UNICEF model.

Figure 12: Relevant Indicators to Measure changes in Individuals, Households and Communities



Source: adopted from UNICEF Causal Model (1991)

Select the most appropriate indicators from the toolbox and complement them with self-defined indicators, as needed. The indicators should be relevant to the level of the FNS intervention i.e. it is not possible to expect changes in the nutritional status of children (individual level) when interventions are only addressing food security at the household level. In short and medium-term programmes, significant behavioural changes should not be expected since experience suggests that nutritional behaviours are deeply rooted and difficult to transform over shorter time periods (see Chapter 5.5).

For most of Welthungerhilfe's projects, a combination of the standardised "Diet Diversity Score" (DDS) at household and individual level (for vulnerable groups) seems to be appropriate, since they provide some qualitative information on the improvement of food consumed by households or vulnerable groups. Higher diet diversity on the 'plate' increases the probability that household members receive the nutrients that they need for their wellbeing.

e) Define professional skills and staff qualification

In order to be able to properly plan, implement and monitor nutrition-related interventions, a certain level of conceptual understanding is needed. In addition, specialised nutritional or medical and methodological (statistical) skills are required in order to adequately execute surveys, analyse and interpret monitoring data, and take the right decisions for steering the project. It is therefore crucial to define the level of required nutrition-related skills and – if required – hire specialised staff with nutritional knowledge before the start of an intervention.

Note: The level of required qualification and profound nutritional knowledge should not be underestimated. This is especially the case when undertaking rehabilitation and treatment programmes such as CMAM, where a nutritional and even medical background is required, or when working with women on nutrition education and behaviour change – here a profound background in social and learning skills is crucial i.e. for KAP surveys (See Chapter 6).

f) Evaluate funding opportunities and secure necessary additional budget lines

When planning projects, programmes or country portfolios, appropriate finances for the required specialised staff, on-going capacity building and training, needs to be budgeted for. The necessary time and costs for surveys and monitoring should not be underestimated and must be included into budgets and operational plans. One challenge for Welthungerhilfe's portfolio planning is to align with locally available funding opportunities ("calls for proposals"), which often address only one aspect of SFNS.

It is also important to align all planned measures to existing national strategies for SFNS. Cooperation and collaboration is required to overcome the nutritional problems. Multi-stakeholder and cross-sectoral engagement and the alignment of activities and approaches into local and national portfolios is of high importance.

3.5 Interpretation of Data and Measuring Success

As part of the project cycle management, regular tracking of the achievements of FNS interventions is necessary. Data for nutrition-related indicators must be collected, analysed and interpreted. Adjustments in the implementation of projects must be made if necessary.

Staff should be able to understand, handle and interpret monitoring results appropriately: e.g. under which circumstances is a ten percent increase in diet diversity on household level a good result? Is a 25% increase in exclusive breastfeeding enough to say that an intervention was successful? Are we happy to see a 15% increase in agricultural production for families to make them food and nutrition secure if we do not know whether they consume or sell the food crops they produce?

A specific challenge is the **interpretation of nutritional status indicators:**

What does a five to ten percent reduction in the wasting prevalence of children within the project area mean? Is it a success or still not enough? Is a five percent reduction in nutritional status a considerable result? What makes the difference between a five percent reduction in prevalence of wasting and stunting?

Key Questions to Measure Impact and Interpret Changes

1. **What** has changed since the beginning of the programme?
2. **How much** has this changed since the beginning of the programme?
3. Were these **changes intended – or not intended?**
4. **Who** has perceived or experienced changes the most, or the least?
5. **What** do the changes look like? How can these be measured?
6. **Why** did the changes occur? Why not?
7. **What is the contribution of the project activities/interventions to these changes?**
Can changes be clearly attributed to these interventions or did other factors influence these changes?

To be able to interpret anthropometric data on individual and public health aspects, the following lists should be used:

1. The cut-off points for the most relevant indicators to classify malnutrition in children and adults (see Table 3)
2. The cut-off points for public health significance need be known as well in order to properly interpret the data for intervention (re)planning (see Table 3)

Table 2: Cut-off Points for the Most Relevant Indicators to Classify Malnutrition in Children and Adults (Source: WHO – NLIS, 2012)

Nutritional Status Indicators	Description/Application	Individual Level Thresholds – Cut-off Points
Infants		
Birth weight	Indicator for future health and nutritional status of a child and the health and nutritional status of mothers	< 2.5 kg = low birth weight
Children < 5 years		
Weight-for-Height	Indicator for acute malnutrition/wasting Application: nutrition assessments in emergencies; selection criteria for selective nutritional programmes	< -2SD = moderate wasting < -3SD = severe wasting > +2SD = overweight
Height-for-Age	Indicator for chronic malnutrition/growth retardation (stunting)	< -2SD = moderate stunting < -3SD = severe stunting
Weight-for-Age	Indicator for underweight, composed indicator reflecting stunting and wasting	< -2SD = moderate underweight < -3SD = severe underweight
Mid-upper arm circumference	Indicator for moderate and severe acute malnutrition	110–125mm = moderate malnutrition < 110mm = severe malnutrition
Adults		
Body Mass Index	Indicator for malnutrition of young people and adults	< 16.0 = severe underweight < 17.0 = moderate underweight < 18.5 = underweight 18.5–24.9 = normal weight ≥ 25.0 = overweight ≥ 30.0 = obesity

The prevalence of malnutrition in different population groups can be derived from secondary data sources (see Chapter 3.1). Anthropometric background data must not necessarily be gathered by Welthungerhilfe itself, but is often provided by other organisations. In addition, Welthungerhilfe's own data can be collected using standardised methodologies such as the 'SMART' tool. Whether the prevalence³ and incidence⁴ of a nutritional problem has to be classified as high, medium or acceptable, can only be possible by using defined criteria and thresholds.

³ Prevalence or prevalence proportion in epidemiology is the proportion of a population found to have a condition (typically a disease or a risk factor). It is derived by comparing the number of people found to have the condition with the total number of people studied, and is usually expressed as a percentage or as the number of cases per 10,000 or 100,000 people

⁴ The incidence rate is the number of new cases per population at risk in a given time period

Table 3: Prevalence Cut-off Values of the Nutritional Indicators for Public Health Significance

Nutritional Status Indicators	Cut-off Values for Public Health Significance (see WHO–NLIS, 2012)
Underweight (Children < 5 years) (Weight-for-Age, <-2SD)	< 10% = low prevalence 10–19% = medium prevalence 20–29% = high prevalence ≥ 30% = very high prevalence
Stunting (Children < 5 years) (Height-for-Age)	< 20% = low prevalence 20–29% = medium prevalence 30–39% = high prevalence ≥ 40% = very high prevalence
Wasting (Children < 5 years) (Weight-for-Height)	< 5% = acceptable 5– 9% = poor 10–14% = serious situation ≥ 15% = critical situation/emergency
Underweight (Adults) (BMI < 18.5)	< 10% = low prevalence (warning sign, monitoring required) 10–19% = medium prevalence (poor situation, FNS action required) 20–39% = high prevalence (serious situation, FNS action required) ≥ 40% = very high prevalence (critical situation)
Clinical Signs	Cut-off Values for Public Health Significance
Iron deficiency – anaemia	≤ 5% = no public health problem 5–19% = mild public health problem 20–39% = moderate public health problem ≥ 40.0% = severe public health problem
Vitamin A deficiency – Serum or plasma retinol < 0.70 µmol/l pre-school-age children	≤ 2% = no public health problem 2– 9% = mild public health problem 10–19% = moderate public health problem ≥ 20% = severe public health problem
Night blindness (Vitamin A-deficiency) in pregnant women	≥ 5% = moderate public health problem
Iodine deficiency measured by median urinary iodine concentration (µg/l)	Median urinary iodine concentration: < 20 µg/l = severe deficiency 20– 49 µg/l = moderate deficiency 50– 99 µg/l = mild deficiency 100–199 µg/l = optimal status 200–299 µg/l = risk of iodine-induced hyper-thyroidism ≥ 300 µg/l = risk of adverse health consequences

Besides the nutritional status indicators, there are a multitude of indicators, including qualitative ones, which measure changes related to the dimensions of availability, access, and the use and utilisation of food at the household level. A brief overview of these is provided in the following table.

Table 4: Indicators for the USE of Food and Diet Diversity

Name	Description	Remarks
Frequency of meals	Number of meals/person/day, via defined questionnaire	Relatively easy to get information; interviewed persons remember easily
Dietary Diversity Score at individual or HH level (HDDS, IDDS)	24 hours recall, consumed food is grouped into twelve or more food groups, number of food groups measured, defined methodology (FAO)	Relatively easy to measure based on questionnaires, proxy indicator for quality of diet, less for quantity, depends on the memory capacity of respondents Measures diet diversity and food frequency, depends on the memory capacity of respondents
Household Food Consumption Score (HFCS)	7-day recall, structured questionnaire on HH level, defined methodology (WFP)	
% of exclusive breast feeding and/or % appropriate complementary food	Age specific consumption of breast milk, type and diversity of complementary food for young children	Use of output/outcome, indicator for child feeding practices, important to avoid undernutrition

Table 5: Indicators for the UTILISATION of Food and Health Status

Name	Description	Remarks
Diarrhoea disorders	Frequency of disease, (def. at least 3x liquid stool)	Needs to be asked, relies on the memory capacity of people interviewed (i.e. during the past seven or 14 days)
Respiratory diseases	Coughing and fever	Idem
Malaria	Blood-test evidence; malaria rapid test	Not very specific for undernutrition, yet an important influencing factor
Hygiene status	Home storage of drinking water, food or waste disposal	Qualitative assessment, many factors play a role

Table 6: Indicators and Variables for AVAILABILITY and ACCESS

Name	Description	Remarks
Production	Kg/tons/sacks of maize, rice, beans	Can be measured/calculated, thus more or less objective
Yield	Harvest/ha of a certain food crop	Measurable, however size of plots are difficult to define for the households
Diversification	Number of different food (crops)	Qualitative assessment for comparison
Income	Monetary (in US\$) or through studies on expenses	Income is rather difficult to assess, a lot of income is non-monetary, delicate: generally people are reluctant to state their income
Storage	Volumes of different storage facilities for different food items	Rough overview possible through observation
Price volatility	Price changes for basic food stuff	Global and regional, indirect but useful indicator

For monitoring and evaluation, the results of interventions should be measured on the level of service provision (output) and direct effect level (outcome) for the population. The following key questions along the impact chain must be asked to judge progress, performance and impact:

1. What has changed since the beginning of the programme?
2. How much has this changed since the beginning of the programme?
3. Were these changes intended or not intended?
4. Who has perceived or experienced changes the most, and the least?
5. What do these changes look like? How can they be measured?
6. Why did the changes occur? Why not?
7. What is the contribution of the project activities/interventions to these changes? Can changes be clearly attributed to interventions or did other factors influence these changes?

(See Welthungerhilfe OF Outcome and Impact Orientation, 2008)

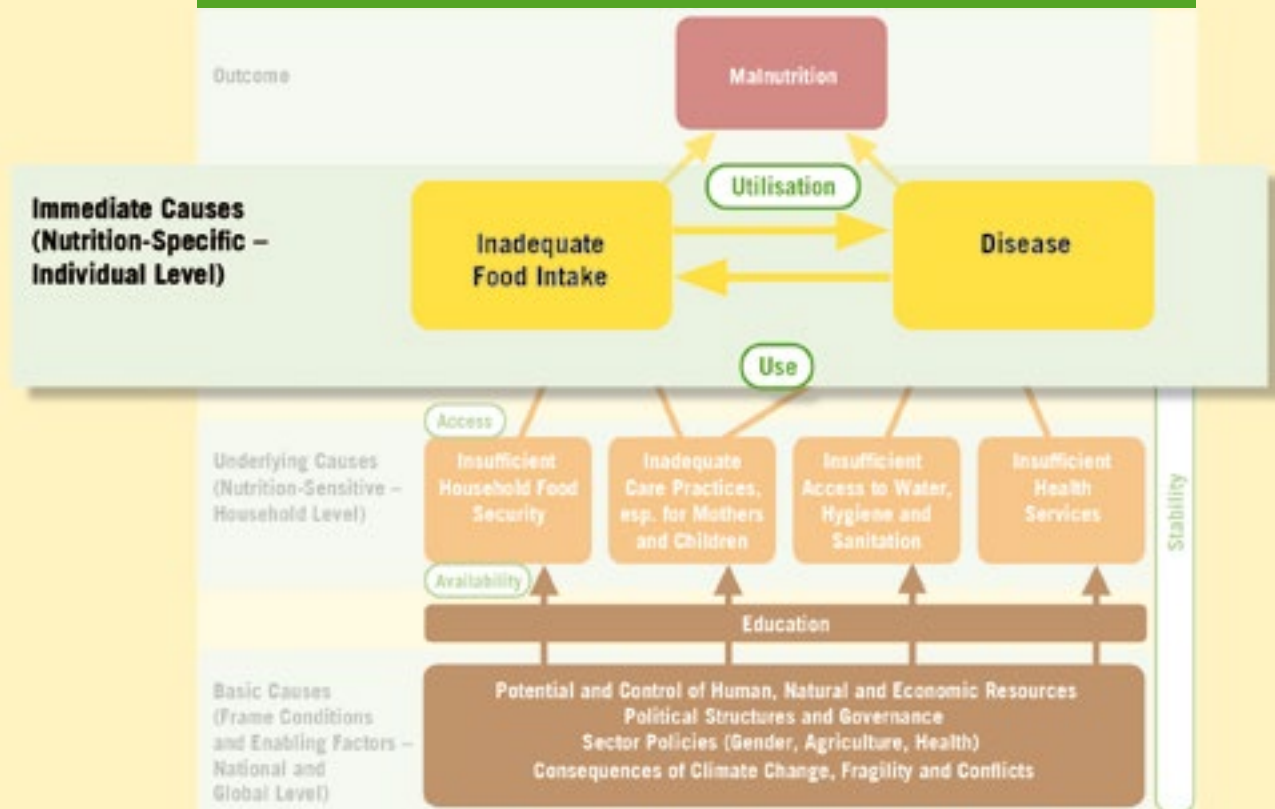
IMPLEMENTATION PHASE

Addressing the Immediate Causes of Malnutrition through nutrition-specific Interventions



Burundi: Measuring the mid-upper arm circumference (MUAC). Source: Haeberle/Welthungerhilfe

Causal Model of Malnutrition



Source: adopted from UNICEF

4. Addressing the Immediate Causes of Malnutrition through nutrition-specific Interventions

There are two approaches that may lead to improved nutrition in individuals:

- **Preventing malnutrition** through adequate food intake (by preparing diverse family diets or proper feeding practices that cover all the necessary nutritional requirements in the specific target groups) and keeping people free from illnesses
- **Treating existing malnutrition** with specific food items or enriched special food, including isolated micronutrients or multi-nutrient supplements, if necessary. The provision of treatment against diarrhoea or parasites (deworming) may also be required for overcoming infectious intestinal diseases

4.1 Preventing Malnutrition: Providing nutritious food for Children and Pregnant and Breastfeeding Women

Pregnant women, lactating women and young children are most vulnerable to malnutrition, including hidden hunger, since they have a relatively greater need for vitamins and minerals, and are more susceptible to the harmful consequences of deficiencies. The nutrient requirements of women are much higher during pregnancy and while they are breastfeeding their children. Yet, they are often the last to eat in their families and have reduced access to high-quality food or food for their children in times of scarcity.

Box 6: The First 1,000 Days

Approximately 50 per cent of all children under the age of five suffer from one or more micronutrient deficiencies, and 25 per cent are stunted (FAO, 2013). Nutrition interventions focus on the critical first 1,000 days of life (from conception to 23 months of age), identified as a 'window of opportunity' which is most crucial for preventing child deaths and ensuring adequate growth. Malnutrition during this period can cause irreversible damage to a child's brain development, immune system and physical growth. This can result in their diminished capacity to learn, poor performance in school, greater susceptibility to infection and disease, and a lifetime of lost earning potential (www.thousanddays.org).

Nutrient requirements need to be considered in relation to the energy supply (i.e. provision of calories) and quality of food, in terms of diverse macro and micronutrients. People have dynamic nutrient requirements during their lifetime e.g. increased nutritional requirement during their growth, while pregnant or lactating, being elderly or sick, or when faced with strenuous physical workloads. Children are the first victims of malnutrition due to their high nutrient needs and vulnerability. Improving maternal and child nutrition, particularly during the first 1,000 days of a child's life, is one of the major challenges and opportunities for breaking the intergenerational cycle of malnutrition (see Chapter 2).

4

Micronutrient provision, in particular, can be ensured through a variety of approaches aimed at making the diets of families and individuals more healthy and nutritious:

1. **Diversification of the diet** – using and preparing more nutritious meals by including more nutrient-rich food items such as fruits and vegetables, which can be produced in home or kitchen gardens, or purchased in local markets. This food-based approach depends on the availability of nutrient-rich foods and knowledge of how to prepare them as part of a balanced and diversified meal (see Chapter 5 on “Underlying Causes” of malnutrition).
2. **Food Fortification** is the practice of deliberately increasing the amount of an essential micronutrient available in food i.e. supplementing vitamins and minerals in widely used foods for public health purposes. Fortified foods are generally staple foods and condiments (such as Iron and vitamins in wheat or maize flour, vitamin A in vegetable oil and iodine in salt) commonly consumed by the population. They have the potential of improving the nutrition of large populations over the long-term. Many countries have integrated several forms of fortification in different nationwide health and nutrition programmes. However, even if they provide important additional micronutrient supplements for adults and children, the effectiveness of this approach depends, to a large extent, on how much of these fortified staple foods reach specific nutrition-insecure target groups (Sablah, 2013).
3. **Biofortification** is a strategy for the provision of staple crop varieties with a higher content of certain minerals or vitamins, as compared with regularly used crops varieties. Agricultural research can be utilised to focus on the most common micronutrient deficiencies (iron, zinc, vitamin A), by selecting or breeding crop varieties with higher nutrient content. A successful example is the orange-fleshed sweet potato (OFSP) variety, with higher vitamin A content and the potential to reducing vitamin A deficiency in children.
4. **Supplementation** refers to the periodic administration of medicinal preparations of nutrients, such as capsules, tablets or drops, to individuals. Supplementation programmes have the advantage of reaching individuals and targeted populations while not putting other groups at risk of overconsumption, or adverse reactions. Nutritional supplementation is usually restricted to vulnerable groups who have difficulties in meeting their nutrient needs through food intake alone (e.g. women of childbearing age and during pregnancy, infants and young children, elderly people, groups with low socio-economic status, chronically ill people and populations affected by emergency situations).

The most commonly applied strategy for securing the sufficient supply **of specific micronutrients** is through the periodic supplementation of preparations of nutrients, such as capsules, tablets or drops of vitamin A, iron, zinc and folic acid.

Box 7: Multi-nutrient Powders and Lipid-based Nutrient Supplements

- **Multi-nutrient powders (MNPs)** are blends of vitamins and minerals, sometimes including protein and fat, which are especially formulated to deliver optimum nutrition when added to meals at the point of preparation. Mothers can easily sprinkle these powders onto foods that they are already preparing for their children, for just a few cents per day. MNPs show significant improvements in the cognitive development of children and the reduction of anaemia and vitamin A deficiencies. They are a cost-efficient way of filling micronutrient gaps in the diet.
- **Lipid-based Supplements (LBS)** are formulated as a paste to provide a range of vitamins and minerals, essential fatty acids, protein and energy, for overcoming acute malnutrition. They serve as supplementary food in nutrition-insecure areas, or as a means for improving the nutritional quality of complementary food for children between six to 24 months of age. One of the best-known examples is 'PlumpyNut' – a prefabricated standardised product – widely used as a **ready-to-use therapeutic food (RUTF)** in treating severe acute malnutrition (SAM) in children from six months of age.

GAIN, 2014; Sight and Life, 2013

Supplementation is often applied in refugee camps, emergency situations, school feeding programmes, or integrated into broader, large-scale mother and childcare programmes – to fight against micronutrient deficiency. They are often complemented with educational programmes aimed at encouraging adequate nutritional practices.

Key recommendations for direct nutrition interventions:

- For infants, breast milk is recognised as the best source of available nutrients and the WHO recommends exclusive breastfeeding for the first six months of life. From six months on, children should be fed a diverse range of complementary foods (such as milk, eggs, meat and food rich in fats), in addition to continued breastfeeding – ideally until the age of two, to ensure they acquire their full nutrient needs.
- The consumption of fresh foods from own production or local markets should be promoted through nutrition education and cooking classes. Balanced and diversified diets should include a wide range of foods, including animal-source foods, and are the best means of preventing malnutrition.
- Processed products, such as supplements, are expensive and often not readily available. For poorer households, home-made meals based on their own agricultural production or purchase from markets are more affordable in the long run.
- If micronutrient supplements are used, it must be ensured, where possible, that they are authorised for use and widely used at the national level, in order to promote in-country solutions.
- Monitoring whether RUTF products are culturally accepted by the beneficiaries and able to reach the right target or risk groups is essential.
- The integration of micronutrient supplementation into educational programmes to inform caretakers about the usefulness and costs of instant food items, as well as possible alternatives (diet diversification), should be ensured.

4.2 Treating Malnutrition: Rehabilitating Malnutrition through Community Approaches

In areas with a high prevalence of **severe acute malnutrition (SAM)** or **moderate acute malnutrition (MAM)**, nutrition-specific measures should be undertaken to minimise child mortality. Often, severely acute malnourished children are transferred to health centres or nearby hospitals for rehydration treatment and nutritional rehabilitation. **Therapeutic feeding** is common practice in hospitals and feeding centres, particularly when children's nutritional status (measured by weight-for-height) drops under the cut-off-point of -3 Standard Deviations (SD) or 70 percentiles (see Table 2 in Chapter 3.5), where immediate nutrition-specific actions are required to prevent death. Feeding centres are often integrated into hospitals, health centres or refugee camps, and organised by specialised international organisations (MSF, ACF and CARE International etc.), generally in collaboration with public health structures and UN agencies such as UNICEF and the WHO. Usually young patients are admitted for an average of 30 days. Accompanying caregivers often have to travel long distances to access these centres and it is difficult for mothers to leave the family and other young children at home for such long periods.

As an alternative approach, Concern Worldwide, together with Valid International, has pioneered the so-called 'Community-based Management of Acute Malnutrition (CMAM)'. This approach has proven to be extremely effective and has enabled the treatment of cases within the community. It has been taken up by other organisations to treat acute malnutrition. It requires a minimum of technical paramedical skills.

Box 8: Community-based Management of Acute Malnutrition (CMAM)

Community management of malnutrition (CMAM) has been developed as an alternative to centre-based therapeutic feeding. The central principle of CMAM is to treat malnourished children in their homes. As a result, it inevitably reaches more people than the traditional centre-based schemes. Recent innovations in **ready-to-use therapeutic food (RUTF)** and the use of **mid-upper arm circumference (MUAC)** as a rapid screening and admission tool for potential beneficiaries, have made **CMAM** possible. Developed mainly for **emergency contexts**, CMAM may also be applicable in other contexts, or incorporated into routine health services and aligned as part of national policies (Helen Keller International, 2009, FANTA, 2008).

In India, Welthungerhilfe has developed another locally based strategy to overcome acute malnutrition. Homemade complementary food is been produced by women's self-help initiatives and sold at affordable prices to households (see example below).

Box 9: The Fight Hunger First Initiative (FHFI) of Welthungerhilfe in India: Homemade Complementary Food to Combat Undernutrition



The FHFI (see Chapter 7) addresses food insecurity and malnutrition by developing sustainable solutions together with affected communities and relevant stakeholders by following a rights-based approach in 11 project areas. Here, home-based management of moderate acute malnutrition (MAM) is an option for a significant proportion of malnourished children who cannot be attended to through the formal health sector due to remoteness.

Here it has to become a community task to treat severely malnourished children (SAM) and also prevent moderately malnourished children (MAM) from moving into SAM. A local women's self-help group, together with the help of the NGO MYRADA, initiated the production of '**My Nutrimix**' – a high calorie and high protein powder mix containing wheat, groundnut and jaggery (=coarse, unrefined sugar made from sugar cane with high iron and mineral content) providing 405 Calories and 13 grams of protein per 100 grams, to children with largely moderate malnutrition. They are distributed at an affordable price to the families. Monitoring results revealed that out of a total of 1066 children who started off as moderately malnourished, 763 shifted to normal status within six months.

Another project organised special **nutrition camps** for 12 to 15 days every three to four months to rehabilitate severely malnourished children, in order to reach also remote locations. Besides systematically feeding the children (aged between six to 59 months with either acute or chronic undernutrition) with highly nutritious food, their mothers attend counselling sessions about proper complementary feeding practices. Mothers contribute food items and the animators prepare low cost recipes using these local food items. The mothers participate in **cooking demonstrations**, they learn how to produce homemade high-calorie foods and how to feed their children according to recommendations. Hand washing and kitchen gardening are also integral components of the capacity building as well as family planning/birth spacing. The initiative links up with local health services where complicated cases are transferred to. **Deworming** and micro-nutrient supplementation (vit. A, iron and folic acid as well as zinc) had been provided according to **national policy**.

After treatment in the camps, a locally made prefabricated mixture, consisting of roasted powder of rice, ground nut, sesame and green chick-peas, is given to every child to take home. Regular home visits are conducted to encourage caretakers to follow proper feeding and hygiene practices at home.

Another community strategy in the field of nutritional rehabilitation restricted to moderate cases (MAM), is the so-called **Positive Deviance/Hearth approach**. Since behavioural changes are difficult to achieve and require a long period of time, health and nutritional practitioners are searching for solutions from within the community, rather than bringing in solutions from outside. Positive deviance is a strengths-based approach that is based on the fact that in every community individuals (positive deviants) find better solutions i.e. to combat or prevent malnutrition in children better than their neighbours, despite having the same resource constraints or risks (CARE, 2003). Through a participatory process guided by local facilitators trained by NGOs or other stakeholders, community members are invited to regularly meet each other for group discussions and/or cooking sessions to discover successful local strategies and to learn from positive cases. **Locally produced food items** are used for the shared meal. Monitoring and nutritional education is also integrated into such community-based approaches. Research revealed that rehabilitation based on local solutions can lead to the successful and sustainable alleviation of malnutrition in children as compared to solutions introduced by external actors.

Box 10: Learning from the Good Cases – The Community-based Rehabilitation of Malnourished Children in Northern Burundi

In the Food Security and Peace Promotion project in Burundi, several sessions of FARN (**Foyers d'Apprentissage pour la Réhabilitation Nutritionnelle**) were implemented. Before the sessions started, the nutritional status of all children below the age of five in a certain region (administrative units in Burundi are known as “Hills”) was assessed, with the assistance of health centres and UNICEF, using the Weight-for-Height and MUAC indicators for malnutrition. Children with severe symptoms of malnutrition were admitted to hospitals for treatment. Children with moderate symptoms, as well as some healthy children, were chosen to participate with their mothers in the FARN session. Over a period of 14 days, mothers cooked together under the supervision of nutrition trainers. Special emphasis was placed on the **preparation of balanced meals using local food**. The sessions were also used to incorporate other important aspects of food and nutrition security, as well as for the improvement of livelihood conditions. All undernourished children who participated in the FARN were weighed and measured directly after the sessions and again, six months later. Assessments demonstrated that 94 per cent of participating children managed to gain weight. The sustainability of such learning initiatives depends on the participation of mothers with well-nourished children, who demonstrate to others, that good nutrition is possible, thereby exchanging their knowledge and motivating others.

Welthungerhilfe: Example from the field, 2013

The advantages of community-led approaches:

- People develop their own sustainable solutions on the basis of available resources, local food, knowledge and practices
- Community approaches are better accepted and applied in project areas where institutions build on local solutions and combine nutrition-specific action with nutrition-sensitive, long-term interventions
- Learning from other families living under similar conditions is more likely to be sustainable and acceptable for affected households. It can be perceived as being a more independent action, compared with receiving external support for food aid

4.3 Reducing Diseases and Malnutrition through Health Interventions

Reducing diseases helps to improve the utilisation of nutrients in the body. The health and hygiene status of a person determines the absorption potential of nutrients. These may be inhibited through frequent diarrhoea and/or the presence of intestinal parasites (e.g. *Giardia lamblia*, hookworms).

a) Deworming campaigns to increase the absorption of nutrients

The prevalence of infection with at least one species of intestinal nematode worm is estimated as 48 per cent in developing countries. Sub-Saharan Africa, South and Southeast Asia (including the Pacific islands), as well as parts of Latin America, are most heavily affected. Transmission depends on sanitation, agricultural practices and environmental conditions (Kabaka, 2011, Hall, 2009).

To reduce the worm burden, the WHO recommends periodic treatment (deworming) of all children living in endemic areas. It is also recommended that health and hygiene education, and the provision of adequate hygiene and sanitation (WASH) measures, should be associated with deworming campaigns, other nutritional treatments or with supplementation (excluding vitamin A).

Box 11: The Impact of Parasite Infestation on Nutritional Status

Soil-transmitted helminths are among the most common infections in developing countries. They impair the nutritional status of people in multiple ways, including:

- feeding on host tissues, including blood, which leads to a loss of iron and protein
- increasing the malabsorption of nutrients
- Some soil-transmitted helminths also cause a loss of appetite and therefore, a reduction in nutritional intake and physical fitness

Source: WHO, 2000; e-LENA WHO, 2011

In the Copenhagen Consensus Paper (2008), the mass treatment of worms through safe and inexpensive deworming drugs combined with nutrition programmes in schools, was ranked the sixth best cost-effective and feasible intervention against worms. The **cost of delivering one round of deworming treatment** is approximately \$0.15 per child when administered in schools, and \$0.25 per child for pre-school children, when combined with other targeted interventions in primary health care facilities. Treatment is recommended for children aged two to 14 years, if the prevalence in the country or region exceeds a specified threshold.

Since Welthungerhilfe is not a health-based organisation, it is highly recommended for Welthungerhilfe to cooperate with specialised stakeholders who implement deworming, anti-parasite campaigns, as well as health education, together with the local health sector, in order to address the immediate causes of malnutrition.



Example: Poster used for Community Training on Health, Education and Hygiene, Welthungerhilfe Cambodia, 2009

Hygiene education and improved sanitation are one of the most important and effective measures for reducing the incidence and prevalence of infectious diseases such as diarrhoea and parasite infections. Simple measures such as food cleanliness, safe water handling and handwashing (see Chapter 5.4) contribute to preventing infections and improving malnutrition.

b) Integrated Management of Childhood Illness – Maternal and Child Health

The “**Integrated Management of Childhood Illness (IMCI)**” is a joint WHO/UNICEF initiative which was initiated in 1992 with the objective of significantly reducing global morbidity and mortality associated with the major causes of illness in children, as well as for contributing to the healthy growth and development of children. The strategy **combines improved case management of childhood illness** in first-level health facilities, with a focus on nutrition, immunisation, disease prevention, and the promotion of growth and development. There are three components to IMCI and interventions in all three components encompass both curative, disease preventive and health-promoting activities:

- improving the skills of health workers;
- improving health systems and
- improving household and community practices.

Since most child deaths occur at home before children are able to reach a health facility, preventing fatalities by improving **child health through the community is at the core of new approaches**. Recently, more household and community attempts have been undertaken to manage childhood illnesses and locally adapted guidelines of IMCI have been promoted within communities. Developing capacity e.g. in the case-management skills of local health staff, health volunteers and household members to address the family and community practices disease control and prevention, is crucial for nutrition security.

Key recommendations within the IMCI for nutrition:

- Continue breastfeeding during illnesses of the child or the mother. A continuous stimulation of breastfeeding is crucial to compensate for reduced appetite. Breast milk is the most healthy (and cheapest) food that is available
- Continue complementary feeding during illnesses. There is an increased demand for nutrients due to acute infections. Frequent episodes of diarrhoea may lead to wasting and nutritional requirements could thus be increased

Deworming in pregnant women and children under the age of five is recommended for regions with high prevalence of helminthic infestations (see above).

A solution within the community sounds simple, but there must also be a systematic approach, whether this involves the relationship between a health worker and an individual family, or the development of a regional or national strategy. Once the decision has been taken to target child health in the community, certain common steps are required to make the approach work effectively.

4.4 Emergency Nutrition: Ensuring Good Nutrition in Emergency Aid

Acute emergency situations have an immediate negative influence on agriculture, food and the nutrition and health of affected populations. Aid measures should address the population which is directly affected and needs assessments are important, regardless of the time pressure for reaction. It is a principle of emergency aid that **vulnerable groups** should be identified and supported (the 'Humanitarian Imperative'). Besides the necessity to provide immediate food and health and protection support to the affected population, especially to most vulnerable groups (most commonly women, children, and the elderly), it is crucial to assess and improve the remaining local structures and capacities of the population in need, in order to build up their assets. This is especially important for refugees who cannot rely on remaining local structures and safety nets.

The quality of food in emergencies is of crucial importance when the duration of the emergencies cut supplies for longer periods. Close monitoring of the nutritional situation of children and women is also necessary in order to prevent them from falling into malnutrition. The disruption of supplies, especially of fresh and nutrient rich food, often leads to unbalanced diets which impair the health situation of those who are nutritionally vulnerable.

According to the Sphere handbook (2011), specific target groups during emergencies include: women, children, older people, people with disabilities (physical and mental), people with HIV&AIDS, as well as ethnic minorities and socially marginalised groups. These people do not only have special needs, they also possess specific self-help potential which must be strengthened (see Sphere Handbook, p.9).

4

Since the nutritional status of vulnerable groups can deteriorate in a relatively short period of time, specific nutrition and health activities should be given special attention.

Typical nutrition relevant interventions during emergency situations include:

1. Direct food-related interventions

In most emergency situations, the basic provision of food and drinking water is no longer ensured. The rapid supply of food is the most immediate tool for safeguarding the survival of the affected population. In the case of refugees and displaced persons, this situation is obvious and the needs for each person must be determined. Suitable **rapid assessment tools for emergencies** can provide important initial information for estimating the requirement for food rations. Information on the calculation of food rations is also included in the Sphere handbook (2011).

Minimum Nutrient Requirement/person/day (see Sphere, 2011; ACF, 2011)

Energy: 2,100 kcal/p/d
Protein: 53 g (10% of total energy)
Fat: 40g (10% of total energy)

Vit. A: 550 mg Retinol activity equivalent
Vit. D: 6.1 mg
Vit. B1 (Thiamin): 1.1 mg
Vit. B2 (Riboflavin): 1.1mg
Vit. B3 (Nicacin): 13.8 mg NE
Vit. C: 41.6 mg
Folate: 363 mg Dietary folic acid equiv.
Iron: 32.0 Mg
Iodine: 138 mg
Calcium: 989 mg

There are two **main modalities** for providing food aid after emergencies, available to development agencies:

1. **Free distribution** of food rations i.e. free of charge to those in need, such as refugees, children, widows, orphans, the sick and victims of war etc.)
2. **Conditioned project-linked food aid** e.g. **Food-for-Work** or **Cash-for-Work** measures. Here, food rations are often linked to the reconstruction or rehabilitation of productive infrastructure

Safety nets in emergencies

In recent years, voucher or cash-based distribution has been commonly used as an alternative to food aid (in kind) distributions to target groups. Vouchers or tokens can be exchanged by the recipients for goods at shops or distribution centres. In return, the shop-keeper is paid the corresponding cash amounts by banks, or by implementing organisations directly. Voucher systems have also been used for seeds and other agricultural inputs, to boost agricultural production in regions (see also 5.2.3).

Box 12: Welthungerhilfe's Unconditional Cash Transfer Project for Internally Displaced Persons (IDPs), Myanmar

Between May and November, 2013, Welthungerhilfe implemented a project to support internally displaced families in Kachin State, Myanmar, with financial contribution from the German Foreign Office. 6,330 internally displaced families (29,500 people) in 25 camps across six townships received 'unconditional' cash grants through the project – in addition to other support, such as the provision of shelter, psycho-social support, education (especially for children), as well as improved WASH and capacity development for the groups. With this cash, families were able to cover their unmet needs for food and other non-food items, according to their own requirements. In the absence of other income-generation opportunities the cash transfer allowed the families in the camps to buy fresh vegetables, spices (curry) fish paste etc., to complement the general food rations from WFP and other aid agencies. Medicine, learning material for children, as well as hygiene articles (particularly for women) were also purchased. An evaluation of the project suggests that the unconditional cash component gave families the liberty to determine their own priorities. It also suggests that families felt more dignified with unconditional cash during the already difficult and traumatic situation, helping to ensure their psychological stability. Many families described the days when they were able to buy curry, as 'days of happy meals'. Remaining distribution gaps were met without affected populations having to resort to negative coping strategies, such as the sale of their assets. This would have potentially further aggravated their situation in the long run.

A thorough market analysis (before commencing the project) and the continuous evaluation of the market was critical for the project's success. Regional and local markets were also supported and strengthened through the increased demand for goods.

Such **safety nets** during emergency situations are critical for bridging temporal food shortages. Cash transfers in the context of Cash-for-Work measures are useful if sufficient food in the region can be purchased at an adequate price. It is also useful for reactivating local agricultural production. This may be the case, for instance, after a good harvest season – even if people were displaced for a certain period of time. In addition, making cash transfers to the target group has the advantage of facilitating autonomous decision-making, according to their perspective of their own needs.

Key recommendations to ensure adequate nutrition during emergencies

- It is important to ensure that the **needs of children below two years of age, as well as the needs of pregnant and lactating women, the elderly and chronically ill, are covered**: these groups are physiologically and socially the most vulnerable.
- **Food aid should not replace breastfeeding**. Even in difficult situations such as displacement and migration, breastfeeding should be promoted: it should provide exclusive nourishment for children under six months of age. It should also be continued until a child reaches two years of age. Special support should be given to weaning opportunities (complementary foods) and food supplements, to meet micronutrient requirements.

4

- **Foodstuffs should be easy to prepare for consumption.** The promotion and delivery of food that is **locally available** and **culturally acceptable** by the target groups should be assured during emergencies.
- The **introduction of ready-to-use therapeutic food (RUTF)** for the treatment of severely malnourished children should be assured to avoid fatalities. It is however important to be aware that this nutrition-specific intervention is only a **short term and not a sustainable solution**. It should not replace locally used food items but be regarded as a medicine restricted for treatment of severe malnutrition.
- **Combining food aid rations with fresh food should be a priority** when possible e.g. by promoting fresh food voucher systems.

2. Water supply and sanitation

Diarrhoea and malnutrition are inextricably related and tend to interplay in vicious cycles, where one condition feeds off the other. WASH interventions are therefore vital for preventing infectious diseases – one of the immediate causes of malnutrition. The inadequate provision of water and sanitation often poses serious problems during and after emergency situations. As a consequence, illnesses are increasingly transmitted due to contaminated water, the lack of hygiene or inadequate sanitation systems. The specific context determines the selection of the most efficient method for the rapid supply of drinking water. The different possibilities for providing water include: (i) the protection of existing water sources; (ii) decentralised systems at the household level (e.g. the supply of chlorine compounds); (iii) the delivery of untreated water/drinking water; (iv) central purification of untreated water on-site (e.g. drinking water purification plants, sedimentation basins); (v) the rehabilitation of existing supply systems or wells and (vi), the construction of new drinking water facilities which can be used in the medium to long-term (Welthungerhilfe, 2009a; Welthungerhilfe, 2013a).

Often, too little attention is paid to relief activities for the disposal of effluent, faeces and rubbish. The increased occurrence of diarrhoea, in particular amongst children, may indicate that the quality of the drinking water, or alternatively, of the disposal systems for effluent, faeces or rubbish, is inadequate, directly affecting their nutritional status.

Key recommendations for adequate hygiene during emergencies

- **Food and waterborne disease transmission should be prevented and/or minimised for vulnerable groups.** This can be achieved through the promotion of adequate hygiene practices and management
- **Hygiene practices**, such as washing hands should be regularly performed as a complementary measure before preparing food and eating and after using the toilet
- The provision of water to recipients should be **complemented with training communities and households** on how to keep water and food clean, in order to prevent the spread of infectious diseases

3. Household goods and hygiene & sanitary articles (non-food items)

Those affected after conflict and crisis not only need food and drinking water, but also require items or equipment which are essential for daily life. Household goods and sanitary articles must be included in the needs assessment and in the distribution of non-food items. These may include kitchen utensils, tableware, ovens, sanitary articles, hygiene articles, blankets and sleeping mats, clothing, impregnated mosquito nets, tools and cleaning implements, seeds and small agricultural implements, as well as fishing nets. Such non-food items are often provided in the form of 'starter kits' during resettlement or reintegration.

Key recommendations for adequate household hygiene and sanitation during emergencies

- Sufficient hygiene and sanitary articles should be made available, especially for vulnerable groups (women and children).
- Kitchen utensils and tableware should be provided to ensure the safe-keeping of distributed food and water e.g. in order to prevent contamination through handling or storage.

Food and nutrition security interventions in emergencies are commonly nutrition-specific interventions with a short-term perspective, as highlighted in this chapter. However, also in emergency situations, the longer term perspectives should be included right from the beginning aiming at the rehabilitation and improvement of local self-help structures. In addition, local capacities should be built upon and strengthened in order to strengthen future resilience (see Chapter 6).

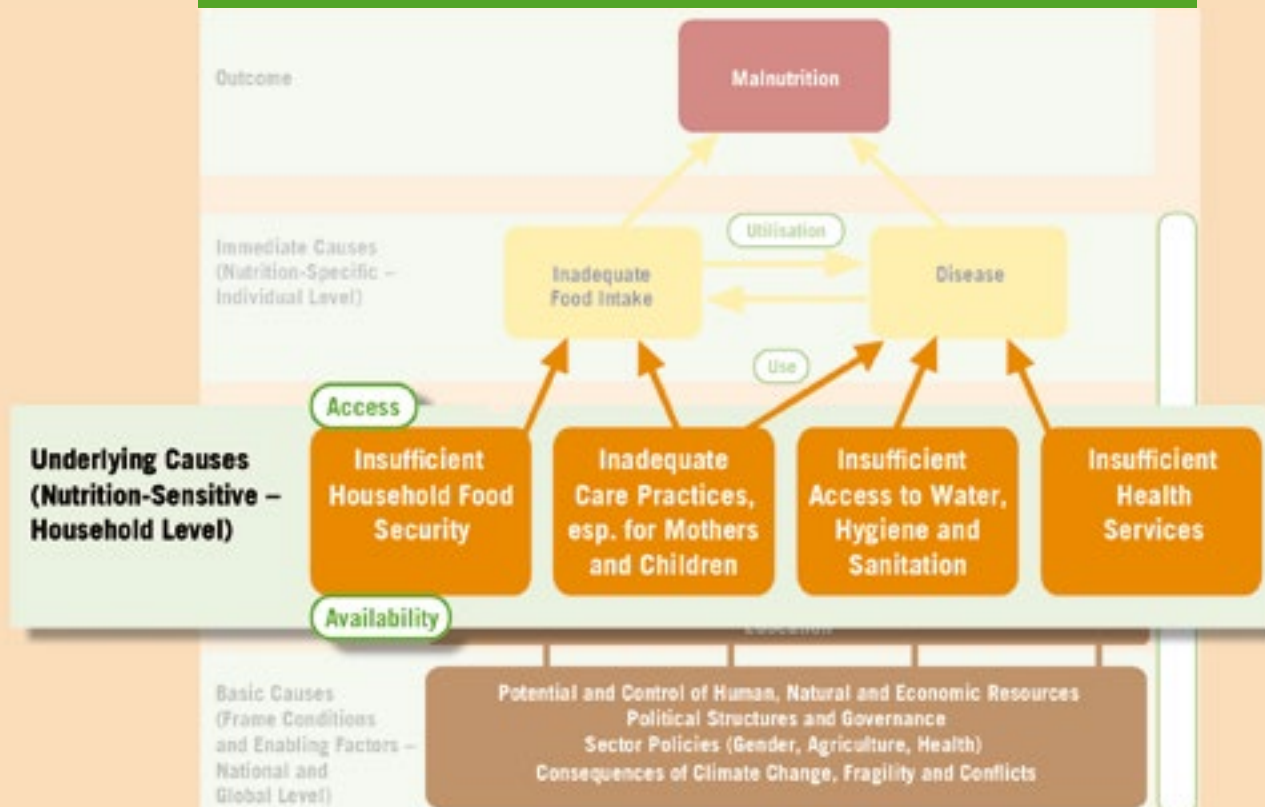
IMPLEMENTATION PHASE

Addressing the Underlying Causes of Malnutrition through nutrition-sensitive Interventions



Bangladesh/Welthungerhilfe. Source: Grossmann/Welthungerhilfe

Causal Model of Malnutrition



Source: adopted from UNICEF

5. Addressing the Underlying Causes of Malnutrition through nutrition-sensitive Interventions

The underlying causes of malnutrition need to be well-understood, since they determine the nutritional outcome of interventions.

The underlying causes of malnutrition mainly concern the household and community level, and encompass all nutrition-sensitive interventions that aim to contribute to improved access to food at the household level, better caring practices, good health services and a safe water and hygienic environment.

5.1 More Food at the Household Level: Diversified and Sustainable Agricultural Production for better Nutrition

How to make agricultural production work more for nutrition is one of the challenges within the global discussion on Sustainable Food and Nutrition Security. The leading principle is that households should aim to invest resources in diversified agricultural production or in off-farm activities, in order to positively affect their nutritional intake. In addition, future agricultural production must guarantee food and nutrition security for the population while maintaining their natural resource base.

Many studies suggest that the majority of interventions achieve their primary goal of improving food security, however, little evidence exists on their impact on nutritional and health status. Agricultural and nutrition programmes are usually disconnected i.e. agricultural resources are not fully utilised towards nutrition (Qaim, 2013).

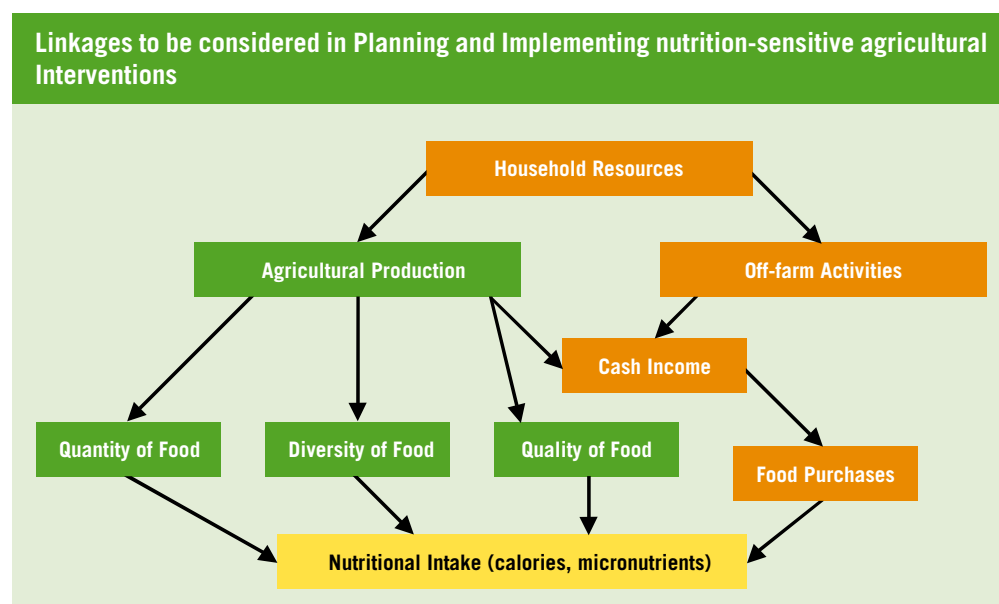


Figure 13: The Linkages between Agriculture and Nutrition (Qaim, 2013)

For this reason, the direct linkages between agriculture and nutrition must be clearly understood – agriculture is often the primary means through which populations secure their supply of staple and nutrient-rich food (subsistence agriculture). However, food can also be purchased on local markets – thus income-generation plays a major role in determining the quantity, diversity and quality of food families and individuals consume.

Increased agricultural production, productivity, and production diversity – both crops and animal production – in smallholder systems do not automatically lead to improved dietary diversity and high quality of food consumed by households. Agricultural interventions must be thought about in a holistic and multi-sectorial way, and take potential negative side-effects on the nutritional situation of women and children into account.

Box 13: Principles for Nutrition-sensitive Agriculture

- Invest in women: safeguard and strengthen the capacity of women to provide food security, health and nutrition to their families
- Promote local production, processing and storage of nutrient rich food
- Increase all year-round availability of nutrient-rich food
- Improve nutritional knowledge among rural households to enhance their dietary diversity (crops, fruits, vegetables and Animal Source Food ASF)
- Promote the adoption of adequate food preparation and feeding practices
- Incorporate explicit nutrition outcomes, objectives and indicators into agricultural project and policy designs (World Bank, 2013a)

5.1.1 Investments in Smallholder Agriculture – Potentials for Sustainability and Nutrition

Smallholder agriculture is the largest provider of food, raw materials and jobs, in the world (CFS, 2012), and can be productive and/or resilient when it comes to shocks or stresses. Smallholders play an indispensable role in the emancipation of marginalised social groups, diversification of food, management of natural resources, and in protecting the environment, as long as necessary conditions are met. Within the SFNS debate, smallholder investment is considered to have great potential of being further utilised to fight malnutrition. Smallholder contributions to SFNS include economic, social and environmental dimensions – they contribute to production capacity, reduced social inequalities, climate change mitigation, biodiversity, deforestation, soil, and water conservation. Their political dimensions include the emancipation of marginalised groups in society (CFS, 2012).

Small-scale farmers are not better farmers per se, but they often practice sustainable agriculture at all levels of production. One side of the debate on sustainable agriculture focuses on whether farming should be conventional or organic, large-scale or small-scale. Not only can agro-industry harm environments through, for example, the abuse of fertilisers, so too can smallholders – through the use of inappropriate agricultural techniques which may reduce soil fertility. This can be caused by a lack of knowledge and appropriate management skills. However, smallholders who embrace traditional practices do make a significant contribution to preserving the existing diversity of agricultural crops, livestock and indigenous farming knowledge in societies (GIZ, 2012, CFS, 2012).

What is a Smallholder?

The term '**smallholder**' refers to a very diverse group. The spectrum ranges from medium-sized agricultural enterprises that are fully integrated into the market economy, very common in many Asian countries, to micro-enterprises that in large parts practise subsistence farming – this fraction includes three quarters of the world's poor populations.

It is common for smallholders to farm only two hectares of land or less. Approximately 85 per cent of all agricultural businesses worldwide are smallholder – often family – farms, and in many developing countries, more than 90 per cent of farmers are smallholders (GIZ, 2012).

Nonetheless, smallholders are by far the largest and, hence, the most important group, for the production of food and thus the potential target group for a transformation of agriculture in developing countries. **Smallholder households** are Welthungerhilfe's **main target group**.

There are different methods and means for achieving sustainable smallholder agriculture (based on GIZ, 2012)

1. **Conservation agriculture** has received a lot of attention in recent years. It is a low-input resource-protecting farming method involving no tillage, permanent organic mulch cover and extended crop rotation. Conservation agriculture protects the soil from wind and water erosion, improves soil structure, promotes the diversification of soil systems, and results in increased water and nutrient-retention capacity. As a consequence, nutrient availability increases, soils release fewer greenhouse gases and even have the potential of storing more carbon. It is cost-effective since fewer external inputs are required.
2. **Organic farming** is a sustainable form of farming with high potential for farms using integrated mixed crop production-livestock farming systems. Switching from conventional to organic cultivation can significantly boost revenues. Other types of sustainable farming can also deliver higher yields if improved seeds and fertilisers are used, if soils are cultivated in a more sustainable way, or if rainwater is used more efficiently.
3. **Promoting sustainable smallholder agriculture:** Education, vocational training, the knowledge transfer of appropriate technologies, ecosystem-based approaches, agricultural extension services, market integration and the promotion of value chains are essential for sustainable farming, especially for smallholders in developing countries. Access to resources (land, water, fertilisers, seeds, pesticides, machinery, draught animals, markets, and a labour force) is crucial. Small-scale farmers are however often excluded from formal credit and savings institutions because they are considered unable to afford banking services – provision of small scale credits can improve sustainability if used for prudent investment. Modern communication technologies also play an increasing role: mobile phones and internet access are available even in remote rural areas and can sustain smallholder production through weather forecasts or information on market prices.
4. **Productive infrastructure** such as **small-scale irrigation** schemes can directly contribute to enhanced food security by contributing to increased productivity (enabling higher yields, supplementary cropping and the growth of other crops through an extended vegetation period), reduced vulnerability to weather fluctuations (droughts) and enabling continuous production (for own consumption and sale at markets) throughout the year. Depending on the command area of the introduced system, different groups can profit from an irrigation scheme.



Small-scale irrigation in Haiti. Source: Daniel Rosenthal/Welthungerhilfe

“Nutrition-sensitive agriculture” should receive special attention

- Agricultural **biodiversity** in cropping systems is important for making different qualities of food available at household level or at local markets
- Introducing and promoting the cultivation of fruits, vegetables, interesting cash crops (e.g. geranium) and varieties adapted to changed local conditions (e.g. drought resistant crops) are relevant for **diversification of production and incomes**
- **Mixed cropping patterns** should be promoted to increase food diversity. Traditional cropping patterns can be revived that often included sophisticated mixed farming systems reducing risks of crop failure due to pests, extreme weather events or droughts
- **Integration of crop production and animal rearing** contributes to improved nutrition by the provision of a variety of foods including high-value nutrients from Animal Source Foods (ASF)
- Promoting production and consumption of **traditional local crops and local varieties** such as small millets and legumes can significantly contribute to improve agro-biodiversity and resilience. They are well adapted to local climatic conditions (sustainability) and have great potential to increase **diet diversity and nutrient provision**



Mixed cropping patterns, Sustainable farming project, Bolivia.

Source: Diez de Medina/Welthungerhilfe

The following key points are crucial for nutrition-sensitive agricultural interventions

- Producing non-food cash crops may prevent farmers from producing staple crops, which in turn, may negatively impact upon household food production.
- Income from cash crops may not automatically be used for food purchase. This may increase dependencies on external factors and inputs. However, cash crops have potential of contributing to food and nutrition security if additional income is spent on nutritious food items.
- New or improved agricultural technologies can require additional workload and costs. Smallholders, particularly female farmers, may not be able to participate, if this means neglecting care for children and other important household tasks.
- The development of small-scale irrigation systems esp. for women should be encouraged (see Chapter 5.2.2).
- Market access is a decisive factor. It has the potential to enable agricultural interventions to contribute to improved nutrition by enabling both selling and buying of nutritious food.
- Seasonality and seasonal migration patterns are critical for interventions aimed at improving production and consumption of fruits and vegetables.
- Production and consumption diversity may be unattainable if diversity is associated with a negative opportunity cost, as compared with specialised production (Qaim, 2013). However, homestead gardens aiming at increasing home consumption are very common components even of specialised farms.
- Promoting a varied mixture of crops and animal production: (a) for harvesting throughout the year; (b) for nutrient recycling (c) which are adapted to the climate and ecosystem; (d) according to local preferences (consumer acceptance) and (e) which can cover specific nutritional requirements.
- Nutrition education should be incorporated into programming (see Chapter 5.5.).
- Careful monitoring of nutrition-related indicators ensure that agricultural projects and policies do not unintentionally harm existing gains in nutrition.



Conservation of a protected forest area of the Western Area Peninsula and its drainage basin WAPFoR, providing water reservoirs for vegetable growing. Source: Böhling/Welthungerhilfe

5.1.2 Home Gardens – A Source of Nutritionally Rich Food

Home gardens or kitchen gardens are found in many parts of the world. They offer great potential for improving household food and nutrition security on small, intensively used plots of land. Home garden products are primarily intended for family consumption, while market-oriented horticulture focuses on the sale of usually more specialised produce. The pathways for improving nutrition through home gardens include: (1) direct access to a diversity of nutritionally-rich foods, (2) increased purchasing power from savings and income generated from the sale of garden products, and (3) secured food provision during lean seasonal periods (FAO, 2010a).

In rural areas where households have limited access to markets as well as few income-generating opportunities, home gardens provide a practical means for maintaining diverse diets. They are also becoming increasingly important in urban and peri-urban areas. A variety of planting forms are possible: **small-scale gardens, raised-bed gardening, multi-storey gardening, backyard gardening and planting in bags and pots**, the latter being especially interesting also in urban settings i.e. on balconies etc. A important aspect of home gardens is that they enable the production of food near to the homestead throughout the year which women can easily combine with their other domestic and childcare responsibilities.

Gardens can support a wide variety of perennial and semi-perennial crops and trees that adapt well to local climates. They can be maintained with a limited amount of inputs. Garden products can be grown for personal consumption or for sale to generate income.

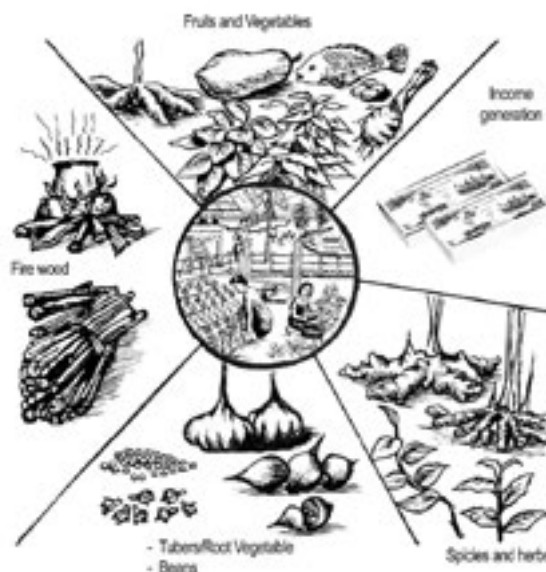


Figure 14: The Multiple Uses of Home Gardens (Helen Keller International, 2003)

In Discussion: Biofortified Crops

The promotion of biofortified crops offers the potential of increasing the consumption of specific vitamins or minerals. Orange-fleshed sweet potatoes (OFSP), the best known example, contain more beta-carotene (transformed into vitamin A in the body) than traditional white or yellow varieties. Since 2007, agricultural research has produced several staple crop varieties with higher micronutrient content, by breeding techniques or through biotechnology (e.g. iron and zinc in beans, pearl millet, wheat and rice; vitamin A in maize and cassava). These naturally (as opposed to artificially) fortified foods have the potential to improve diets of poor people living in rural areas, with limited access to a variety of food or other sources of micronutrients. There is however growing evidence that biofortification may neglect food-based approaches which in contrast promote access to and the consumption of locally available diversified food crops and animal species. Some of the new varieties are less robust against pests than traditional ones. In the case of 'Golden Rice', bio-availability and stability of the beta-carotene during storage and processing, as well as the acceptance of GMOs, are still unresolved issues hindering its further introduction and dissemination. Welthungerhilfe does not support the use of GMO crops but promotes conventional alternatives (Welthungerhilfe 2012c)

Recommendations for promoting home gardening

- Vegetables and fruits from home-gardening provide excellent sources of micronutrients – the production of a broad variety should be promoted for daily consumption.
- The consumption of **legumes** (e.g. beans, lentils) should be promoted because they are rich in energy, protein and micronutrients (especially iron). Their production also improves soil fertility.
- **Perennial plants** such as fruit trees, cassava, false banana, pigeon pea and moringa (a tree species whose leaves and fruit contain extremely high levels of vitamins and minerals), should be encouraged.
- The use of **well-adapted local varieties**, storage of seeds and their exchange should be promoted between communities (e.g. through seed fairs and farmers based experiments).
- Underutilised local crop varieties should also be promoted – they are often neglected, despite being well adapted to the local climate and providing high nutritional value.
- Healthy foods that are favoured by children (i.e. snacks from bananas or sweet potatoes) should be promoted.
- Use of biofortified crops should be considered, if accessible (see box on biofortification).
- Factors such as the cost of grinding and milling, cooking time, fuel consumption, market demand and crop residues need to be taken into account for decisions on crop selection.

Table 7: Examples of Typical Home Gardening Products

Product	Micronutritional Properties	Consumption Rating	Cash Crop Rating	Remarks
Tomato	Vitamin A, C and K, B vitamins and iron. antioxidant	+++	+++	Choose robust temperature, pest and disease-resistant varieties
Dark green leafy vegetables like amaranthus	Vitamins K, C, E, some B vitamins, iron, calcium, potassium and magnesium	+++	+	Should not be cooked too long
Okra	Vitamin B6 and folic acid, rich in dietary fibre	++	++	
Napa cabbage (= chinese cabbage)	Vitamin B9 (folic acid), manganese, iron and zinc	++	++	
Onion	Vitamin C, antioxidants and dietary fibre	+++	+++	
Mango (ripe)	Vitamin A and C	++	+	
Sweet potato	Vitamin A	+++	+	Different varieties incl. OFSP
Beans (traditional) excluding sesbania grandiflora	Protein, iron	+++	+	Soil improver (nitrogen fixation) Leaves eaten by small ruminants
Avocado	Energy, fat	++	++	

Source: adapted by authors. FAO, 2010

The role of women in home gardening

The role of women in home gardening may differ from country to country; mostly however, home gardening is a female domain. Women are generally the nutrition gatekeepers and principal decision-makers for procuring and preparing food for their families, especially for children. Targeting women for home gardening programmes is likely to result in the production of vegetables which are utilised for household consumption (Helen Keller International, 2003). However, water accessibility must also be carefully considered in order to avoid additional workload for women, who may need to spend even more time to fetch water, taking them away from other household activities.

Box 14: Fight Hunger First Initiative (India): Teenage Girls Tend to Kitchen Gardens

In India and in other South Asian countries, Welthungerhilfe and its partners have developed a rights-based approach for achieving the food and nutritional security of the rural poor. Welthungerhilfe's Fight Hunger First Initiative focuses on mobilising communities to access rights and entitlements for specific government services, such as child nutrition, food supply and primary education. This example, which captures local realities and tracks best practices, argues for the need to integrate nutrition in all governance and agricultural programmes.



When schoolteachers went on a two month strike in late 2012, a group of girls, encouraged by a local NGO, formed the 'Jyoti Yuvati Club'. What started as an attempt to manage the day-to-day functioning of the Madanpur Primary School during the strike, turned into a long mission against hunger, with members of the group not only cooking lunches for students, but also developing kitchen gardens. The model has been adopted by 20 other schools in three Panchayats in Devipur, in an effort to deal with the persistent problem of malnutrition.

Source: Grossmann/Welthungerhilfe, India, 2014

The potential nutritional benefits expected from home gardens include

- The production of **nutritionally rich foods** which compensate micronutrient deficiencies (particularly vitamin A deficiencies).
- **Enhanced food security** and household self-sufficiency throughout the year. Think of the seasonal calendar while planning such an activity!
- A source of **additional income for bartering** and **increased purchasing** power of households (especially of women), which can be used to buy additional food staff or other necessary items.

An important aspect is the use of **uncultivated wild foods** from forests and bushes. Traditional local fruits, roots and tubers as well as green vegetables are available, but they are often neglected and no longer used due to the introduction of modern food and consumption patterns. Their status may be low; they are often regarded as "poor man's food". However, since traditional local foods often provide **very good sources of nutrients**, especially vitamins and minerals, and are available at no cost, their use should be promoted- at the same time enhancing biodiversity. They have great potential for preventing and treating malnutrition and should be part of an integrated approach for improved nutrition.

Box 15: Uncultivated Wild Foods – A Source of Good Nutrition

A baseline study by Welthungerhilfe's Indian partner organisation, Living Farms, revealed an extremely high malnutrition burden in women and young children across 46 villages in a project area located in Orissa State. More than 75 per cent of the population depend on forests for their food and livelihoods. The study revealed at the same time that **uncultivated forest food contributes to approximately 35–40 per cent of their total food basket** around the year. Wild forest foods are known to provide excellent sources of protein and micronutrients, which are otherwise commonly deficient in the diets of nutritionally vulnerable communities. A total of **257 uncultivated food types** consisting of fruits, leafy vegetables, birds, mushrooms, insects, rodents, seeds, roots and tubers, fish, crabs, and oil seeds, were identified in different seasons. They were classified, documented in detail, and their consumption is now promoted with the support of community elders. In addition, the study approached elderly women to gather their knowledge on the traditional preparation, processing and conservation of many of these foods. In addition, their conservation methods were also explored. Village festivals were used to promote these foods and collaboration with government officials ensured active participation in the campaign. Since then, the **diet diversity of households** has considerably improved and uncultivated foods are now included in official rehabilitation programmes for malnourished children (FHFI, India).



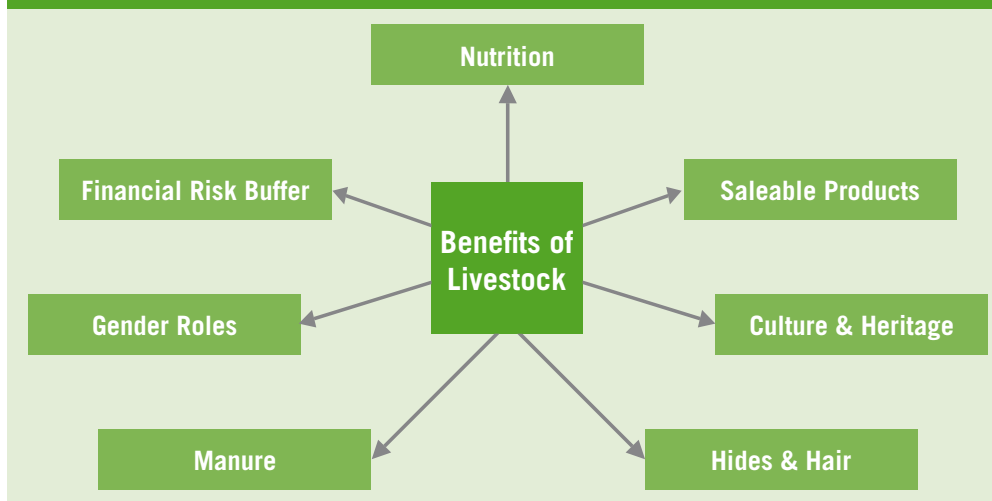
Source: Brockmann/Welthungerhilfe, India, 2014

5.1.3 Promotion of Integrated Livestock and Fish Production

Livestock can directly contribute to human food security by transforming crop residues, by-products from food processing, organic waste, as well as vegetation in non-arable drylands, into food that has high nutrient density. Livestock products offer one of the most efficient means of utilising resources in both rural and urban areas that would otherwise remain unexploited. Animal source foods (ASFs) are an important source of high-quality protein, fat, minerals, vitamins and micronutrients, particularly in dryland areas, where pastoralism prevails. However, special attention should be paid to possible negative effects of animal production on environmental degradation and climate change (Welthungerhilfe, 2012a).

Many fish species are particularly rich in essential fatty acids and vitamins. While aquaculture traditionally exists in many parts of Asia (e.g. in integrated systems for rice, pigs and ducks, or little household ponds), they are largely unrecognised and their full potential is not utilised in many parts of Africa (Smith, et al. 2013; Sadler, et al. 2012).

Figure 15: The Benefits of Livestock



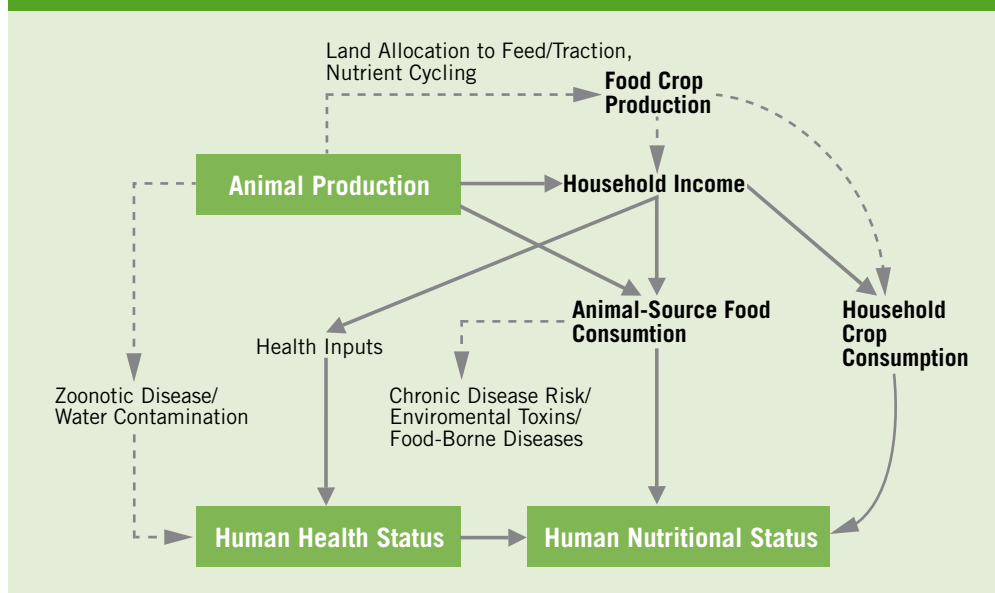
Source: Welthungerhilfe 2014

ASFs enhance the flexibility and the stability of food production, often serving as a production buffer between cropping seasons. This rationale provides a good argument for supporting households to produce these goods. Likewise, homestead production of animals can contribute to income-generation, provide organic fertilisers and serve as a form of 'living savings bank'. Small livestock is generally recommended (e.g. goats, sheep, poultry and fish), since they provide rapidly available sources of food (milk and meat), can easily be transformed into cash (e.g. 'living savings bank') and because households are generally more willing to part with them, in comparison to cattle. Small animals are also more accessible to poor households.

A study focusing on the linkages between nutrition, household income and agricultural production in India found that agricultural production conditions – particularly irrigation and the ownership of livestock – influence household dietary diversity much more than income growth (Bhgowalia et al., 2012).

However, the most direct risk emerging from livestock production is contamination related to the spread of **zoonotic diseases, as well as parasites**. Tuberculosis, trichinas and tapeworms, in particular, perpetuate infections and malnutrition – in a vicious cycle.

Figure 16: The Linkages between Animal Production, Nutrition and Health



Source: Nickolson, et al., 2007

The figure above depicts the important linkages between animal production, nutrition and the health status of individuals. Their **possible positive and negative interactions** should be taken into account for programming interventions. Working closely with livestock carries inherent risks for animal-related disease transmission, especially in the absence of clearly separated work and home environments. Transmission can be either faecal/oral or airborne, and can occur through either touching animals or handling manure. Transmission can also occur through the consumption of infected meat (trichinas and tapeworms), or drinking infected milk (salmonella, brucellosis, anthrax and tuberculosis).

Box 16: Antibiotic Risks in Livestock Production

Antibiotics are increasingly used as growth promoters in developing countries, as well as to prevent the spread of infection. Though they potentially benefit the increased availability of ASFs to poor families, a recent study estimates that these benefits may be negligible. Antibiotics themselves are a foodborne public health risk: there are concerns that the use of antibiotics in animals may lead to the emergence of resistant pathogenic strains which may cause diseases in humans (Catelo, 2006).

Including **basic hygiene training** on the prevention of contamination for livestock keepers is extremely important. Training may include personal hygiene, household-based environmental sanitation, maintaining clean water and sanitation facilities, safe food and water handling, as well as hygienic preparation methods. Vulnerable people face a higher risk of contamination and subsequent infections (young children, pregnant women, people living with HIV etc.) and should also be considered as recipients for such training.

Potential nutrition and health outcomes expected from ASFs

- **Dairy products** are biologically important for growth. They can be easily and quickly prepared and are also easily consumed by small children (see 1,000 days; Headey, 2013).
- Animals convert low-value foods, which are not used by human beings, into high-biological-value foods that are highly palatable and nutrient-dense.
- Milk, egg and meat consumption provides essential nutrients with high bio-availability contributing to adequate development, physiological functions and good health in humans.
- ASFs can prevent protein-energy malnutrition, iron deficiency anaemia and vitamin A deficiency, if they are insufficiently taken up through the rest of the diet. Most micronutrients (including iron, zinc, vitamin A and calcium) tend to be found in animal source foods, and some, such as vitamin B12, are naturally only found in animal source foods.

In order to improve the consumption of animal products, it is important to take into account related **local eating habits** (see behavioural change, Chapter 5.5). Strongly rooted food taboos regarding the consumption of animal source foods may be a reason of malnutrition especially in women and children. In many sub-Saharan countries i.e. infants and women may not be allowed to eat eggs and/or fish for distinct reasons, as some beliefs suggest that doing so could turn children into thieves or mute them or make women sterile (Child's Right, 2008). Also in South-East Asia food taboos regarding animal source foods are widespread. Religious values related to pork and other animal products also play an important role in food habits.

Table 8: The Advantages and Disadvantages of Livestock on Nutrition

(Typical) Livestock	Nutritional Advantages	Nutritional Risks/ Disadvantages	Benefits
Small ruminants: Goat Sheep	<ul style="list-style-type: none"> ■ Milk (calcium, phosphate) ■ Meat ■ Sheep milk is of high nutritional value 	<ul style="list-style-type: none"> ■ Replacing breastfeeding ■ Public and private services in disaster-prone poor countries are virtually unable to react to shocks (same for cattle and camel) 	<ul style="list-style-type: none"> ■ Less investment than large ruminants ■ Goats are drought resistant
Poultry Chicken and Others	<ul style="list-style-type: none"> ■ Meat ■ Eggs 	<ul style="list-style-type: none"> ■ Intensive production and high density → pollution and risk of diseases 	<ul style="list-style-type: none"> ■ Small monetary and time investment is necessary
Large ruminants Cattle Camel	<ul style="list-style-type: none"> ■ Milk ■ Meat 	<ul style="list-style-type: none"> ■ Cattle more susceptible to drought ■ (Seasonal) migration can be necessary ■ Replacing breastfeeding 	<ul style="list-style-type: none"> ■ Can walk longer distances ■ Camels are drought resistant
Fish (aquaculture) Commonly Tilapia	<ul style="list-style-type: none"> ■ Healthy (Omega-3 fatty acids) 	<ul style="list-style-type: none"> ■ Investment in ponds and harvesting tools ■ Waterborne diseases (excluding malaria mosquitoes) 	<ul style="list-style-type: none"> ■ Small portions sold on markets



Watering of Goats in Chifiri, Kenya. Source: Brockmann/Welthungerhilfe

The role of women in animal production

It is difficult to generalise but often **women as well as children play a vital role in the livestock sector**. Most societies and development planners have a standardised and idealised opinion on the division of labour in agricultural production. For example, in Africa, it is thought that men take care of cattle and clear and plough the land, while women do all the other arable tasks and take care of small ruminants, chickens, pigs, and other animals. In fact, there are many variations between ethnic groups and regions (Niamir-Fuller, 1994). The role of children in the livestock sector is particularly significant, especially for herding, and should not be underestimated (FAO, 2013c).

To achieve a positive impact on **household income**, programmes should include interventions aimed at improving market access, as well as marketing knowledge. Another reason to promote small livestock, is that they are most probably **reared by women** and therefore may have high positive outcomes for the nutrition of their children.

Box 17: Milk Availability in Drought-prone Pastoral Areas, Ethiopia

Children who live in pastoral areas are increasingly referred to as some of the most nutritionally vulnerable in the world. Milk is often prioritised for the consumption of young children. The seasonal lack of access to animals and animal products, particularly during periods of drought, is widely perceived by pastoralists as a primary factor behind child malnutrition. The international response to malnutrition has typically been reactionary in these areas, with the provision of food baskets and selective feeding practices, when acute malnutrition rates rise. In contrast, the Milk Matters Project promoted the milking of animals which remain close to women and children during the dry season and/or during drought, when large parts of the herds generally migrate, in order to prevent malnutrition. The project findings suggests that milk production and consumption, as well as the nutritional status of children is improved through this approach. Moreover, small-scale livestock interventions not only have a positive impact on the nutritional status of children, but are also **more cost-effective compared with programmes focused on therapeutic feeding** (Sadler et al., 2012).

When programming livestock interventions, the following points should be considered

With regards to consumption

- Poor people tend to sell, rather than consume, the animal source foods that they produce. Therefore, households should be encouraged to consume the ASFs they produce. However, this requires alternative income options.
- Local preferences should be taken into account for supporting adequate allocation within households.
- The promotion of milk products should not result in reduced breastfeeding.

With regards to health

- The risk of zoonotic diseases and infections should be systematically investigated. Basic education on their prevention is essential.
- Access to drugs, vaccines and professional veterinary services should be improved to ensure animal health.
- Basic training on hygiene and food processing for households is crucial.

Box 18: Mola Fish become Popular Among Fish Farmers

In Bangladesh, changes in the overall agricultural systems have witnessed the continued decline of fish habitat in inland water and inundation areas. This has contributed to decreased fish harvest, in particular, for small fish such as the mola, which the rural poor depend on. Mola is a small nutrient-rich fish that supplies essential nutrients – in particular vitamin A, calcium, iron and zinc – to these vulnerable population groups. This fish can thus help those suffering from undernutrition and micronutrient deficiencies (hidden hunger). Due to raised awareness of mola's benefits for nutrition and health, mola has become a high-priced fish in markets and supermarkets, particularly in big cities. In order to address these issues, USAID funded the **Feed the Future Aquaculture** project to promote mola aquaculture and to deliver nutrition training to farming families (www.worldfishcenter.org).

5.1.4 Post-harvest Management – Conservation, Processing and Storage

Food losses in developing countries largely occur during the field-to-market stages, with the smallest share of losses occurring at the consumer level. Premature harvesting, poor storage facilities, the lack of infrastructure and processing facilities, as well as inadequate market facilities, contribute to high food losses. This can vary from up to 20 per cent for **grain** losses and almost 50 per cent for **perishable goods**, such as fruits – until their distribution at markets. Reducing food losses (and waste) can have several positive economic and environmental effects. Estimations suggest that halving losses by 2050 would save approximately 1,314 trillion kilocalories (kcal) less food per year. This could therefore be one of the leading strategies for achieving a sustainable food future (Lipinski et al., 2013). Investing in improved post-harvest management is more cost effective and easier than relying on the concept of increasing production and productivity maximisation.



Source: Häberle/Welthungerhilfe



Source: Rinke/Welthungerhilfe

One important step for improving food security and nutrition is by increasing and prolonging food access and consumption, especially for micronutrient-rich food. To be able to fully utilise the potential of these foods, the loss of valuable micronutrients and pathogenic infestations and pests, which pose a danger to health, must be tackled. It is important for households to achieve food security throughout the year and counteract against seasonal food availability and price systems, thereby improving resilience. Having food available in off-seasons, can increase income (through higher profit margins), as well as facilitate **steadier income** flow, positively impacting on **food price stability** for consumers. Another important aspect regarding proper storage is assuring the on-time availability of seeds for cultivation.

An important message formulated by the research community is the need to incorporate **value chain analyses** to identify critical points where post-harvest losses (PHL) occur along the chain, and opportunities for reducing them. Some results show that PHL reduction can be addressed through the establishment of and/or support to **farmer organisations**, through **capacity building** and **infrastructure development**, based on sound cost-benefit analyses. Other studies suggest that cooperatives and community grain banks have underperformed due to their low acceptance by communities. Depending on the local situation the promotion of individual stocks and reserve facilities may be more effective.

Many countries appear to face similar problems related to post-harvest losses in cereals. This is related to a lack of adequate or suitable **drying and storage facilities**. Investing in appropriate facilities and knowledge transfer is therefore recommended since many food items can also be processed for later use. Especially the conservation of perishable food items such as fruits and vegetables pose a challenge in this regard, i.e. dried mango, tomatoes and onions that are important food items for the market. (FAO, 2010).

Proper **storage** buildings should be of a stable structure and roofing, taking into account adaptation measures for climate change, e.g. extreme, strong rainfall and heavy storms. Interventions aimed at building small-scale stores at the household level should consider traditional and local customs. Suitable construction techniques are usually locally available – often they can be improved based on new research findings. The same applies to conservation and processing methods.

Box 19: General Factors Influencing the Nutritional Content and Stability of Foods

Many factors can influence the stability of vitamins and mineral content, as well as the overall nutritional content of food:

- | | |
|-----------------------------------|------------------------|
| ■ Temperature | ■ Presence of oxygen |
| ■ Moisture | ■ Milling and refining |
| ■ Presence or absence of light | ■ Cooking time |
| ■ p.H. value of the system | ■ Packing |
| ■ Presence of pests and pathogens | ■ Storage period |

Pests can greatly impact on the nutrient loss of grains: rodents and some insects prefer eating the germ, removing large parts of its protein and vitamin content, whereas weevils prefer attacking the endosperm, reducing the carbohydrate content of grains. Many pests eat the bran of cereals and thereby reduce their vitamin content. Furthermore, pathogenic fungi (e.g. *aspergillus flavus*) in peanuts pose serious health risks (FAO, 2007).

Good harvesting techniques are important for PHL reduction

- Crops, fruits and vegetables should only be harvested when they are mature. However, losses may also result through handling and transport when they are too mature
- Harvesting should be done during the coolest time of the day: early morning or late afternoon
- Waiting periods for pesticides should be respected. Produce which has recently been applied with pesticides should be separated and not immediately consumed or sold at markets
- Soil contact should be prevented to avoid contamination
- Produce should be placed in shade while awaiting transportation
- Mechanical damage should be avoided. The use of soft baskets and separating produce with newspaper or banana leaves can be helpful

Box 20: Nutrient Losses through the Storage and Preparation of Fresh Produce

- | | |
|--|---|
| <ul style="list-style-type: none"> ■ Dry-matter content (the energy supply) is reduced over time ■ Vitamin C content decreases after harvesting. Little may remain after two or three days ■ Cooking partially destroys vitamins C and B1 | <ul style="list-style-type: none"> ■ Peeling may cause significant loss in food value, especially in potatoes, where the protein content is just beneath the skin ■ Water used for cooking vegetables contains the dissolved minerals and trace elements of the food and should not be thrown out. They can be used in soups or for preparing other foods |
|--|---|

Traditional household **food processing and preparation methods** can be improved to enhance the bioavailability of micronutrients in plant-based diets and for food preservation. These include thermal processing, mechanical processing, soaking, fermentation, germination/malting and drying. These well-known methods aim to increase the physiochemical accessibility of micronutrients, decrease the content of anti-nutrients or poisonous elements such as phytate or cyanide, or increase the content of components that improve bioavailability (Hotz and Gibson, 2007).

5.2 More Access to Nutritious and Healthy Food

5.2.1 Income-generation from the Agricultural and Non-agricultural Sector

Supporting income-generating activities (IGAs) can increase households' cash resources and thus, their purchasing power and abilities to invest in food and non-food expenditures, strengthening livelihoods in a sustainable way. Though only limited studies analysing the linkages between (maternal) IGAs and (child) nutrition are currently available, **income generated by women is more likely spent on family nutrition and health**. While it is generally assumed that maternal IGAs may decrease during the time women spend caring, feeding, and breastfeeding their children, their IGAs also increase the **necessity for caregiving by other people or relatives**. Maternal IGAs may also increase women's access to resources to procure food, decision-making power and control of income. However, the effect of income-generation on nutritional improvement is modifiable and varies by circumstances, knowledge or equal access to income between women and men (Herforth, 2013).

The effect of cash crop production on food and nutrition security is likely to depend on whether the land and labour utilised are in surplus and on the extent of variability in the supply prices for basic food crops. This affects wealthier and vulnerable households in different ways (Levinson, 2011). **IGAs** can be developed in **agricultural** as well as **non-agricultural** sectors, be they rural or urban settings. Food-related examples and their possible impact on nutrition are presented in Table 9, local services – related examples are presented in Table 10.

Table 9: Typical Income-generating Activities Related to Food

	Possible activities	Impact/Comments
Home gardening ♀ and livestock keeping ♀/♂ Processing and conditioning of surplus produce – ♀ (e.g. tomato to tomato purée, Mango to mango juice, drying of vegetables, jam etc.) Small-scale food stands – ♀ Restaurants ♀/♂	<ul style="list-style-type: none"> ■ Nutritional education focused on processing methods to conserve nutritional value ■ Reviving local processing knowledge ■ Financial interventions to build up business (credits, saving clubs etc.) ■ Improving business skills ■ Network-building with local suppliers ■ Providing infrastructure (for processing: milling, grinding and market access) ■ Education on healthy food and basic hygiene 	<ul style="list-style-type: none"> ■ Increased diversity on local markets during food scarce periods and at affordable prices ■ Preservation leads to the longer availability and quality of food ■ Increased income may be invested into diversifying diets ■ Targeting women can improve their ability to diversify household diets ■ Surplus food can be sold, rather than lost ■ Improved marketing power (e.g. through cooperatives) and market knowledge (e.g. prices)
Brewing of local liquor and beer ♂ (palm, millet, maize)	<ul style="list-style-type: none"> ■ Providing knowledge on healthy brewing methods 	<ul style="list-style-type: none"> ■ Use of otherwise unutilised foods ■ Production high-value products ■ Do no harm!: risk of creating competition for the use as food

*The examples are marked with ♀ or ♂ to symbolise whether activities are mainly taken up by women or men.

Supporting IGAs can have **direct positive effects** on nutrition. For instance, artisans can be trained to build improved storage facilities which can positively impact on the reduction of harvest losses. Reviving traditional activities should also be considered to facilitate rapid and sustainable impact (ACF, 2009).

Table 10: Typical Income-generating Activities Related to Services

	Possible Activities	Impact/Comments
Shop keeping activities ♀/♂	<ul style="list-style-type: none"> ■ Financial ■ Network-building with local suppliers 	<ul style="list-style-type: none"> ■ Supports the local availability of food and non-food items
Handicraft (mason ♂, carpenter ♂, basket maker ♀/♂ etc.) Brick/charcoal making Tailor, hairdresser ♀/♂	<ul style="list-style-type: none"> ■ Vocational training 	<ul style="list-style-type: none"> ■ Improves hygiene (e.g. building of appropriate latrines) ■ Improves storage capacities ■ The potential of handicraft activities is systematically overestimated in term of income generation of additional family income
Childcare ♀	<ul style="list-style-type: none"> ■ Building up networks for supporting working women e.g. to improve reliable childcare 	<ul style="list-style-type: none"> ■ Although women normally manage both IGAs and childcare, there may be more opportunity for relieving mothers' duty burdens, increasing IGAs and independence etc.
Local soap making enterprises	<ul style="list-style-type: none"> ■ Vocational training 	<ul style="list-style-type: none"> ■ Improved hygiene

*The examples are marked with ♀ or ♂ to symbolise whether activities are mainly taken up by women or men.

Supporting local markets

To generate income, it is important to support local markets for surplus goods – vegetables, livestock products, as well as processed goods. Farmers should be encouraged to move up the value chain by adding values to raw products, e.g. through transformation (de Schutter, 2009). This can help identify possible entry points for interventions. A thorough participatory analysis of the demand (for food and service products) is crucial for the acceptance and success of any IGA. The improvement of business skills is also an important pillar for successfully implementing IGAs.

Collective commercialisation in cooperatives or other collaborative forms may not only have a positive impact on the prices achieved but also on the time available for other duties (e.g. caregiving). Access to market information (demand and supply, prices etc.) enables households to better plan their sales throughout the year, and likely provides incentive for producing more nutritious food (Herforth, 2013), as well as investing in improved storage methods. Innovations, such as the transmission of information through cell phones, can be used. Micro-credits or inventory credits for small shops or food stands may also further help commercialise local produce and stimulate the local economy. Establishing new local markets will also mean fewer transportation losses for vendors. Investment in proper transportation facilities will further support producers by helping to maintain the quality of their produce.

5.2.2 Productive Infrastructure and Transport for Local Markets

Functional infrastructure influences **access** to nutritious food and its **availability**. It also makes **stable supply** to households possible in both rural and urban settings. Infrastructure facilitates transporting resources, people, produce, trade goods, and providing essential services, which ultimately reduce poverty. Good marketing infrastructure and the maintenance of rural roads have profound effects on food availability, **market prices** and the physical access of food at the community level (FAO, 1997). They can also minimise the effects of acute and temporary food insecurity due to shocks (e.g. drought, floods and conflicts).

Road infrastructure and transportation not only mean access to local markets and income-generation possibilities (for sellers and consumers), but also access to healthcare and other services, **resulting in positive effects for the use and utilisation potential of food**. Rural roads or feeder roads, in particular, are often poorly maintained. Many experts believe that there are high benefits for investing in such communication routes, especially in **feeder roads** (de Schutter, 2009; European Commission, 2011).



Welthungerhilfe: Food for Work/Cash for Work in Haiti (2010). Source: Herzau/Welthungerhilfe

Improved physical access via roads reduces transportation costs, losses in agricultural produce and contributes to improved market prices. Positive impact also includes access to food for vulnerable people during periods of food scarcity, e.g. through job opportunities in road construction, resulting in their improved economic access to food. Investing in rural infrastructure also reduces the time burden for women to reach markets (European Commission, 2011). Advocacy at international, national and regional level may be part of the intervention and allies should be considered at all levels.

Investing in **telecommunication infrastructure** provides another possibility for improving household access to markets, food and income security. This may include instant access to market and health information, the use of mobile phones as a payment medium (informal electronic banking system) and mobile cash transfers between family members.

Improved access to markets can ultimately improve household **planning security**. For instance, they may gain more incentives for producing more nutritious, more perishable goods, and for investing in improved storage techniques in order to better serve markets at later harvesting stages. Functional markets can also reduce post-harvest losses (PHL). A family's decision on whether to sell or store their produce for later use and what food they grow is influenced by market demand and the price potential of their products, as well as the availability of market information. Local market accessibility for smallholders and the ability of different groups of producers to make use of them are crucial factors which influence nutritional impact (Save the Children, 2012). All interventions should be planned to be **pro-poor** and **gender sensitive**, in order to ensure that they benefit those who are most in need.

Infrastructure projects can also aim to produce social or productive benefits. For example, improving access to safe drinking water, including household water treatment and safe storage (HWTS) techniques, and improved drinking water quality, can help reduce diarrhoeal disease burden (Welthungerhilfe Orientation Framework WASH, 2012). Small-scale irrigation systems can also contribute to increased productivity, as well as opportunities for new crops. However, such infrastructure requires a well-organised management structure in order to be used and maintained sustainably.

Box 21: Solar-powered Irrigation Systems Improve Food Security, Diet and Income

In rural Benin, women and girls are traditionally responsible for hauling water by hand, often across very long distances. Solar-powered irrigation systems were therefore designed to free women from walking long distances to fetch water and instead engage in growing vegetables, particularly during the dry season. The benefits of solar-powered irrigation include:

- Significantly improved nutrition and food security, as well as household income within a year;
- Increased vegetable intake (from three to five servings per day) – with most improvements occurring during the long dry season;
- Breaking seasonal rainfall dependence;
- The production of diversified, high-value crops;
- Women who used solar-powered irrigation systems became strong net producers of vegetables and earned extra income from sales, allowing them to significantly increase their purchasing power for high-protein food and other staples during the dry season;
- Clean, cost-competitive technology, less susceptible to global price fluctuations in energy;
- 17 per cent of project beneficiaries reported feeling less food insecure.

Adapted from Burney et al., 2010

5.2.3 Social Protection through Cash Transfer and Voucher Programmes

Investments in social transfer programmes demonstrate that vulnerable populations can be protected from economic shocks, food insecurity and malnutrition. Cash transfer programmes have therefore been increasingly used as a tool for reducing vulnerability in low-income countries and as an alternative to food aid in humanitarian contexts (ODI, 2011).

Cash transfers have to be well-designed, well-targeted and implemented, in order to optimise the health and nutrition of households. They are often applied within public infrastructure work programmes that aim to reconstruct, rehabilitate or create physical productive infrastructure, that may enable farming, income-generation, access to markets and resources (see Chapter 5.2.2).

How can social transfer programmes improve nutritional outcomes?

Recent evaluations suggest that when poor households receive cash transfers, their additional cash is mainly used for household food expenses, which improve the family's diet. However, cash transfer programmes need to be linked with nutrition and health elements, such as education, training, or other basic health facilities, in order to sustainably improve food intake, diet diversification and hygiene practices.

There are **two types of cash transfers** usually applied in the field (ODI, 2001):

- 1. Conditional cash transfers** focus on human development and target poor households with children of a certain age group, in identified vulnerable regions. They may include cash transfers, in-kind transfers (e.g. nutritional supplements), or other necessary services. Beneficiaries must generally commit to undertake certain actions in return, such as growth-monitoring, nutritional education, check-ups for women or children's attendance in schools
- 2. Unconditional cash transfers** also target vulnerable families with children, to prevent malnutrition. They may also include other vulnerable persons, such as elderly people, those who are HIV-positive, sick, or with additional needs. Unconditional cash is often used to enable general social welfare and/or the provision of social services. These programmes are mainly driven by donors after emergencies, since they provide a quick response and enable large populations to be reached

Cash transfer programmes can contribute to food and nutrition security in a variety of ways, e.g. enabling quick access to food and the better utilisation of food, since diverse food items can then be bought on local markets. This directly affects consumption at the household level, while simultaneously strengthening local markets and value chains.

Table 11: The Role of Cash Transfers in Supporting Food and Nutrition Security

Dimensions of Sustainable Food and Nutrition Security	The Role of Cash Transfers
Availability	<ul style="list-style-type: none"> ■ Facilitates investment in agricultural inputs (seeds, techniques) and relieves credit/cash constraints ■ Increases demand for food items and promotes local markets
Access	<ul style="list-style-type: none"> ■ Increases temporary household income – food can be purchased at markets ■ Creates opportunities for public works programmes which invest in productive infrastructure

Dimensions of Sustainable Food and Nutrition Security	The Role of Cash Transfers
Use and Utilisation	<ul style="list-style-type: none"> ■ Additional purchased food items can diversify and improve the quality of diets ■ Enables expenditures for school fees, health facilities etc. ■ Can be combined with education and training, awareness raising for better food consumption, caring practices and hygiene measures ■ Increases women's status and roles within households and communities, as well as their decision-making abilities
Stability	<ul style="list-style-type: none"> ■ Increases resilience in times of food crises or other emergencies, by maintaining purchasing power

Adapted from ODI, 2012

Another example of targeting specific nutritional needs of vulnerable groups or populations is the provision of food through vouchers. Instead of cash, WFP distributes millions of vouchers each year, which can be redeemed for food items or spent in selected shops. They are often used to address food insecurity of poor people who cannot afford to buy good quality food despite its market availability. People often prefer receiving cash and vouchers as compared to traditional food assistance. This is because they offer more variety and choices for cultural food preferences.



www.wfp.org/cash-and-vouchers Source: wfp/Simona Caleo

Implementing partners for cash and voucher schemes may include local governments, local bank or microcredit systems, post offices, shops, money transfer companies, NGOs and even telephone companies. Many research institutes have recently undertaken studies to measure the impact of these cash transfers for social protection and as part of 'safety net' systems.

5.3 Better Caring Capacities for Vulnerable Groups

5.3.1 Women's Role in Care – Women's Need for Care

The meaning of 'care' has many dimensions in relation to understanding food and nutrition security. For example, the fact that women are still the main caretakers of children and other household members requires special attention.

Women suffer from lower formal education, language barriers and mobility, and carry a disproportionate burden of responsibility in the 'care economy' (this includes caring for children, sick and elderly family members, food preparation and housekeeping tasks). However, the productive potential of women could still be further strengthened. Women's contributions to agriculture, food preparation, health and the environment are crucial. These tasks combined with their caring duties in the families often result in enormous workload and burden for women. Women in rural Africa, for example, work up to 16-18 hours per day, because they are in charge of agriculture, the marketing of crops, food preparation, child and family care, fetching water, washing, gathering wood etc. (FAO, 2011). It is therefore necessary to invest in projects improving women's time allocation.

Box 22: The Definition of 'Care' in Relation to Nutrition Security

- **Caring for the nutritionally vulnerable** requires time, attention and behaviour change (in addition to household food security requirements), and physical and mental support to others, to ensure healthy nutrition
- **Caring behaviour** includes proper breastfeeding and complementary feeding for infants and young children; **support for mothers during pregnancy and lactation**; the time and support needed to meet the nutritional needs of older persons; and improved education, **literacy, social security, employment opportunities and women's rights** (WHO, 2000)
- **Caring capacity** corresponds to the ability, time and willingness of caregivers to deliver adequate care for the well-being of those in need

Regardless of workload and time constraints for caring, women also have higher nutritional requirements of their own during pregnancy and breast feeding. They also have more difficulties to cover these given the high level of physical work relative to their nutritional intake. Additional workload can thus have a negative influence on the birth weight of children. Improving care must also include improving care for women themselves. Projects should protect their nutritional status and health by promoting, valuing and respecting their rights (see Chapter 5.5).

5.3.2 Caring Practices and Infant and Young Child Feeding (IYCF)

Adequate care is important not only for the children's survival, but also for their optimal physical and mental development and health. Mothers are generally the main caregivers for infants in almost all societies. However, they need to be supported by other family members or by caregivers external to their families.

Childcare is negatively influenced by shocks such as war, extreme natural events, migration and chronic poverty or by insufficient health services and education at national and local levels. Furthermore, factors such as land distribution, water supply distances, general housing conditions, and mother's knowledge and social status, are important determinants for caring capacities, which themselves are critical for adequate nutritional impact on households (Latham, 1997).

Caring practices are part of **nutritional behaviour** and should be the first area to protect, support or promote childcare. Caregiving behaviours are dynamic and vary enormously from culture to culture. Some societies have traditional (positive and negative) caring practices. What are the influencing factors that determine a caregiver's behaviour towards nutrition security? A promising approach for identifying childcare practices includes the investigation of 'positive deviants' in the community (see Chapter 4), as well as other barriers (Latham, 1997).

The Most Common Constraints on "Adequate Caring Practices":

- Lack of time
- Lack of knowledge and unfavourable attitudes and practices
- Lack of enabling opportunities e.g. specific spaces for breastfeeding
- Work overload on caretakers
- Lack of caregiving capacities (psychological) due to illness, trauma etc.

Actions to support good care can be addressed at different levels: national, regional, community or household. Generally, four groups of activities can be distinguished:

1. **Delivery of direct services** aimed at the immediate causes of malnutrition (discussed in Chapter 4). This includes immunisation, supplementation of micronutrients, treatment of diarrhoea and malnutrition, deworming, systematic follow-up of new-born children and new mothers, and other curative interventions generally delivered through the health sector.
2. **Capacity development** strategies focused on the underlying causes of malnutrition i.e. nutrition education and counselling for better hygiene and improved health seeking behaviours to protect children against parasites and other diseases.
3. **Empowerment** aimed at providing women with more opportunities for accessing education, income, land, financial resources and the ability to make their own decisions, without overburdening them.
4. **The promotion of proper infant feeding practices** (including exclusive breastfeeding and complementary feeding) aimed at addressing the health and nutritional behaviour of the main caregivers – women. The Global Strategy on Infant and Young Children Feeding Practices, launched by WHO and UNICEF in 2002, outlines the **most important messages** and approaches that can be promoted in the fight against malnutrition, through the health sector and by multi-stakeholder approaches (WHO and UNICEF, IYCF, 2006).

Exclusive breastfeeding

Breast milk is ideal for feeding infants. It contains all the necessary nutrients in an optimal composition. The global public health recommendation is that infants should be exclusively breastfed during their first six months, to achieve optimal growth, development and health.

Box 23: The Definition of Exclusive Breastfeeding

Exclusive breastfeeding means giving babies breast milk and no other liquids or solids, not even water before the age of six months. Drops or syrups consisting of vitamins, mineral supplements or medicines are permitted [WHO, 2006]

Advantages of Breastfeeding**Breast Milk**

- Perfect content of nutrients
- Safe and hygienic
- Easily digested; Efficiently used
- Protects against infection

**Breastfeeding**

- Helps bonding and development
- Helps delay a new pregnancy
- Protects mothers health

- Costs less than artificial feeding

Note: Breastfeeding should be continued during the first 1,000 days of a child's life, regardless of the possible transmission of HIV. HIV-infected mothers should get thorough advice about breastfeeding techniques to avoid mastitis, breast abscesses and nipple fissures. Since 2009, the WHO recommends a combination of exclusive breastfeeding and the use of anti-retrovirals (WHO, 2009).

Complementary feeding for children aged six to 23 months

After six months of age, babies require **complementary** foods besides breast milk. While increasing amounts of complementary foods are introduced, breastfeeding should continue for up to two years of age or beyond (WHO, 2006).

Complementary foods should be

- **Timely** – they should be introduced when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding
- **Adequate** – they should provide sufficient energy, protein and micronutrients, such as iron or vitamin A, to meet the nutritional needs of growing children
- **Safe** – they should be hygienically stored and prepared, and fed with clean hands or utensils, rather than bottles and teats
- **Properly fed** – should be given when a child shows signs of hunger. Meal frequencies and feeding methods should be appropriate for a child's age

Key Indicators for Measuring Good Infant Feeding Practices (according to WHO)

- The early initiation of breastfeeding after delivery
- Exclusive breastfeeding for children under six months of age
- Continued breastfeeding at 1 year
- Introduction of complementary food at 6-8 months
- Minimum acceptable diet (MAD) for children aged six to 23 months (e.g. minimum four food groups, minimum meal frequency according to age)
- Consumption of iron-rich food or iron supplementation for children aged six to 23 months, to avoid anaemia

Special attention must also be given to **feeding of infant and young children in difficult circumstances**, such as emergency situations after natural disasters, armed conflicts or other shocks, in larger groups of malnourished children, for low birth weight babies, infants of HIV-infected mothers and orphans.

5.4 Improved Water Access, Hygiene and Sanitation and Food Safety

5.4.1 Water Handling Measures for Preventing Diarrhoea

Investing in water, sanitation and hygiene (WASH) interventions is key for preventing diseases such as diarrhoea – a major cause of morbidity and mortality in children under the age of five. Faecal contamination of drinking water is a major cause of diarrhoea. It is therefore important to ensure the **microbiological safety of drinking water** for delivering improvements to the health and nutrition of communities.

Diarrhoea and malnutrition are inextricably related and tend to interplay in vicious cycles, where one condition feeds off the other. WASH interventions are therefore vital for **preventing the immediate causes of malnutrition** (infectious diseases) as highlighted in the following example from Ethiopia:

Box 24: The Arsi Negele Water, Sanitation and Hygiene (WASH) Programme in Ethiopia (Welthungerhilfe, 2008-2014)

The problem: A survey conducted in May 2009 revealed that the water supply coverage of rural villages in the examined district was only 20.5 per cent. It also revealed that water from nearby lakes was not suitable for domestic consumption due to high concentrations of fluoride and salt. In order to secure safe water, many people had to make a six-hour round trip journey. The problem was particularly severe for the poor, who did not have the capacity to buy or rent pack animals for fetching water. The WASH programme therefore facilitated access to safe water supply and improved sanitation facilities for **more than 137,000 people** in the district. It also focused on the promotion of improved hygiene behaviour and practices.

The analysis: Microbial water quality tests revealed that 11 per cent and 86 per cent of samples, from 19 and 161 water kiosks and households respectively, were faecally contaminated. The research also found that the study population **generally maintained poor and unhygienic water handling practices**. Even though it was observed that people were washing hands and cups before handling water, this was inadequate for protecting the water from contamination during transport and storage. Similarly, **most household latrines (>98%) lacked basic facilities** (pit hole covers and handwashing facilities) to cut the faecal-oral contamination route.

The solution: Not only was a stronger focus placed on promoting safe water handling until the point-of-use, but implementing **an integrated approach** such as **water safety plans (WSPs)** also provided a step-by-step risk management approach to drinking water supply.

Training of Trainers (ToT) courses on WSPs were organised for Welthungerhilfe staff and the staff of partner organisations. These were facilitated by experts from the World Health Organization (WHO) and conducted for five days, including time for a practical session. The project staff then rolled out the training to local government stakeholders and community groups.

Sustainability: After completing the training, the WSP team conducted systematic risk assessments on the **Guna-Dole Water Supply Scheme**. They then prioritised risks, suggested mitigation measures and monitored their implementation (see Orientation Framework WASH, 2013).

5.4.2 Better Hygiene and Healthy Environments

Incorporating proper water, sanitation and hygiene practices (WASH) into programmes protects families from the spread of infectious diseases which may impair their nutritional status. Young children are particularly susceptible to infections since their immune systems are still generally weak. Proper handwashing practices before preparation and consumption of meals and after use of toilets are a cost-effective and simple approach for preventing diarrhoeal infections. Evidence suggests that handwashing with soap can result in a 37 per cent reduction in the incidence of diarrhoea (EU-UNICEF, 2014c; Curtis, et al. 2003). Food safety measures (see Chapter 5.4.3.) can also reduce the infestation of food with bacteria and parasites.

Main issues in the relationship between hygiene and nutrition

- Pathogenic microorganisms common in human faeces can be easily transmitted to food and water if household sanitation and hygiene practices are inadequate.
- The transmission of pathogens from faeces to food can occur either directly or indirectly through hands, drinking water, flies or soil. Different barriers can prevent such transmission e.g. proper hygiene, safe disposal of faeces and solid waste, handwashing with soap, use of latrines and water source protection.
- The reduction of open defecation has shown a corresponding reduction in the incidence of stunting among children (EU-UNICEF, 2014c).
- Safe drinking water provision, safe water handling and proper sanitation and hygiene of the local environment play a major role in avoiding disease transmission. There is a strong and proven impact of the benefits of WASH-related interventions on nutrition security demonstrating the importance of integrating WASH interventions into nutritional programmes (Welthungerhilfe's Orientation Framework on WASH, 2013).

5.4.3 Adequate Food Quality and Safety

Food safety is concerned with handling, preparation, and storage of food in ways that prevent foodborne illness. Food safety considerations include the origins of food including the practices relating to food hygiene during storage, food additives and pesticide residues. In considering market to consumer practices, food ought to be safe in the market and the concern is safe delivery and preparation of the food for the consumer. Food can transmit disease from person to person as well as serve as a growth medium for bacteria that can cause food poisoning. In lesser developed countries the main issue is simply the availability of adequate safe water, which is usually a critical item.

If food or water is contaminated by pathogenic organisms, toxins, pesticides or poisons, there are many associated health risks which can negatively affect the nutritional status of children and adults. The most common form of illness that results from the contamination of food or water is diarrhoea. Several organisms, bacteria and parasites can cause specific diseases several hours after contaminated foods are consumed, or through faecal-oral transmission via unwashed hands, utensils or animals. Good food handling and safety is therefore crucial for nutrition security (Latham, 1997). Training on avoiding food and water contamination should be part of every household food and nutrition security programme. The five key principles of food hygiene, according to WHO, are:

1. Prevent contaminating food with pathogens spreading from people, animals, and pests
2. Separate raw and cooked foods to prevent contaminating the cooked foods
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens
4. Store food at the proper temperature
5. Do use safe water and cooked materials

Simple steps for improving food safety

- Increasing knowledge about food and waterborne diseases through health and nutrition education to prevent the contamination and transmission of pathogenic organisms. The linkages between invisible organisms and infectious diseases need to be addressed in hygiene training sessions.
- All household members should be encouraged to practice good personal hygiene, e.g. handwashing before eating meals and after the use of latrines (see 5.4.2). However, practicing personal hygiene is only possible if adequate water is available.
- Wherever food is stored, prepared and consumed, a good level of household hygiene should be assured. Places for food preparation should be kept clean and free from flies, cockroaches and rodents. Although cooked foods should not be stored for a long time (since there are few refrigerators in poor households), it is recommended to cover food, e.g. with gauze or in simple wooden or metal boxes, to protect food against ants, cockroaches and rapid bacterial proliferation (Latham, 1997).
- Families should be trained in cleanliness along the whole food chain, as a preventive measure to avoid diseases associated with contaminated food.

Prevention and Control of Mycotoxins

Several mycotoxins in agricultural products cause health hazards to people and animals and economic problems. Fungi producing dangerous mycotoxins, some of which are potentially carcinogenic and mutagenic, are naturally present in foods, feeds and our environment. Aflatoxin, for example, is the most potent carcinogen and mutagen among mycotoxins. Therefore, the contamination of mycotoxins should be minimised by a series of measures of prevention and control.

To design strategies for the reduction or elimination of mycotoxins, knowledge about their fungal sources are needed. Factors enhancing the formation of mycotoxins are plant susceptibility to fungi infestation, suitability of fungal substrate, temperate climate, moisture content and physical damage of seeds due to insects and pests. Often infected are, e.g. groundnuts, maize and other cereals. Toxin-producing fungi may invade at pre-harvesting period, harvest-time, during post-harvest handling and in storage. Preventive measures to

reduce the contamination of mycotoxins producing fungi, such as (1) controlling insect infestation in stored bulk grain, (2) lowering moisture content of plant seeds, after post harvesting and during storage, (3) storing of commodities at low temperature whenever possible, (4) removal of contaminated seeds, should be included into capacity building and training aimed at household hygiene and food safety into their capacity building and training approach for SFNS. After training measures special attention should be given to follow-up activities, in order to assess the effectiveness of training sessions, as well as the identification of barriers which prevent intended behaviour changes.

5.5 Empowering People and Communities through Behavioural Change

5.5.1 Supporting Women's Status through Education, Agriculture and Health

The social status of women and their educational level are crucial influencing factors in the malnutrition of children (IFPRI, 2005). Training on good nutritional behaviour should therefore not only include care for children but also care for women, in light of their multiple roles within households and communities. Formal or non-formal educational opportunities for women are crucial and should best be combined with economic, social and health improvements. The FAO calculates that if women had equal access to productive resources as men, yields on their farms could increase by 20–30 per cent and thus significantly contribute to reducing global food deficits by twelve to 17 per cent (FAO, 2011).

The high potentials for combating malnutrition that lie in protecting and promoting women's socio-economic status have already been shown in Chapter 5.3. The most important principles for supporting women through education, agriculture and health are summarised in the following box.

Box 25: Principles for Supporting Women through Education, Agriculture and Health

1. Protecting the nutritional status of women

People who are suffering from underweight or micronutrient deficiencies, especially pregnant women with additional nutritional requirements, have greater difficulty in conducting physical work due to their weaker health status. Studies suggest that heavy workloads on women have negative influences on their children's birth weights. However, even without increased physical work, women's nutritional requirements should be met, especially during pregnancy – in order to prevent malnutrition in new-borns (see 1,000 days initiative).

2. Reducing women's workloads and improving their time allocation

Women's workloads can be reduced by educating men and boys to become more supportive of women, since they are often the decision-makers in communities or within the households. Less labour-intensive alternatives should be chosen and supportive strategies, such as low substitute caregivers (fathers, mothers-in-law) or interventions provided physically closer to households, should be given priority. The time devoted to caretaking responsibilities can be reduced through appropriate investments in childcare services, public transportation and the development of cleaner and safer sources of energy for households (WHO, 2012).

3. Advocating for women's access to land, livestock, education, markets, employment

Investing in women's rights is crucial for their empowerment by strengthening their decision-making role in productive issues, as well as their access to land and other productive resources. Considerable efforts are required to ensure that women and men are equally served by rural institutions such as producer organisations, labour unions and other membership-based organisations. Public and private service providers, such as extension services, veterinary services and micro-finance organisations operating in rural areas, should be gender-aware and be encouraged to consider the specific needs of men and women in their activities. All existing rural institutions must be accessible to women and responsive to their needs, in order to close the gender gap in agriculture (FAO, 2011).

4. Supporting childcare capacities and education, for women but also men

Since nutritional outcomes depend on childcare, including breastfeeding, safe childcare initiatives should be encouraged. These may include playgrounds near the fields, extra rooms in the market or at school (where caregivers can provide care to children) and breastfeeding corners providing privacy and community day-care centres where children can stay while their mothers participate in market activities or trainings. Men should also be encouraged to support caring activities and take active part in these. Informal and formal education should be part of each intervention to close the educational gap between women and men (ACF, 2011).

5.5.2 Designing a Communication Strategy in Nutrition and Health**Understanding the nutritional behaviour of people**

Understanding people's behaviour is central to promoting improved health and nutrition. Family mealtime practices or the management of illnesses are determined by specific rules which vary from culture to culture, from family to family. In order to support people in making better decisions about their health or nutritional situation, it is important to understand the drivers and inhibitors for the way people act and take decisions. Evidence of the contribution of health and nutrition education to improved nutrition is well documented. Many examples demonstrate the necessity of good communication and adequate educational messages in development policies and in practical training.

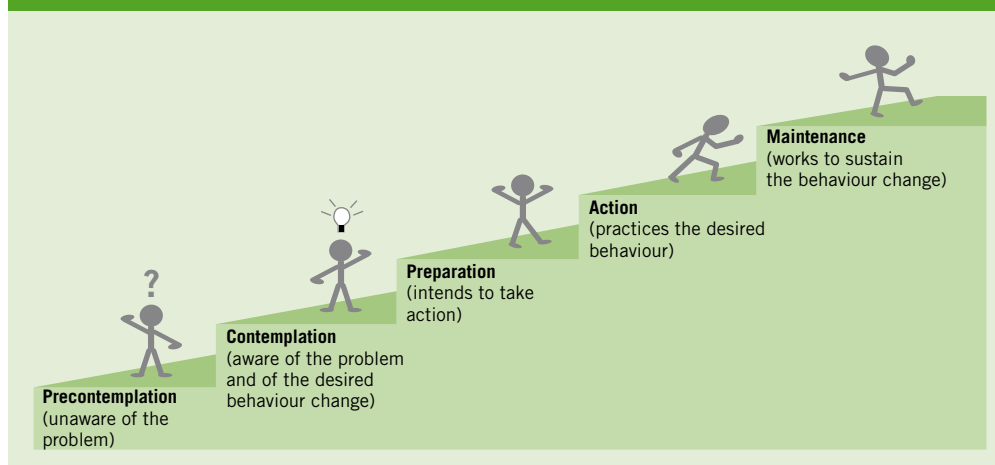
In almost each development programme (including those of Welthungerhilfe), some kind of educational messages are part of the programme design through training, capacity development, information sharing and other media. They aim at behavioural change by influencing communities or families to adopt new techniques, apply agricultural innovations, use new infrastructure, and apply better practices in hygiene and the preparation of meals.

Individual behaviour is rarely determined by a person's knowledge alone – there are many factors that influence behaviours, such as culture, the opinion of family members and peers, individual perceptions, and the broader physical environment in which people live. It is widely accepted by experts that social and behavioural change occurs along a continuum, with individual behaviour change at one end, and broader social, cultural, and institutional change at the other (Concern, 2013a).

Box 26: Social Behavioural Change Rationale (Concern, 2013a)

The **Stages of Change Model** describes the process people go through in order to change a practice. At first, they require information to help them make a decision to change. Once a decision is made, they need support and the skills to apply the new practice. Over time, and with continued support, the practice becomes habitual. People may however, move back and forth, within the stages of change. In the model, pre-contemplation and contemplation may also be considered as pre-knowledge and knowledge. Target populations already have some knowledge and awareness of the problems which need to be enforced through the promotion of behaviour change.

Figure 17: The Stages of Behaviour Change



Source: C-Change 2012, Short Guide to SBCC Theory & Models, from Grimley 1997 & Proschka 1992

Current behaviour change theories tend to primarily focus on human behaviour at the individual, interpersonal, or community level. Ken McElroy's ecological model however, shows a useful framework for looking at individuals in the context of their relationship with other groups, institutions or communities.

Behavioural intention is highly influenced by individual conviction about consequences of actions and judgments by family members or the wider community. External enabling factors such as resources, skills or specific knowledge, may provide the necessary pre-conditions for the long-term adoption of improved practices. This includes, e.g. the availability of soap and water for proper hand washing practices, or the availability of specific food items at household level for changing nutritional habits. Regardless of norms and attitudes, there is broad consensus that knowledge alone is unable to change behaviour in the absence of supportive infrastructure and skills. Many factors influencing people's beliefs and attitudes are still being explored.

Therefore, surveys should be included in programmes, to analyse and explore these influencing factors, especially the barriers that impede upon the ability of people to change their behaviours. For the planning of SFNS-related programmes, different types of factors influencing the nutritional and health behaviour of caregivers and their family members need to be identified – the best way to do so is a systematic kind of barrier analysis or KAP-(Knowledge, Attitude and Practice) survey. Only on the basis of such findings can realistic and effective strategies for improvement be developed.

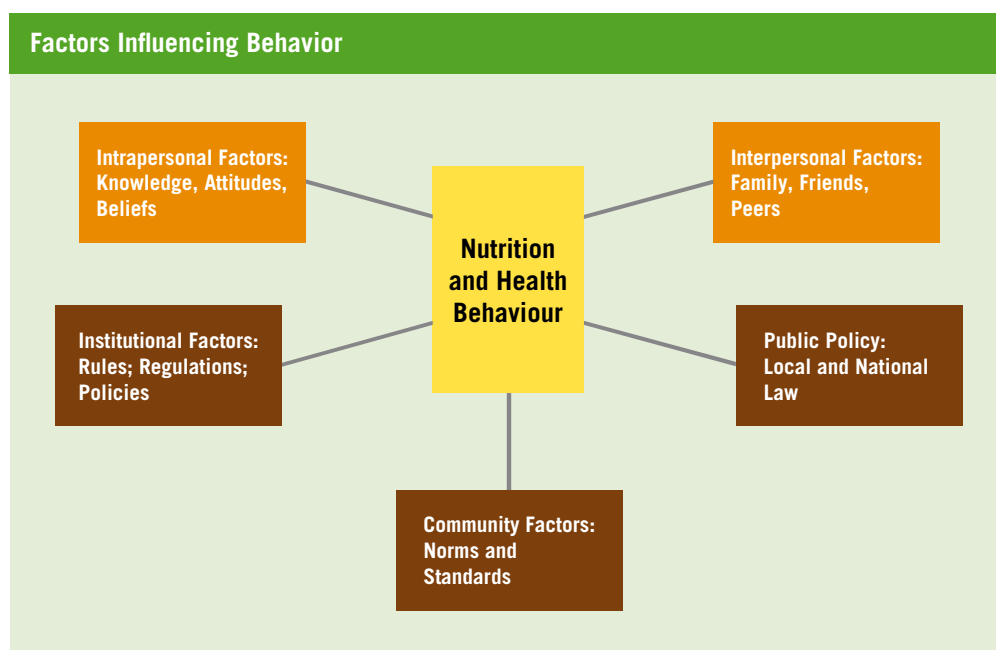


Figure 18: Ecological Model for Health and Nutrition Promotion (McElroy, 1988; Hubley, 2008)

Steps to develop a behaviour change communication strategy to adopt improved nutritional, health and hygiene practices

Communication approaches require a certain level of understanding of behavioural change theory. They should be integrated into broader nutrition and health education programmes, with well-defined and evidence based strategies for communication.

Table 12: Planning a Communication Strategy for Improving Nutrition

1. Conceptualisation of the strategy	<ul style="list-style-type: none"> ■ Defining the nutritional problems ■ Determining the causes of the problems – understanding the situation ■ Establishing the educational framework
2. Formulation of the strategy	<ul style="list-style-type: none"> ■ Setting the objectives ■ Designing the messages ■ Choosing the media and multimedia formats
3. Implementation of a set of activities	<ul style="list-style-type: none"> ■ Producing the materials ■ Training the change agents ■ Implementing the communication intervention
4. Monitoring, evaluation and re-design	<ul style="list-style-type: none"> ■ Establishing a process and impact indicators ■ Redesigning the necessary messages or methods ■ Results-based management

Generally, there are **three main scales at which nutrition and health communication can be applied**:

1. One-to-one communication that can take place in health facilities, in workplaces or at home – based on tailored advice to individuals.
2. Communication in groups in various settings e.g. for organisations engaged in health and nutrition promotion, those active at the community level for facilitating self-help and empowerment.
3. Mass campaigning through radio and television to address a broader public.

The choice of the appropriate scale and adequate tools depends on the specific context or situation and requires careful selection.

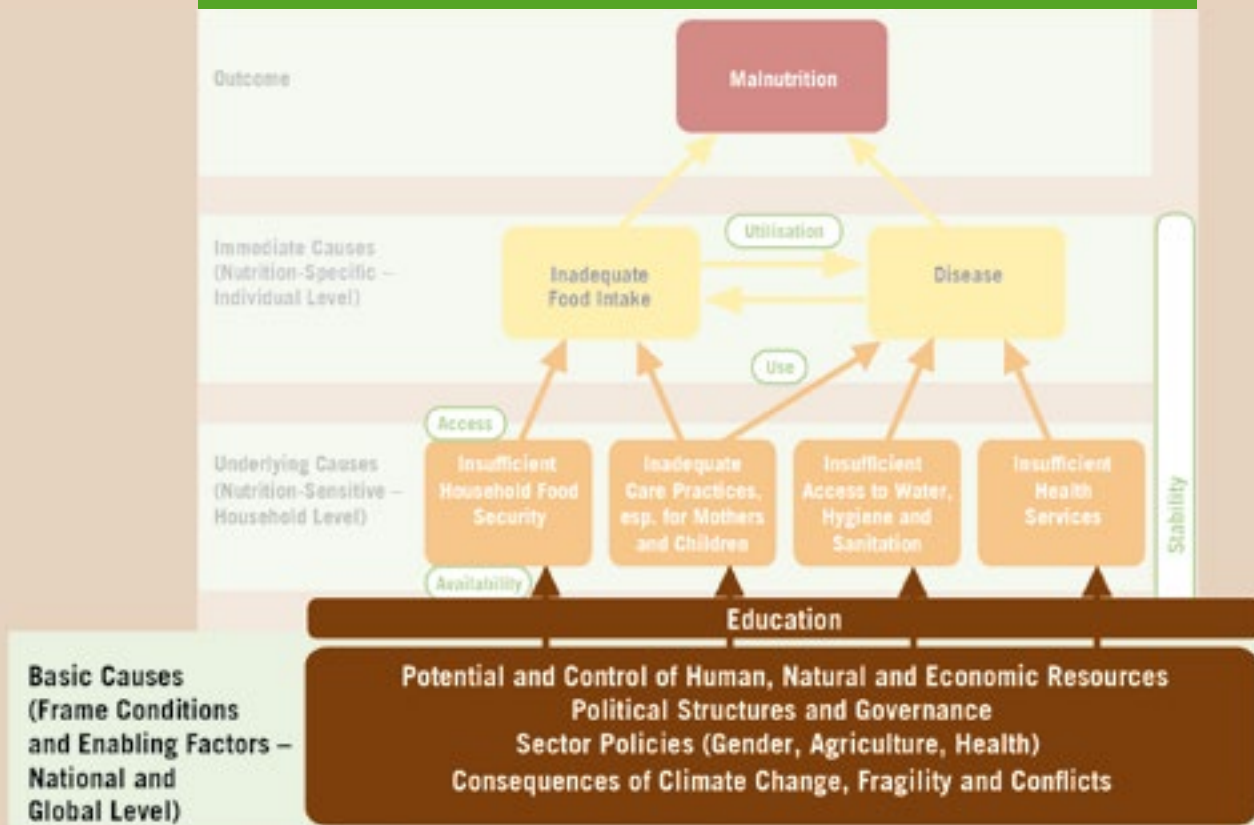
IMPLEMENTATION PHASE

Addressing the Basic Causes of Malnutrition



Source: Kopp/Welthungerhilfe

Causal Model of Malnutrition



Source: adopted from UNICEF

6. Addressing the Basic Causes of Malnutrition: Creating an Enabling Environment for Sustainable Food and Nutrition Security

6.1 Focusing the Basic Causes for SFNS

The basic causes of malnutrition are determined by political and socio-economic conditions, as well as the institutional and natural environment (UNICEF, 1990). Cultural factors, governance structures and the realisation of human rights, as well as the possible consequences of climate change, can play an important role in influencing the food and nutrition security of a society (see Chapter 2). Creating an enabling environment for sustainable food and nutrition security is a key component of Welthungerhilfe's long-term strategy to reduce hunger and malnutrition.

These basic causes of malnutrition should be deeply analysed and well understood when planning to strengthen the food and nutrition system within a region or country:

1. **Ecological conditions** include the available natural resources, technology, technical skills, climate and weather conditions, as well as the resilience of communities or societies that together form the production systems. Natural resources such as soil, water and biodiversity are the basis for sustainable agricultural production, income-generation and human well-being. Poor households generally have insufficient access or abilities to manage these natural resources sustainably, particularly under increasing climate and weather constraints.
2. **Political conditions** refer mainly to the structural and legal systems of a state, its governance practices or political fragility, the role and power of national institutions, as well as the performance of human rights, trade, pricing, or other sector policies (e.g. economy, agriculture, health, food security, land tenure etc.). Different cultures, religions or traditions also influence political conditions.
3. **Economic conditions** are determined by external and national economic policies, world market prices and international trade. Disparities in the distribution of productive assets within a country i.e. land tenure, are also determining factors. Consumer and producer structures, market organisation, pricing systems and social security policies influence the basic political and economic outcomes at national level.
4. The **institutional setup** represents the interface of the underlying and basic causes of malnutrition. Formal and informal institutions play an important role, since they can provide the necessary services to promote improved agricultural and consumption patterns, caring health services and appropriate hygiene environments at the local level. These tasks are generally performed by public structures, e.g. primary schools, health centres etc., and informal and formal organisations such as civil society, e.g. basic farmer groups, women's associations, community organisations, religious groups, traditional leaders and networks, knowledgeable persons, or local NGOs.
5. **Social conditions** refer to the possibilities and interrelationships for the empowerment and self-determination of human well-being. They are related to existing property relations or disparities in labour division, education and power-sharing within communities. Women and social minorities are often discriminated against. Social networks, coping strategies, social capital, and cooperation at the community level, can be destroyed after extreme natural events or armed conflicts. The often neglected local knowledge and involvement of minorities, very poor people or marginalised smallholder farmers, limits the voice and strengths they may have in influencing programmes and policies towards food and nutrition security.

Welthungerhilfe's opportunities for addressing the basic causes of malnutrition:**Protecting the environment and promoting biodiversity, sustainable agriculture and integrated rural development**

- Protecting the environment (see example from Peru) through replanting forests and the laying of adapted irrigation systems.
- Combining modern farming methods and the practice of organic farming.
- Supporting ecosystem approaches combined with agro forestry to protect the losses of biodiversity; terracing and watershed management, protecting the degradation of soil through alternative agricultural inputs and fertilisers; adapting seed production to climate change or expanding the economic potential of rural areas for small-scale farming (Welthungerhilfe, 2012c.)

Strengthening civil society through capacity development and empowerment

- Reducing social disparities, increasing advocacy for women's rights, empowering ethnic and religious minorities through education and strengthening civil society structures.
- Supporting the self-organisation and management skills of civil society groups, such as village councils, water committees, trade unions, women's groups etc. to ensure civic participation in social, political and economic life.
- Strengthening the skills and capacities of individuals and organisations. Civil society organisations work at different levels: from villages to the global level, in peaceful and conflict contexts and in LRRD. They play an important role within society (Welthungerhilfe, 2012b).

Promoting human rights and good governance at local and national level

- Awareness raising on the right to adequate food, for the beneficiaries of our programmes and relevant state actors, should be carried out as a component of rural development and SFNS interventions.
- Supporting disadvantaged social groups and strengthening their organisational capacities in rural areas in order to claim their rights and entitlements (i.e. access to land; supporting farmers groups to protect themselves against land grabbing issues).
- Facilitating dialogue between civil society (CBO's etc.) and government actors, on FNS issues.
- Partner organisations could use the right to adequate food and related guidelines (such as the 2012 CFS/FAO "Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forest in the Context of National Food Security") as an instrument to monitor their governments' activities in the fight against malnutrition.
- Lobbying and awareness raising in the global North in collaboration with partners from the South.

Strengthening the resilience of people and systems faced by recurrent shocks or stresses which affect their food and nutrition security

- Focusing on approaches that contribute to the ability of people and systems to resist, absorb and transform responses for managing the impacts of shocks and stresses (IFPRI/Concern/Welthungerhilfe, 2013).
- Encouraging development programming that factors in uncertainty and volatility and humanitarian programming that works towards sustainable development, such as flexible seasonal 'safety net' programmes.
- Building on local capacity and strengthening local structures since they have the potential of providing the most timely and effective support during shocks and stresses.
- Supporting and enhancing positive coping mechanisms that people already use, such as community-level saving networks or seed banks.
- Measuring the effects of resilience enhancing interventions and the use of such evidence in informing policy dialogue and supporting partner capacities in lobbying for resilience enhancing policy change, such as increased land tenure security for smallholders.
- Interventions promoting diversified, climate-sensitive, sustainable land use and agricultural production, including the capacity development of organisational structures to cope with and resist extreme weather conditions.

Welthungerhilfe, 2012a; IFPRI/CONCERN/Welthungerhilfe 2013

6.2 Integrating Biodiversity, Sustainable Agriculture and Integrated Rural Development for the Protection of the Environment

Protecting natural resources is, without doubt, key for sustainability and an important factor in reaching SFNS, particularly in light of monoculture focused export-farming, environmental degradation and declining food production, especially in ecologically fragile and drought-prone areas which are aggravated by the negative impacts of climate change. Various international research institutes, political actors and development sector practitioners have declared that the limits of exploiting our natural environment and resources have already been reached (IAASTD, 2009; Welthungerhilfe, 2012a). Moreover, there is increasing consensus of the need to deal more efficiently with the available resource base (reduction of losses and waste in the food chain). Issues such as agroecology, low-input, family-based food production, decentralised food systems and the inclusion of farmers' knowledge for research and technology, are now commonly promoted for reducing vulnerability and enhancing the resilience of small-holder farmers and their families (ILEIA, 2013). The important role family farming can play to reduce hunger and malnutrition is demonstrated by declaring 2014 as the UN year of family farming.

Box 27: Agroecology

The core principles of agroecology include:

- Recycling nutrients and energy on the farm, rather than introducing external inputs
- Integrating crops and livestock, and increasing agro-biodiversity
- Focusing on interaction and productivity across the whole system, rather than on individual crops or species
- In contrast to modern farming, agroecology is based on techniques that are not delivered top-down, but experimentally developed by scientists, together with farmers' knowledge and priorities. It integrates socio-cultural structures such as local institutions, which govern natural resources.

ILEIA, 2013

The promotion of sustainable solutions to SFNS is a major concern for Welthungerhilfe, particularly because of increasing pressure on natural resources through population growth, extreme weather events, and migration, triggered by consequences of climate change, natural hazards and a rising number of conflicts. Nevertheless, sustainability should be the main guiding principle for any of the opportunities for action mentioned above. Different interventions and approaches to sustainable agriculture are discussed and presented in Chapter 5.1.1 Additionally, the following country cases specifically highlight how the environment can be protected, drawing on the knowledge and experiences of Welthungerhilfe.

**Peru:**

Protecting the environment has been demonstrated in the Peruvian highlands through afforestation and the establishment of irrigation systems. Traditional knowledge is combined with modern farming methods and the practice of organic farming. Children and young people learn about natural protection and crop diversity by working in environmental groups. After school, they help to plant saplings or build walls to protect soils against erosion. Health and cooking demonstrations are also integrated so that people can practice useful consumption patterns based on their own agricultural production.

Peru, Province Paucartambo. Source: Desmarowitz/Welthungerhilfe

Ecosystem supporting approaches, combined with agroforestry, can protect biodiversity losses. Soil extension for agriculture can be achieved through terracing and watershed management. Soil degradation can also be protected through alternative agricultural inputs and fertilisers. Shorter and more erratic rainfalls, or other extreme weather conditions, require diversified agricultural production in order to reduce the risk of crop failures. Genetic variability, by introducing new or traditional varieties, is crucial in order to adapt agricultural production to the probable consequences of climate change.

**Nepal:**

For smallholder producers in the Himalayan mountains, the promotion of agroforestry, including new and traditional farming methods, results in the creation of trust. Their situation has changed significantly. For crops such as potatoes or grain growing in the fields, tree roots prevent soil from eroding during heavy rains, as well as from drying out in times of drought. Agriculture should become a small business for farmers. Expanding its economic potential for poor farming households in rural areas without environmental constraints is one of today's greatest opportunities (Welthungerhilfe, 2012c).

Source: Pilar/Welthungerhilfe

6.3 Strengthening Civil Society through Capacity Building and Advocacy

Strengthening civil society is a crucial pillar for sustainable development, the reduction of malnutrition, hunger and poverty. It is therefore one of Welthungerhilfe's strategic objectives. In rural areas, civil society organisations and local NGOs are often focused on providing solutions to lacking services that governments are unable to deliver. This includes social services, functional institutional and physical infrastructure and the appropriate management of natural resources to ensure food and nutrition security (Welthungerhilfe, 2012a; 2012c). In order to tackle the underlying causes of malnutrition, it is important to strengthen the capacity of civil society structures (particularly of food and nutrition-insecure population groups), so that they are able to articulate their needs and interests in the development of FNS policies and programmes.

How to link civil society with nutritional concerns?

- Specific nutritional concerns can be easily integrated into capacity development programmes, by promoting dialogue and mutual learning, self-organisation and communication on nutrition and health topics
- Since civil society organisations work at different levels: from local, to national and international level, their contribution towards specific nutritional outcomes depend on what kind of problems have to be addressed in order to reach nutrition security
- Supporting the self-organisation and management skills of civil society groups, such as village councils, water committees, trade unions, women's groups etc., can ensure civic participation in social, political and economic life (Welthungerhilfe, 2012b)
- Awareness raising and information sharing can help reduce social disparities, increase advocacy for women's rights and aid the empowerment of ethnic and religious minorities

The promotion of the right to adequate food as a human right at local, national and global level may provide one key avenue for strengthening civil society capacity and SFNS.

6.4 Promoting a Human Rights Approach towards Nutrition Security

The right to adequate food is a human right that is established in international law, as part of economic, social and cultural rights (see Box below). States should take measures in order to gradually realise this right through policies that facilitate adequate diet and nutrition for their citizens. Governments of countries affected by hunger have the obligation to create conditions that enable people to gain access to sufficient, nutritious and culturally appropriate food. However, the latest figures on hunger and malnutrition in the world speak for themselves: no human right is more violated than that of the right to adequate food. But how can this right be demanded by a simple farmer family in the highlands of Peru or by an AIDS orphan in sub-Saharan Africa? How can governments be made accountable to respect, protect and fulfil their human rights obligations so that all the hungry and malnourished benefit from it?

For those who are affected, receiving food as a sign of charity from the government is not of concern. For them, the right to be free from hunger and malnutrition due to inadequate food and nutrition policies is of concern. This requires an enabling framework that helps to realise adequate living conditions. The respective governments of each country are requested to take the necessary steps, however, the international community is also obliged to work together and ensure that these rights are respected, protected and fulfilled. The right to adequate food and the right to be free from hunger and malnutrition have been expressed in many binding conventions and covenants, as well as in non-binding declarations and guidelines. The international community, including United Nations Organisations, has now begun to consider the opportunities and advantages that a human rights perspective can have in accelerating action against all forms of hunger and malnutrition.

Food and Nutrition Security: A Human Rights Perspective (WHO, 2000; UN, 2008)

International instruments, both individually and collectively, provide the foundation for, and the recognition of, the human right to adequate food, as well as freedom from malnutrition

- Half a century ago, the **Universal Declaration of Human Rights** (1948) asserted that “everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food ...” (Article 25 (1)).
- The **Constitution of the World Health Organization**, also adopted in 1948, affirms that promoting the improvement of nutrition (Article 2) is among one of the specific ways that the WHO can achieve its objective for “the attainment by all peoples of the highest possible level of health” (Article 1).
- The **International Covenant on Economic, Social and Cultural Rights**, which came into force in 1976, declares that, “The States Parties to the present covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing, and housing...” (Article 11).
- Upon request of UN Member States at the 1996 World Food Summit, the UN Committee on Economic, Social and Cultural Rights provided further clarification on the content of the right to adequate food, detailing states’ obligations (UN ECOSOC, **General Comment No.12**, 1999); with regards to food aid, it specified that, “aid should be provided in ways which do not adversely affect local producers and local markets... should be organized in ways that facilitate the return to food self-reliance of the beneficiaries... should be based on the needs of the intended beneficiaries. Products included in international food trade or aid programmes must be safe and culturally acceptable to the recipient population”.

- In the **Convention on the Rights of the Child**, which came into force in 1990, two articles address the issue of nutrition. According to Article 24, “States Parties recognize the right of the child to the enjoyment of the highest attainable standard of health... ” and shall take appropriate measures “.... to combat disease and malnutrition through the provision of adequate nutritious foods and clean drinking-water ...”. In Article 27 of the Convention it is said that, States Parties “shall in case of need, provide material assistance and support programmes, particularly with regard to nutrition, clothing, and housing”.
- The United Nations **Declaration on the Right of Indigenous Peoples** also recognises children’s health or physical, mental, spiritual, moral or social development and well-being (Article 17; 43), and in Article 26 states that, “... Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired”.

Later **World Summits on Nutrition** (Rome 1992, 1996, 2002 and 2010) also developed and declared the right to adequate food and the fundamental right of everyone to be free from hunger, including the right to have access to safe and nutritious food.

To promote the implementation of the right to adequate food, the “**Voluntary Guidelines for the Progressive Realization of the Right to Adequate Food**” were developed and adopted by 187 countries during the FAO Council in November 2004, after a long consultation process among the international community (FAO, 2005). In 2011, a similar multi-stakeholder process resulted in the “**Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security**” (CFS/FAO, 2012).

A current discussion led by CFS/FAO is focused on **Responsible Agricultural Investments (RAI)**. A set of principles have been developed and are currently in a multi-stakeholder consultation process. The objective is “to promote responsible investment in agriculture and food systems that contribute to food security and nutrition, thus supporting the progressive realization of the right to adequate food in the context of national food security” (CFS/FAO, 2014).

The right to food guidelines (see above) include policy recommendations and practical instructions for governments to better implement their national food policy. For example, in Guideline 8, “**states should respect and protect the rights of individuals in terms of resources such as land, water, forests, fisheries and livestock**”, based on the principle of non-discrimination. Where necessary and appropriate, states should also carry out land reforms and other policy reforms to ensure efficient and equitable access to land and to strengthen growth in the interest of the poor (FAO, 2005).

Global political conditions are also addressed in the guidelines, such as international trade policies and land tenure arrangements, which impact on the fight against hunger and poverty, or the need to reduce and eliminate export subsidies in the long run.

What is “Land Grabbing”?

Providing adequate and sufficient food at affordable prices is a challenge faced not only by developing countries, but also by threshold countries and industrial nations. Global grain production is falling increasingly short of growing demand. This situation is promoting a trend known as ‘land grabbing’: state actors and private investors from industrial and threshold countries are securing huge tracts of farmland in developing countries with long-term leases and deeds of sale, in order to grow food and energy crops there for export. They are often welcomed by the local elite who have a vested interest in lucrative land deals. This situation is precarious: investment in agriculture is necessary, but it must take a pro-poor approach and cannot take the form of neo-colonial land seizure. (Welthungerhilfe, 2009b)

Welthungerhilfe’s opportunities for promoting a rights-based approach for sustainable food and nutrition security:

- A rights-based approach should be systematically integrated into Welthungerhilfe’s SFNS programming. This implies that a SFNS programme should be based on the comprehensive analysis of the causes of poverty, hunger and malnutrition, including its basic causes, as well as an analysis of the legal framework for FNS (international human rights framework, national legal framework, FNS policies and programmes). The obligations and entitlements of duty bearers (generally state actors) and rights holders (project beneficiaries), should be identified, and their capacities at different levels should be analysed, to be able to develop the most appropriate actions for promoting food and nutrition security (see also Welthungerhilfe’s Rights-based Approach Toolbox).
- The right to adequate food is an essential self-help and empowerment tool. Marginalised and malnourished people gain new self-awareness when they know they have a right to sufficient and appropriate food. They are transformed from recipients of charity into holders of rights and entitlements. This implies the need to strengthen the analytical capability of people, especially the most vulnerable groups, to reflect on their own situation and to understand the causes for their poverty and hunger, in order to build their capacity to address these root causes. Awareness raising and information sharing on the international and national legal framework for the Right to Adequate Food, related policies and programmes, as well as information on how to access them, should be part of any FNS programme.
- Civil society actors in partner countries could be supported in monitoring state actions on the basis of the Right to Adequate Food, demanding suitable strategies and their implementation, to combat hunger. Even in countries where the Right to Adequate Food cannot be claimed, civil society can still hold the state to account. National and regional hunger indexes, for example, can direct attention to the extent and causes of hunger. Civil society reports on implementing the Right to Adequate Food can also document weaknesses in state action, as well as cases of discrimination in access to appropriate food. In such reports, NGOs can also frame strategies for meeting the challenges. They can be used as an instrument to raise awareness and enter into dialogue with state actors.
- Governments in developed countries have to evaluate the policy measures of all their departments with respect to their possible role in exacerbating hunger and malnutrition in other countries. By providing evidence about the possible negative implications of policies in the North for food and nutrition security in partner countries, Welthungerhilfe, together with its partners in the South, can contribute to awareness raising among government and private sector actors, and to establishing dialogue to work on solutions.

- Rights-based approaches in Welthungerhilfe's Disaster Risk Reduction Policy ensure that basic rights to education, health and housing are not denied, since this may increase vulnerability and negatively impact on the nutritional status of individuals. Grounding a post-2015 framework in human rights standards, as well as other legislative frameworks and approaches (e.g. climate change, traditional and customary laws), will reinforce accountability by ensuring that commitments to citizens' safety and protection become legal obligations (Welthungerhilfe, 2013b).

6.5 Improving Resilience of People and Systems

Poor people and vulnerable communities are being increasingly hit by numerous shocks, compromising their food and nutrition security. The number of climate-related disasters has more than doubled during the last decade (ACF, 2012). On average, more than 200 million people have been affected by disasters every year. As a consequence, the global demand for humanitarian aid is rapidly increasing. In addition, many conflicts and extreme natural events are protracted or occur at shorter intervals. The impacts of climate change have more negative consequences on agricultural production than expected and the livelihoods of small-scale farmers are affected disproportionately by their related risks (see below).

Table 13: Risks Related to Extreme Weather Events, Climate Change and SFNS

Manifestation of Climate Change	Affected Regions and People	Risk Description and Assessment
Rise in temperature, heat waves, droughts, soil erosion, desertification, less and less reliable rainfall, water shortages, forest fires	Arid/semi-arid regions, farmers, pastoralists, fishing families, forest dwellers	<ul style="list-style-type: none"> ■ Lack of available food: reduction/loss of harvest, damages to forests, higher incidence of pests and plant diseases, storage losses, animal deaths, decrease in fish catches ■ Lack of access to food: production losses, income losses ■ Negative impacts on the use & utilisation of food: lower food and drinking water quality, deteriorated hygiene and care opportunities, higher susceptibility to disease, dropping out of school, limited fire wood for cooking
Increase in rainfall amounts, more intense rainfall, floods, landslides as a consequence of hurricanes	People in coastal regions, river delta regions, or in mountainous areas	<ul style="list-style-type: none"> ■ Lives at risk, higher risk of injury ■ Lack of available food: destruction of fields and stocks ■ Lack of access to food: negative impacts on infrastructure ■ Negative impacts on the use and utilisation of food: lower water quality, health problems

Manifestation of Climate Change	Affected Regions and People	Risk Description and Assessment
Stronger hurricanes, rising sea levels	People in coastal and river areas, in regions at risk of storms	<ul style="list-style-type: none"> ■ Lives at risk due to weather extremes ■ Lack of available food: loss of fertile land, animals and inputs, damages to forests, soil and water degradation, water shortages ■ Lack of access to food: limited self-sufficiency opportunities and destruction of roads, transport means, warehouses and markets ■ Negative impacts on the use and utilisation of food: destruction of shelter and food preparation options, sanitary and health facilities, spread of disease

Source: Welthungerhilfe, 2012a

In addition to climate change and weather extremes, economic shocks and stresses, such as increasingly volatile food prices in many parts of the world, or the effects of the global financial and economic crisis on many individuals, households and communities, have highlighted once again, the high degree of livelihood fragility for those living in poverty, who typically spend a large share of their income on food, as well as the fragility of food systems. As a consequence, there is growing consensus that programmes should not only focus on the reduction of vulnerabilities (i.e. eliminating weaknesses), but also on increasing the resilience of people and systems against shocks and stresses, by strengthening their capacities and allowing them to develop new abilities (BMZ, 2013; Development Assistance – Strengthening Resilience, Sharpening Transition, 2013; EU, 2012).

Box 28: Definition of ‘Resilience’

DFID defines **disaster resilience** as the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses – such as earthquakes, drought or violent conflict – without compromising their long-term prospects (DFID, 2011).

OECD points out that resilience generally refers to the, “ability of individuals, communities and states and their institutions to absorb and recover from shocks, while positively adapting and transforming their structures and means for living in the face of long-term changes and uncertainty” (OECD, 2013).

CONCERN stresses the community’s role in relation of **resilience to food and nutrition**, i.e. the ability of a community, household or individual to anticipate, respond to, cope with and recover from the effects of shocks and stresses that drive or exacerbate malnutrition in a timely and effective manner, without compromising their long-term prospects of moving out from poverty and hunger (Concern, 2013).

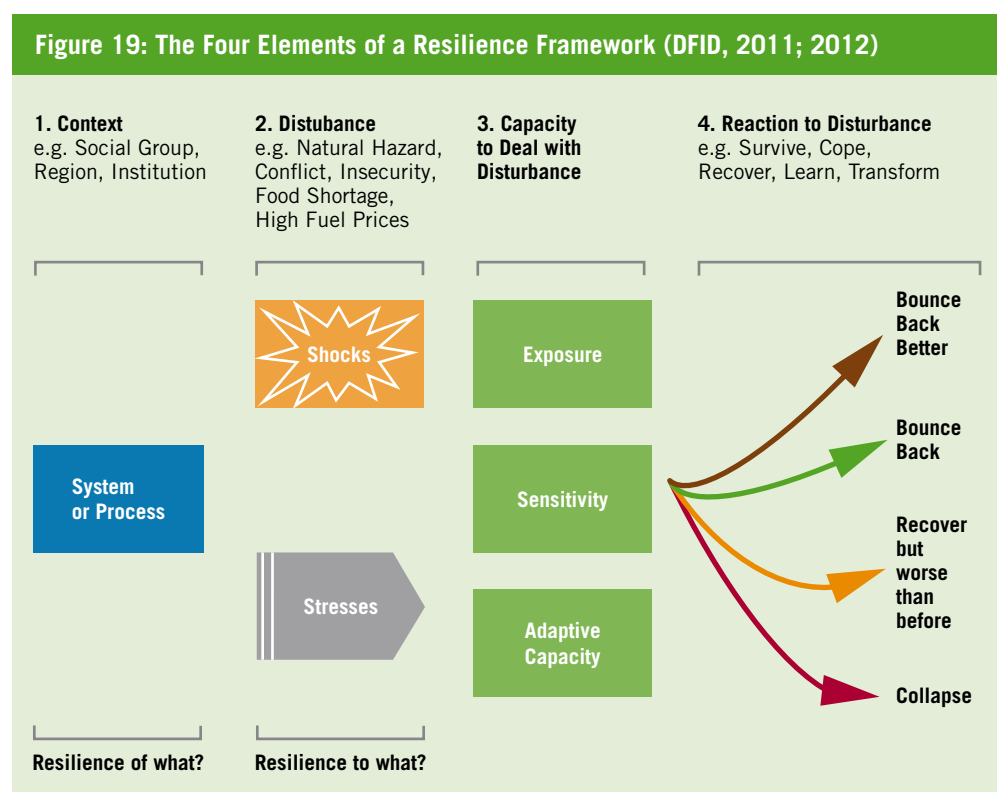
FAO suggests that resilience can be improved through stabilised food and agricultural systems that affect food and nutrition security, agriculture, food safety and public health in a particular way (FAO, 2012 and 2013e).

The most common definitions of resilience (see Box 28) have similar elements: they all mention the type of affected groups (e.g. individuals, households, communities or society) and the specific context (i.e. political, economic, social, cultural, environmental, and demographic), since both determine the capacity to deal with shocks and stresses. Resilient individuals, groups and systems generally have three options to respond to different degrees of stresses or shocks (IFPRI/CONCERN/Welthungerhilfe, 2013):

1. Absorption: the ability of individuals, households, or communities to moderate or buffer the impacts of shocks on their livelihoods and basic needs
2. Adaptation: ability to learn from experience and adjust responses to changing external conditions, yet continue operating
3. Transformation: ability to create a fundamentally new system when ecological, economic, or social structures make the existing system untenable

One of the reasons why resilience has received such widespread recognition in the humanitarian and development communities, is that it provides greater weight to the consequences of negative shocks as compared with earlier development frameworks. Thus, it provides a more complete explanation as to why an inability to cope with shocks makes it hard for the poor to escape poverty, hunger and malnutrition. It also explains why others fall into these situations in the first place. Consequently, a systematic approach to resilience can help to bolster support for interventions, such as 'safety net' programmes, which aim to bridge humanitarian relief and development approaches.

One framework that is extensively used to examine resilience is illustrated in Figure 19 below:



DFID, 2011; 2012

The Resilience Framework enables assessing the situation, as follows:

1. **Context:** First, a coherent answer to the question, '**resilience of what?**', is necessary to identify the social group, socio-economic or political system, environmental context or institution, that should be strengthened. Each of these systems will display greater or lesser resilience to natural or man-made disasters.
For Welthungerhilfe, strengthening the resilience of rural communities in fragile settings is of particular importance. For example, a study was recently commissioned in Haiti, to define the characteristics of resilient communities and to evaluate how Welthungerhilfe can strengthen these through its interventions (HU/SLE, 2013; see box p. 109).
2. **Disturbance:** The question, '**resilience to what?**', addresses the type of disturbance that usually takes two forms: (a) **shocks** such as droughts, floods, high winds, outbreaks of fighting or violent conflicts, with immediate and generally severe consequences if they occur suddenly (e.g. tsunamis or earthquakes). However, there are also smaller day-to-day shocks, such as failed rains or unemployment/disease of income-earning household members, and cuts in remittances that affect people's livelihoods or coping mechanisms; (b) **stresses** such as climate change, population growth, rising prices or declining soil fertility, that either simultaneously occur, or manifest over a long period of time, slowly affecting people's livelihoods. Both types of disturbances have negative effects on the nutritional status of populations (Concern, 2013).
3. **Capacity to deal with disturbance:** The ability of an individual, group or system to deal with shock or stress is based on different levels of capacities. The **exposure to risk**, which measures the magnitude and frequency of shocks, or the degree of stress (e.g. exposure to extreme natural events), could be measured by the size and frequency of floods or droughts. **Sensitivity** is the degree to which a system or group will be affected by, or respond to, a given shock or stress. Finally, the **adaptive capacities of actors** (individuals, communities, governments or organisations) that are determined by their ability to adjust to a disturbance, tend to moderate potential damage to take advantage of opportunities, or cope with the consequences of a transformation (DFID, 2012).
4. **Reaction to disturbance:** Finally, there are different reactions to disturbances: to '**bounce back better**' for the system, process or group concerned, which means that they may be better able to deal with future shocks; to **bounce back** in the sense of recovering from the same situation the same as or better than before; to recover, but worse than before – resulting in reduced capacities; or to totally collapse, by leading to a catastrophic reduction in future capacity to cope. When systems or processes **bounce back** or even **bounce back better**, this indicates that they are resilient, i.e. they have the ability to absorb, adapt and possibly even to transform (depending on the intensity of the disturbance and the required reaction). However, further analysis can determine whether support is required to enhance resilience to shocks and stresses of a different nature, or to more frequent or more intense disturbances.

Promoting Civil Society Resilience in Haiti – The Contribution of Civil Society to Strengthening Resilience under Conditions of State Fragility

Based on a meta-analysis, the study identified nine characteristics for resilient communities: diversity; efficiency of state actors; flexibility and acceptance of change; participation and inclusion; emergency planning and preparedness; asset building and the equal distribution of assets; shared value bases and social structures; culture of learning; and cross-level cooperation.

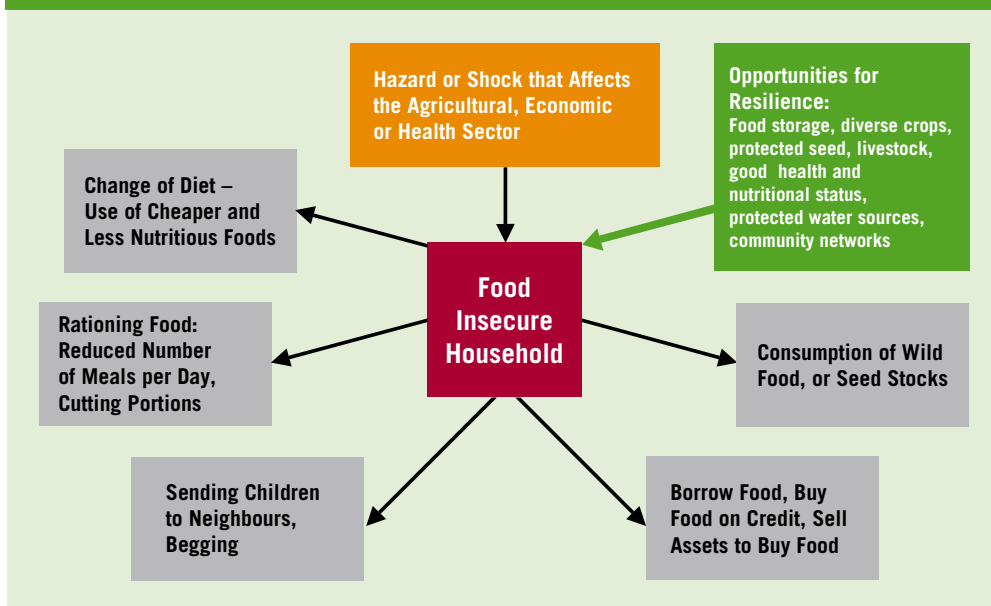
The study confirmed that a strong, local civil society can enhance the resilience of communities. Programmes from a variety of sectors, such as infrastructure, climate change adaptation, or irrigation, can contribute to strengthening the resilience characteristics of local committees and groups.

The study identifies good practices of how Welthungerhilfe's programmes in Haiti contribute to civil society strengthening and resilience-building (such as training in organisational development for community groups, economic support through improved livelihoods, cooperation with state structures) and makes suggestions for further improvements (such as placing a stronger focus on political empowerment, enhancing a culture of innovation, and learning by facilitating access to knowledge and information) (HU/SLE, 2013).

Stresses and shocks affecting food and nutrition security at the household level

In many food insecure regions, households suffer from regular droughts, floods, extreme weather events, or economic disturbances such as seasonal food price fluctuations that affect their food security, with consequences for food preparation and consumption. Many coping strategies have been observed within food insecure contexts. These are related to diets or nutritional behaviour, as demonstrated in the next diagram.

Figure 20: Coping Strategies of Food Insecure Households Faced by Extreme Natural Events or Economic Shocks



Adapted from Maxwell, 2008

Outcomes of resilience can be monitored and assessed. However, the unpredictable nature of shocks and responses makes measuring vulnerability and resilience much more difficult than measuring chronic welfare measures for poverty, child malnutrition, or infant mortality. In addition, it requires a multilevel approach: measuring conditions and changes at the micro-level, including individuals and households, as well as at the meso or macro level, concerning communities, countries or broader “systems”. (DFID, 2012; Pain, Michell, 2012)

Furthermore, the most important prerequisite for resilience measurement is perhaps higher-frequency surveys; such as the nutritional surveillance system surveys conducted by Helen Keller International (HKI) or the World Food Programme (WFP), in some countries (see IFPRI/CONCERN/Welthungerhilfe, 2013 for further details on measuring resilience). Concern Worldwide has proposed to use indicators such as the number of hunger days, dietary diversity scores, or the global acute malnutrition rate, to monitor the success of resilience enhancing programmes from a food and nutrition security perspective.

Resilience building is a key component for Welthungerhilfe in order to end hunger and malnutrition sustainably. Strengthening resilience requires a long-term commitment to the conceptual cooperation between humanitarian emergency response, reconstruction efforts and development programmes. It must built on local capacities and knowledge, and should include climate change adaptation, disaster risk reduction and, most importantly, it requires interdisciplinary action.

Welthungerhilfe's opportunities for building up resilience for sustainable food and nutrition security:

Working with communities and partners

1. Preventing local food and nutrition crises requires **communities** to analyse the crises' underlying causes and to be involved in the design and implementation of initiatives to address these. Resilience is not possible without the participation of a self-aware population. A strong local civil society can be the nucleus for enhanced resilience. Hence, the characteristics of resilient communities should be systematically identified and supported, as part of the programme intervention (HU/SLE, 2013). Local structures also have the potential to provide the most effective and timely support when shocks and stresses strike; their capacities for disaster response should be strengthened.
2. Existing **institutional coordination and administrative arrangements** must be used to help promote sustainability and a sense of ownership among all key stakeholders.
3. The establishment and strengthening of resilience within families requires a comprehensive understanding of the **role of women** (and men) within the respective communities. Gender-specific vulnerabilities and potentials must also be taken into account when designing resilience-related projects and programmes for food and nutrition security. Women are physiologically more vulnerable because of their additional nutrition requirements during pregnancy and lactation. They are also socio-economically more vulnerable due to their limited access to resources and power (see 'In Focus', Chapter 5).
4. Positive coping mechanisms that people already use should be supported and further strengthened, such as community-level saving networks or banks, which play a large role in promoting development and providing relief to shocks.

Assessing and observing the situation:

- In disaster-prone regions, programmes must **factor in uncertainty and volatility**. Some programmes can incorporate both humanitarian and development objectives by: (1) providing relief and then gradually building individual, household, and community assets, or by (2) building assets and addressing the drivers of inequality in normal conditions, while incorporating financial and operational flexibility into programmes to allow them to quickly switch to relief operations when shocks hit, such as flexible seasonal ‘safety net’ programmes.
- **Nutritional surveillance and risk assessment** should be interlinked. Resilience, as the ability of a system to withstand negative external influences, initially demands in-depth knowledge of its related risks. Therefore, risk assessments at all levels (physiological, economic, and environmental), must include relevant actors and take scientific insights into account. A disaster risk assessment at national or regional level forms the basis for Welthungerhilfe’s **Climate Proofing Approach** (Welthungerhilfe, 2011). Even if this method focuses on the risks brought about by climate change, its systematic approach can also be used to assess the risks of extreme weather and environmental events on the food and nutrition situation.
- Complementing available **early warning** data (rainfall patterns, food price developments, health facility admission rates) with additional primary data collected at household level and based on locally relevant coping strategies (e.g. dietary change, borrowing from neighbours, selling assets, etc.) are extremely useful
- In cases of recurring shocks or stresses, external intervention should only be triggered once the community has activated its **own disaster management plan** and an emergency threshold has been met.
- **Monitoring the nutritional status** of vulnerable groups can be a useful tool for targeting resilience-related action to those that have difficulties withstanding and recovering from shocks (FAO, 2013). Food insecure populations often show worsening nutritional status, particularly in children, as well as women. Stunting, as the outcome of chronic malnutrition, erodes people’s resilience to shocks and hazards. However, since resilience is a dynamic concept, its measurement requires frequent data collection and surveys, which need to be executed at different levels (household, community, ‘system’; see IFPRI/CONCERN/Welthungerhilfe, 2013).

Integrated programming, evidence and resilience enhancing policy change:

- Short-term food and nutrition insecurity and long-term trends and changes, such as environmental degradation that results in chronic hunger and malnutrition, have different causes and thus, need to be simultaneously tackled through **complementary cross-sectoral interventions**. In many settings, efforts to build resilience requires that more attention is paid to the deeper and more difficult-to-resolve issues of process, power, inequality, and to a large extent, the transformation of institutions.
- **Data on the best intervention packages** to build resilience is scarce. This lack of evidence should be addressed by rigorously monitoring and evaluating programmes intended to enhance resilience to food and nutrition security crisis, at community level. Given the complexity of programming and measuring resilience, collaboration with research institutes or universities may be an option. This may also generate scientifically sound evidence that can be used to promote resilience enhancing policy change.

Strengthening the ecological environment, the productive sector and social services:

- **Climate change adaptation** is a part of programme planning in national level poverty alleviation strategies, as well as in national plans for adapting to climate change (NAPAs). In the context of land use and food and nutrition security, one useful approach is “Ecosystem-based Adaptation” (EbA). Ecosystems influence climate at the local, regional and global level. The protection of water and carbon-storing ecosystems (forests, moors, and mangroves) contributes to alleviating the negative effects of climate change and increases resilience to it. EbA also integrates the traditional knowledge and practices of indigenous people and local communities (Welthungerhilfe 2012d). Climate change adaptation is thus a crucial strategy for ensuring sustainable food and nutrition security, since it secures and improves the necessary preconditions and addresses the root causes for malnutrition.
- All **nutrition-sensitive interventions** linking the agriculture and health sector (e.g. production, food processing, storage handling, diversification of crops, caring and nutritional practices of households and health infrastructure necessary for improving hygiene, drinking water and sanitation, as pointed out in Chapter 5), simultaneously strengthen the resilience of households because these measures focus on prevention and sustainability within individuals, households and communities. The best intervention package aimed at resilience has to be chosen depending on each situation.
- **‘Safety nets’** are another instrument to strengthen resilience. They can be used for risks related to recurring cyclical weather events and their effects. They are designed to catch households that are most at risk, before they fall into dire situations as a result of a crises, such as the loss of a harvest or illnesses in the family. These safety nets generally consist of cash payments, which are provided to the poorest, either unconditionally, or as payment for work or participation in training measures, during those seasons in which cash and food reserves are at their lowest levels. However, in order to avoid dependencies, cash transfers should be integrated with other interventions that address the underlying and basic causes of malnutrition and food insecurity.
- **Strengthening infrastructure** that resists extreme natural events should be part of the disaster risk reduction approach. Interrupted access to markets for food supply and to health facilities may aggravate the nutritional status of those affected by natural hazards. This is associated with an adherence to and, possibly, the increased use of building standards for earthquake-proof and hurricane-proof buildings and for flood-proof siting of markets and other infrastructure, in order to contribute to resilience from a food and nutrition security perspective.

CHALLENGES & ALLIANCES

Setting the Agenda for Achieving Sustainable Food and Nutrition Security



India, a resident of the Nakaryak village in Madhya Pradesh is talking about completed projects of the village during a meeting with staff members and Welthungerhilfe project partners. Source: Fabian/Welthungerhilfe

Figure 21: Challenges at the Local, National and International Level



Source: Trentmann/Welthungerhilfe

- Set nutrition commitments and goals in regional and national portfolios
- Adopt a multi-sectoral approach
- Involve a broad range of stakeholders for coherence and coordination
- Strengthen civil society and participation
- Ensure institutional coordination and financial commitment

7. Setting the Agenda for Achieving Sustainable Food and Nutrition Security

7.1 Challenges: How to Achieve Sustainable Food and Nutrition Security?

The need for investing in food and nutrition security is clear. Poor nutrition in early childhood can cause lifelong damages, resulting in consequences at the individual, community and national level. Direct productivity losses and reduced schooling can affect a nation's economic growth. The existing causal models and interrelationships between the various immediate, underlying and basic causes of malnutrition can be used as guiding frameworks to better assess, understand, design programmes and implement nutrition-related interventions.

Decision-makers need to be aware that good nutrition for both children and adults requires more than just having enough to eat. This has been extensively demonstrated in the previous chapters. There is no single solution for a complex problem and no single actor will be able to solve the problem alone.

The following list outlines the essential approaches necessary for tangible nutritional outcomes in Welthungerhilfe's project and programme work and should be understood as general guidance for action:

Essential Approaches for Action

1. For development practitioners

- Focusing on community-based solutions placing people's own capabilities, local knowledge and perceptions into the centre of the process for alleviating poverty and improving food and nutrition security
- Making the potential of agriculture work towards poverty alleviation and nutritional outcomes
- Ensuring that nutrition-specific and nutrition-sensitive interventions are combined to accelerate the nutritional impact in both the short- and long-term
- Providing nutrition-related capacity development opportunities for staff, partners, local civil society actors and other relevant stakeholders involved in programmes and projects

2. For policy makers

- Making the agricultural and health contributions of better food and nutrition security explicit for all stakeholders engaged in the humanitarian and development sector
- Promoting and supporting civil society organisations to place food and nutrition security, the empowerment of women and rights-based approaches on their agendas
- Strengthening policy coordination processes and local/national multi-stakeholder dialogues around food and nutrition security

3. For donors

- Supporting multi-sectorial strategies for improved food and nutrition security at national and local level, both within the civil society and government structures
- Dedicating more funds for holistic, long-term food security and nutrition-related approaches, such as nutrition-sensitive agriculture
- Monitoring nutrition and food consumption together with the communities and other stakeholders in order to assure sustainable improvement

Quick solutions versus long-term investment?

The international drive for action towards improved nutrition security, as reflected in many nutrition-related agendas, particularly in sub-Saharan Africa, currently focuses on the treatment of symptoms and technical, product-based and market-oriented solutions (ready-to-use-therapeutic food, highly nutritious processed foods, vitamin and mineral fortification and supplementation). Even if such initiatives consider the importance of additional nutrition-sensitive approaches for tackling the underlying causes of malnutrition, they often remain short-term, curative and focused on individuals. They fail to consider the complexity of the food and nutrition security system and its socio-economic determinants.

Such options and products may be justified in situations of acute malnutrition, e.g. emergencies, or as an integral component of a broader programme for supporting food and nutrition security. However, such interventions only have limited short-term impact and are not sustainable in the long run. They cannot replace long-term sustainable approaches aimed at rectifying unsustainable food systems or negative nutrition practices at the community or household level.

Criticism to such short-term approaches have been pertinently voiced as a result of a two-year study on sustainable nutrition in Africa, funded by the EU. The need for applied nutrition research, defining effective community interventions to improve the nutritional status and behaviour of communities, as well as appropriate food security strategies that improve nutrition through prevention rather than treatment, has been clearly pointed out [SUNRAY, EU-funded, 2013].

7.2 Initiatives, Movements and Alliances for Improving Sustainable Food and Nutrition Security

Looking back at the year 2000, the most important international agreement addressing Food and Nutrition Security was the formulation of the **Millennium Development Goals (MDGs)**, and especially the MDG 1: aiming to halve the number of people suffering from hunger and poverty by 2015. The progress of these MDGs has been monitored in each country and initial findings suggest that despite positive changes in Asia and Latin America, as well as a reduction in the prevalence of malnutrition in selected countries, many societies (e.g. on the African continent) have not yet realised the MDG 1. Even if agricultural production and economies have significantly improved, and more food is being produced, the achievement of nutrition security has yet to be realised.

In the on-going **post-MDG process**, the international community is attempting to incorporate better nutrition-related indicators and solutions towards more equal access to resources and assets, whilst aiming to protect the environment from demographic and climate change pressures. One of the main outcomes of the Rio+20 Conference was the agreement by member states to launch a process to develop a set of Sustainable Development Goals (SDGs), which will build upon the Millennium Development Goals and converge with the post 2015 development agenda. The final priority-setting and formulation of the upcoming Sustainable Development Goals (SDGs) is still underway – some consensus has already been reached as put down in the outcome document of the Open Working group.

In addition to the global framework of the MDGs and SDGs, several non-binding agreements have already been successfully pushed forward. These include:

- the Voluntary Guidelines on the Right to Food (FAO, 2005)
- the Voluntary Guidelines of the Responsible Governance of Tenure of Land, Fisheries and Forests (CFS/FAO, 2012)

The scandalously high levels of chronic hunger, exacerbated by the ongoing global and regional food price crisis and constant price volatility, has led to raising the priority of food security and nutrition in the German government's agenda. The German government pledged financial support during the L'Aquila Food Security Initiative (2010), the G8 "Mushoka Initiative on Maternal, New-born and Under-Five Child Health" (2012), as well as the London agreement on 'Nutrition4growth' in 2013.

Besides these commitments by the German government, many initiatives, movements and alliances have taken off since the 2008 worldwide food price and economic crisis, providing opportunities for collaboration, new co-financing arrangements, as well as the exchange of lessons learnt on nutrition.

Table 14: Current Movements and Alliances Towards Nutrition Security

International Initiatives	Description	Opportunities and Threats
CFS (Committee on World Food Security) www.fao.org/CFS	<ul style="list-style-type: none"> ■ An intergovernmental body housed in the FAO since 1974, to review and follow up on food security policies; unifies participants from UN agencies, civil society, NGOs, international agricultural research, financial institutions and the private sector ■ Reform process in 2009 ensured that the voices of non-UN stakeholders were heard in the global debate on food security and nutrition ■ Vision: To be the most inclusive international, intergovernmental platform for all stakeholders to work in a coordinated way towards food security and nutrition for all (Reference: Global Strategic Framework for FSN) 	<p>(+) Improves coordination and guides synchronised action with a wide range of stakeholders to prevent future food crisis and assure food and nutrition security</p> <p>(+) Annual sessions provide good opportunities for decision-makers, practitioners and research staff to debate new solutions for eradicating malnutrition</p> <p>(-) Low funding opportunities; main action is coordinating at national or global level; low presence at community level</p>
High Level Task Force (HLTF) on Global Food Security www.un-systems.org	<ul style="list-style-type: none"> ■ Established in 2008, the High Level Task Force (HLTF) is chaired by the UN Secretary-General (with the FAO Director serving as Vice-Chairman and as appointed Coordinator of the Task Force (2009) 	<p>(+) Comprehensive Framework for Action established the double-track approach: short-term action combined with long-term interventions towards food and nutrition security</p>

International Initiatives	Description	Opportunities and Threats
High Level Task Force (HLTF) on Global Food Security www.un-systems.org	<ul style="list-style-type: none"> ■ Reference documents that reflect a common vision: The HLTF's 2001 Updated Comprehensive Framework for Action for Food and Nutrition Security (UCFA) and a recently prepared HLTF note on Food and Nutrition Security for All through Sustainable Agriculture and Food Systems. ■ Vision: Ending hunger and malnutrition is achievable and an important element of sustainable development ■ Defined the ZERO HUNGER CHALLENGE (0% stunted children < 2y; 100% access to food all year round; all food systems are sustainable; 100% increase in smallholder productivity and income, 0% loss or waste of food) 	<p>(+) Reference documents and high commitment at policy level</p> <p>(+) Multi-stakeholder approach (UN, governments, civil society and private sector) offers opportunities</p> <p>(-) Mainly policy-guided, no real practical use for NGOs or civil society organisations working at the community or local levels</p>
UN Special Rapporteur on the Right to Food www.srfood.org/en	<ul style="list-style-type: none"> ■ The Special Rapporteur on the Right to Food is expected to report both to the UN General Assembly (Third Committee) and to the Human Rights Council on the fulfilment of the mandate ■ In 2008, Prof. Olivier De Schutter took over from Prof. Jean Ziegler. After 6 years, he is succeeded by Prof. Hilal Elver in 2014 ■ Aims at promoting the realisation of the right to food and the adoption of measures at the national, regional and international levels for the realisation of the universal right to adequate food and the fundamental right of all to be free from hunger ■ Examines ways and means of overcoming existing and emerging obstacles for the realisation of the right to food 	<p>(+) Reference documents and high commitment at policy level</p> <p>(+) Monitoring function: regular reports and briefing notes can be used for advocacy and policy work</p> <p>(+) Country mission reports</p>

International Initiatives	Description	Opportunities and Threats
SUN – Scaling Up Nutrition www.scalingup-nutrition.org	<ul style="list-style-type: none"> ■ Scaling Up Nutrition (SUN) is a movement that unites people from governments, civil society, the UN, donors, businesses and research community, in a collective effort to improve nutrition ■ SUN movement puts nutrition in focus. It implements both nutrition-specific interventions and nutrition-sensitive approaches ■ SUN follows the 1000 days initiative, focused on interventions during pregnancy until the age of 2 years, since good nutrition has the highest impact in this 'window of opportunity' 	<p>(+) Movement that put policies and strategies for nutrition at county-level into practice (see 47 SUN countries)</p> <p>(+) Opportunity to align to a countrywide multi-stakeholder process at policy and implementation level</p> <p>(+) Provides a platform to coordinate at country level with a same focus on nutrition, but though synergies and complementary action</p>
Micronutrient Initiative (MI) www.micronutrient.org	<ul style="list-style-type: none"> ■ The Micronutrient Initiative (MI) started in 1992 and works exclusively to eliminate vitamin and mineral deficiencies in the world's most vulnerable populations ■ MI works in partnership with governments, the private sector and civil society organisations ■ MI is governed by an international Board of Directors and works in Africa, Asia, the Caribbean, Latin America and the Middle East (> 75 countries), with headquarters in Ottawa, Canada and regional offices in Asia (India) and Africa (Senegal) 	<p>(+) Regional or country offices could provide practical and financial support for NGOs and nutrition-related programmes</p> <p>(-) Dedicated/limited to micronutrient supplementation</p>
GAIN (Global Alliance for Improved Nutrition) www.gainhealth.org	<ul style="list-style-type: none"> ■ Founded in 2002, GAIN partners with businesses, governments, NGOs, academia and others, to provide affordable and nutritious food in the developing world ■ Focus on strategic partnerships for large-scale national food fortification, nutritious food for mothers and children, nutrition in emergencies etc.; has reached more than 800 million people in 40 countries ■ Objective: Providing an enabling business environment for companies investing in nutrition in the developing world and working with the private sector through partnerships at country level to combat micronutrient deficiencies 	<p>(+) Provision of multi-nutrient powders, lipid-based nutrient supplements and fortified staple foods through national partnership initiatives that address the immediate causes of malnutrition; direct nutrition intervention that enables the immediate nutrition of malnourished persons</p> <p>(-) Limited to an externally driven approach based on processed products. No or limited focus on long-term behavioural change or the promotion of local food items</p>

International Initiatives	Description	Opportunities and Threats
Secure Nutrition Platform (WB) www.securenutrition-platform.org	<ul style="list-style-type: none"> ■ World Bank knowledge platform ■ Objective: Filling gaps in operational knowledge, linking food, agriculture and nutrition; sharing space for active exchange of new ideas ■ Consolidates and communicates knowledge, shares results, experiences, failures and successes 	<p>(+) Platform offers space to exchange experiences and to disseminate, market and gather information</p> <p>(+) Payment-free and useful learning platform with a strong practical focus on what works in the nutrition sector</p>
Bill and Melinda Gates Foundation	<ul style="list-style-type: none"> ■ Largest private foundation, created by Bill and Melinda Gates in 1997, based in Seattle, Washington ■ Objective: Enhancing global healthcare and reducing extreme poverty, and in the US, to expand educational opportunities and access to information technology ■ Nutrition-related programmes include rice research, the Alliance for a Green Revolution in Africa (AGRA) and financial inclusion initiatives 	<p>(+) Opportunity for financing development programmes with a broad range of actions</p> <p>(-) Often focused on productivity and 'green revolution' way of programmes through high-tech agricultural inputs and intensive agriculture</p>
Millennium Development Goals/Sustainable Development Goals http://www.un.org/millenniumgoals http://sustainable-development.un.org/focussdgs.html	<ul style="list-style-type: none"> ■ In 2000, the international community formulated the MDG to combat malnutrition and agreed upon relevant indicators; see MDG 1 Indicators to reduce poverty through better income and malnutrition in terms of reducing the prevalence of underweight in children ■ Objective: to halve poverty and malnutrition by 2015, which is only achieved in selected countries ■ Currently an ongoing global consensus process to agree upon the SDGs and their related indicators 	<p>(+) Important obligations for the international community</p> <p>(+) Universally applicable to all countries while taking into account different national realities, capacities and levels of development and respecting national policies and priorities</p> <p>(-) Isolated theoretical goals with insufficient binding linkage to institutions, stakeholders and affected people</p>

International Initiatives	Description	Opportunities and Threats
Global Targets to improve maternal and child nutrition until 2025 – Global Health Assembly www.who.int/nutrition/topics/nutrition_globaltargets2025	<ul style="list-style-type: none"> ■ WHO's member states have endorsed global targets for improving maternal, infant and young child nutrition and are committed to monitoring progress (Meeting from 21–26 May 2012) ■ Objective: Reaching the 6 global targets towards nutrition by 2025: (Target 1) 40% reduction in the number of children under 5 who are stunted; (Target 2) 50% reduction of anaemia in women of reproductive age; (Target 3) 50% reduction in low birth weight; (Target 4) No increase in childhood overweight; (Target 5) Increase in the rate of exclusive breastfeeding in the first 6 months up to at least 50%; (Target 6) Reduce and maintain childhood wasting to less than 5% 	<p>(+) Good reference targets for intervention planning in the health-related sectors</p> <p>(+) The targets are vital for identifying priority areas for action and catalysing global change through the international community</p>

EU/Regional/ National Initiative	Description/main focus	Comments, opportunities and threats
EU-Fight Malnutrition	<ul style="list-style-type: none"> ■ Strategy (2013): Boosting food and nutrition security through EU action – implementing our commitments (27 March 2013) ■ New EU-Policy Objective: “Enhancing Maternal and Child Nutrition in external assistance”: an EU Policy Framework that aims to improve the nutrition of mothers and children in order to reduce mortality and diseases, and the impediments to growth and development caused by undernutrition ■ Instruments: Food Security Thematic Program (FSTP); 1 Billion Food Facility to respond rapidly to food crisis problems 	<p>(+) Interesting co-financing opportunity for NGOs with established structures within a country; High level policy commitment, combines short-term action (ECHO) with long-term perspectives (LRRD; DG DEVCO) and focuses on integrated approaches with synergy effects</p> <p>(-) Generally rigid financing and proposal criteria – limits flexible intervention planning</p>

EU/Regional/ National Initiative	Description/main focus	Comments, opportunities and threats
Via Campesina – the international peasant's voice www.viacampesina.org	<ul style="list-style-type: none"> ■ Founded in 1993, Via Campesina is an autonomous social mass movement to unify millions of peasants and small-scale farmer organisations to defend food sovereignty i.e. culturally accepted and healthy food that is produced locally ■ Defends sustainable agriculture as a way to promote social justice and dignity; stands for the fight for the right to food ■ Objective: Small-scale farmers' organisations get their voice heard and participate in decision-making which affects their lives 	<p>(+) Via Campesina is recognised as a dominant independent actor in food and agricultural debates; accepted by institutions such as the FAO and the UN Human Rights Council, and broadly recognised among other social movements locally and globally</p> <p>(+) Addresses the basic causes of malnutrition; focuses on the right to and use of land, water, seeds, livestock and biodiversity</p>
GFP – German Food Partnership (GFP) www.german-food-partnership.de	<ul style="list-style-type: none"> ■ Brings together public and private actors in order to implement programmes designed to put stable agricultural value chains into place and to expand agricultural production ■ Objective is to foster and boost productivity and performance along the value chain in order to give local people easier access to production inputs, markets and food 	<p>(+) Opportunity for private-public-partnership programmes within the German development sector</p> <p>(+) Offers a network that enables various actors to intensify their mutual cooperation to increase efficiency and sustainability in agricultural production</p>

7.3 Specific Approaches and Instruments in Welthungerhilfe's Work

Welthungerhilfe seeks to ensure its work is innovative and up-to date in terms of scientific knowledge and latest research, by monitoring new scientific insights, actively engaging in research and development related to food and nutrition security in cooperation with important research actors in this field, some of whom are gaining increasing strength in partner countries. Welthungerhilfe – itself a learning organisation which aims to integrate evolving knowledge into programming – actively draws on its relationships with food and nutrition security research institutions, thus strengthening and continuously enhancing humanitarian and development efforts.

In its programme and policy work, Welthungerhilfe and its partners have developed specific integrated programme approaches and advocacy instruments to address sustainable food and nutrition security at different levels and across a range of target groups:

1. **LANN (Linking Agriculture, Natural Resources Management and Nutrition):** LANN is a community-based, participatory approach aimed at improving food security and nutrition security through a systematic training approach (Training of trainers ToT). It was developed in 2009 for Welthungerhilfe, 8 other INGOs and 3 Non-Profit-Organisations (NPOs) in Laos, with support from the EU. The rationale for developing such a tool was based on extremely high malnutrition rates which were observed in Laos, especially among ethnic minorities with very low literacy rates, despite rising economic development. Since the livelihoods of the population are based on ecological zones where food from the wild (forests) plays a crucial role, this aspect was integrated into the community-based training approach. LANN aims at **bridging the gap between food availability and access via agriculture and natural resources with use and utilisation**, by promoting increased consumption of nutritious and healthy food from the wild, especially by vulnerable groups in order to increase diversity of diets. The approach systematically integrates the sustainable management of natural resources as an important source of food, improvement of local agricultural practices, the diversification of production, as well as nutrition education incl. cooking classes and the promotion of behaviour change. Since 2009, Welthungerhilfe has been implementing LANN programmes and related approaches intensively in programmes in Laos, Cambodia, Myanmar, India, Nepal and most recently, in Sierra Leone.
2. **'Fight Hunger First' Initiative:** This initiative was developed by Welthungerhilfe in India. It is aimed at addressing food insecurity and malnutrition by **developing sustainable solutions together with affected communities and relevant stakeholders**. By following a rights-based approach, the initiative aims at improving food situations, income and primary education and nutritional practices in eleven remote and food insecure sub-districts. The programme supports the creation of village structures, such as community based organisations (CBOs) and school management committees (SMCs). The capacity development and training schemes empower individuals to **realise and demand their rights and entitlements** as granted by the Indian government, as well as enabling them to actively participate in development processes. The main focus of the initiative includes the Integrated Child Development Services (ICDS), National Rural Employment Guarantee Act (NREGA) and the Right to Education (RTE). In addition, pilot interventions on food security, nutrition and education are supported. Due to the extent of weaknesses in the Indian administrative system, as well as poor transparency, the RTE and ICDS approaches are not always implemented well, especially in remote locations. Welthungerhilfe and its partners therefore support and sustain these efforts, along with the quality of service delivery. Joint learning processes of all partners, systematic monitoring, as well as studies, publications and advocacy work are also facilitated by the programme.
3. **Global Hunger Index:** The Global Hunger Index has been jointly published by the International Food Policy Research Institute (IFPRI), Concern Worldwide and Welthungerhilfe, since 2005. Its annual launches in Germany, New York and other countries produce a high output in media reporting on the global food and nutrition situation. The Global Hunger Index **records the state of hunger worldwide** – by region and by country – spotlighting the countries and regions where action is needed most. The Index provides a ranking of countries according to a composite indicator describing malnutrition rates (composed from official data on hunger, stunting and child mortality from internationally available data sources). In addition, it focuses on the crucial subject of food and nutrition security every year. The annual publication of the Global Hunger Index on 16 October (World Food Day) is complemented by **international mobilisation** and marketing activities aimed at alerting the public and providing important information about the serious global problem of malnutrition and its interrelation with a complexity of different aspects, as well as causes.

4. **'FOOD RIGHT NOW'** (Alliance2015 Initiative on the Right to Food): Global citizenship education is part of Welthungerhilfe's political work and mandate. The Food Right Now (FRN) initiative is rooted in a **human-rights based approach which aims to inform young people** aged between 12–24, teachers and educators in Europe, about hunger as a serious global problem, a man-made phenomenon and a political issue: hunger can only be ended with efforts and concrete actions taken by people at all levels of society. The interrelationship between policies and behaviours of people in Europe and the incidence of hunger in developing countries represents the entry point to promote the active participation of young Europeans as well as to promote fairer relations between rich and poor countries. The initiative promotes awareness among young people, teachers and educators, to facilitate a deeper understanding of the causes of hunger and malnutrition, their possible solutions and opportunities for personal involvement and action. The campaign empowers and mobilises them to change their attitudes and fight hunger by campaigning for the right to food for all people, while addressing the root causes of hunger and food waste. The perspective and personal engagement of young people is important for raising awareness among peers. Teachers and educators are also strategically important since schooling is paramount for forming lifelong attitudes concerning the global community – through **awareness raising, sharing knowledge, encouraging participation** and showing young people that they have an important role to play in achieving a better future for all.

Fighting hunger and malnutrition is a multi-sectorial task which requires holistic interdisciplinary interventions. Advocacy, education and programme work must be closely connected to practical cooperation with national and regional partners to jointly promote rights-based approaches. Integrated cross-sectorial approaches in its programmes, the integration of nutrition-related objectives into planning and implementation, and measuring success by including nutrition-related indicators, ensure tangible impact on the nutritional well-being and livelihoods of those most in need, helping Welthungerhilfe to contribute to its core mandate of poverty alleviation and combating hunger and malnutrition. With these specific approaches and instruments in Germany, in Europe and in programme countries in place, Welthungerhilfe is in a good position to successfully contribute to the promotion and reinforcement of the right to adequate food for all people, globally.

A

Glossary

Anaemia	Anaemia is characterised by reduction in haemoglobin levels or red blood cells which impairs the ability to supply oxygen to the body's tissues.
Balanced diet	A diet that contains adequate amounts of all the necessary nutrients (macronutrients and micronutrients) required for healthy growth and activity.
Baseline Survey	A baseline survey is a mainly quantitative assessment of selected indicators, by using standardised questionnaires in a specific sample of the population. Generally, qualitative data is taken in addition for a better understanding of the statistical outcome. The aim is to determine the initial situation of a specific problem in order to compare the defined values with changes obtained at a later date through a follow-up survey.
Bioavailability	The proportion of a nutrient contained in a food source that is capable of being absorbed and available for use or storage.
Community-based management of acute malnutrition (CMAM)	Community-based approach to treat severe acute malnutrition (SAM). CMAM includes inpatient care (for children with SAM with medical complications and infants under 6 months of age with visible signs of SAM); outpatient care (for children with SAM without medical complications); and community outreach for early case detection and treatment (see also SAM).
Complementary feeding	The use of age-appropriate, adequate and safe solid or semi-solid food in addition to breast milk or a breast milk substitute. The process starts when breast milk or infant formula alone is no longer sufficient to meet the nutritional requirements of an infant. The target range for complementary feeding is 6–23 months. Breastfed infants 6–8 months old need 2–3 meals/day, while breastfed children 9–23 months needs 3–4 meals/day, with 1–2 additional snacks as desired. Children who are not breastfed should be given 1–2 cups of milk and 1–2 extra meals/day (see also MAD).
Condiment	Refers to a food that is generally eaten in a very small quantity, often just for flavour, such as spices, pinch of fish powder, teaspoon of milk in tea, etc.
Dietary diversity	Is defined as the number of different foods or food groups eaten over a reference time period, not regarding the frequency of consumption.
Exclusive breastfeeding	An infant receives only breast milk and no other liquids or solids, not even water, with the exception of oral rehydration salts (ORS) or drops or syrups consisting of vitamins, mineral supplements or medicines.
Food components	The major components of food consist of water, macronutrients (fat, carbohydrates and protein), micronutrients (vitamins and minerals), dietary fibre and alcohol. Other components include essential fatty acids, phytochemicals (e.g. flavonoids, phytoestrogens, and carotenoids), additives, organic contaminants, pesticides and other residues.
Food fortification	The addition of micronutrients to a food during or after processing to amounts greater than were present in the original food product.



Food groups	Food groups cluster food items with a similar nutritional value or content of a specific nutrient (energy, protein or vitamin rich). Food groups can be defined for a specific context or problem. The Household Dietary Diversity Score (HDDS) proposes a set of 12 food groups to determine the diversity of the households consumption: (1) cereals; (2) roots & tubers; (3) vegetables, (4) fruits, (5) meat, poultry, (6) eggs (7) fish & seafood, (8) pulses, legumes and nuts (9) milk & milk products, (10) oils, fats, (11) sugar, honey, (12) miscellaneous (see also dietary diversity).
Food insecurity	Food insecurity exists when people are at risk of, or actually are, consuming food of inadequate quality, quantity (or both) to meet their nutritional requirements.
Food item	Cannot be further split into separate foods (including generic terms such as 'fish' or 'poultry' which normally is considered to be a food item).
Food safety	All measures taken during food production, processing, transport and handling, cooking, consumption and disposal which limit the risk of food-borne illness.
Global Acute Malnutrition (GAM)	GAM is the sum of the prevalence of severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) at population level (see also MAM and SAM). The WHO thresholds for GAM are the following: <5% = acceptable; 5%–9% = poor; 10%–14% = serious; ≥15% = critical.
Kitchen garden	Refers to any small-scale agriculture conducted within proximate distance to the main dwelling of a household, producing crops for consumption or sale.
Kwashiorkor	Clinical form of acute malnutrition resulting from protein-energy deficiency characterised by oedema (swelling). Children with kwashiorkor typically have bilateral pitting oedema, reduced fat and muscle tissue, skin lesions (dermatosis) and skin infections, and appear apathetic and lethargic.
Macronutrients	Fat, protein and carbohydrates that are needed for a wide range of body functions and processes.
Moderate acute malnutrition (MAM)	Moderate acute malnutrition (MAM) refers to the classification of wasted children with a weight-for-height between -3 and -2 Z-Scores of the WHO Child Growth Standards median, without nutritional oedema. The following MUAC cut-off value is also used: MUAC 110 mm–125 mm (see also MUAC).
Marasmus	Clinical form of acute malnutrition characterised by severe weight loss or wasting. Marasmic children are extremely thin and typically have grossly reduced fat and muscles and thin flaccid skin, and are irritable.
Micronutrients	Essential vitamins and minerals required by the body in miniscule amounts throughout the life cycle from external sources.

A

Mid-Upper Arm Circumference (MUAC)

MUAC is the circumference at the mid-point of the left upper arm, and is a proxy measure of total body fatness. MUAC is relatively constant in children aged 6 months to 5 years and is therefore a useful overall measure of nutritional status. According to current WHO guidelines, a MUAC value <110 mm indicates severe acute malnutrition (see also SAM). MUAC only measures wasting and is used for a rapid assessment of the nutritional situation, especially in emergencies.

Minimum Acceptable Diet (MAD)

Used to measure the proportion of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk). This is calculated using the minimum dietary diversity and the minimum meal frequency indicators. Minimum dietary diversity is defined as the consumption of at least 4 out of 7 food groups by children of 6–23 months in the past 24 hours. Minimum meal frequency refers to the minimum number of times or more children of 6–23 months receive solid, semi-solid, or soft foods or milk feeds (breastfed: ×2/day for those 6–8 months; ×3/day for those 9–23 months; non-breastfed: ×4/day for those 6–23 months).

Mycotoxins

Toxins produced by naturally-occurring fungi that particularly contaminate cereals, grains and nuts. Mycotoxins, especially aflatoxin cause adverse health effects such as liver cancer and gastrointestinal disorders.

Nutritional oedema

A form of swelling caused by insufficient protein intake resulting in hypoproteinemia and low plasma oncotic pressure (pressure in the circulatory system which encourages water to cross the barrier of the capillaries and enter the circulatory system). Usually a symptom of SAM.

Protein quality

Proteins consist of 20 different amino acids that in different combinations make up all types of proteins. A complete, high quality protein source provides all essential amino acids (e.g. meat, poultry, fish, milk, eggs). Incomplete protein sources can be combined in a meal to provide adequate amounts of all essential amino acids (e.g. rice and beans).

Random sampling

Sampling method in which all members of a group (population or universe) have an equal chance of being selected. This type of sampling assures a certain representativeness of the sample in order to aggregate the identified problems to the whole population. Specific formulas provide assistance to calculate the necessary sample size.

Ready-to-use therapeutic food (RUTF)

Specialised ready-to-eat, portable, shelf-stable products, available as pastes, spreads or biscuits that are used in a prescribed manner to treat SAM. They should not be used outside the treatment of undernutrition.

Severe acute malnutrition (SAM)

Severe acute malnutrition (SAM) is defined by a very low weight for height (wasting) (below -3 Z-Scores of the median WHO growth standards), by visible severe wasting or by the presence of nutritional oedema (see also nutritional oedema) or by MUAC <110 mm (see also MUAC).

SMART

Acronym for **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, **T**ime bound. A 'SMART' indicator fulfils the mentioned criteria, which help to assure the appropriateness and quality of a selected indicator.



SMART survey	Rapid Nutrition Survey using S tandardised M onitoring and A ssessment of R elief and T ransition (SMART) methods, developed by the Global Nutrition Cluster. SMART surveys collect information on the most vital, public health indicators in assessing the severity of a critical nutrition situation, especially in a humanitarian crisis: the nutritional status of children under-five and the mortality rate of the population.
Staple food	Usually carbohydrate-based, staple foods form the basis for the culturally preferred diet within a nation or region.
Supplementation	Provision of micronutrients via a tablet, capsule, syrup or powder.
Triangulation	Procedure that aims to validate survey results. Comparing data collected by different data sources, methods of data collection or perceptions of resource persons can validate the results obtained from field surveys or assessments.
Weight-for-Height Z- Score (WHZ-Score)	Weight-for-height specifically assesses wasting. It is a nutrition index calculated of two measures- weight and height- into a single value. A Z-Score describes how far a measurement is from the average. A WHZ-Score indicates how far a child's weight is from the mean weight of a child of the same height in the WHO Growth Standard. A negative WHZ-Score means that the individual's weight is lower than the average. A positive WHZ-Score signifies that the individual's weight is above the mean.
Xerophthalmia	'Dry eyes' which can be caused by vitamin A deficiency. Other symptoms include night blindness, Bitot's spots and corneal ulceration.

A

References

- ACF International** (2009) Income Generating Activities: A key concept in sustainable food security. A Field Workers Manual [Link]
- ACF International/Cuziat, G. L., Mattinen, H.** (2011) Maximizing the nutritional impact of food security and livelihoods interventions: a manual for field workers. ACF International, Paris [Link]
- ACF International** (2012) Enhancing climate resilience and food & nutrition security – ACF approach to face climate change, hunger and undernutrition in at-risk communities. ACF International, Paris [Link]
- ACF International** (2013) Conducting KAP Surveys: A learning document based on KAP failures. January [Link]
- ACF International/du Vachat, E.** (2013a) Sowing the seeds of good Nutrition: Making Agricultural Policies Deliver Better Nutrition. ACF International, Paris [Link]
- ACF International/Alpha, A.** (2013b) Reconciling Agriculture and Nutrition: Case study on agricultural policies and nutrition in Kenya. ACF International, Paris [Link]
- ACF International/Levard, L., Alby Flores, V.** (2013c) Reconciling Agriculture and Nutrition: Case study on agricultural policies and nutrition in Peru. ACF International, Paris [Link]
- Ahmed, A. U., Quisumbing, A. R., Nasreen, M., et al.** (2009) Comparing Food and Cash Transfers to the Ultra Poor in Bangladesh. International Food Policy Research Institute, Washington D.C. [Link]
- Albu, M.** (2010) Emergency Market Mapping & Analysis: Introduction & Overview of the EMMA Toolkit. Practical Action publishing, Oxfam GB, Warwickshire [Link]
- Bahwere, P., Deconinck, H., Banda, T., Mtimuni, A., Collins, S.** (2011) Impact of household food insecurity on the nutritional status and the response to therapeutic feeding of people living with human immunodeficiency virus. In: Patient Preference and Adherence. 2011; 5: p. 619–627 [Link]
- Bailey, S., Hedlund, K.** (2012) The impact of cash transfers on nutrition in emergency and transitional contexts. A review of evidence. Overseas Development Institute (ODI), London [Link]
- Ballard, T., Coates, J., Swindale, A., Deitchler, M.** (2011) Household Hunger Scale: Indicator Definition and Measurement Guide. Food and Nutrition Technical Assistance II Project (FANTA-2), FHI 360, Washington D.C. [Link]
- Bhagowalia, P., Headey, D., Kadiyala, S.** (2012) Agriculture, income, and nutrition linkages in India. Insights from a nationally representative survey. International Food Policy Research Institute (IFPRI) [Link]
- BMZ** (2013) The strategy of Transitional Development Assistance. Strengthening resilience, sharpening transition. Strategy Paper No. 6 [Link]
- Brown, L.** (2012) Food Consumption Score Overview – Presentation in World Bank Workshop on Food Security and Nutrition: From Measurement to Results March 22, 2012 – MC C2 – 131 [Link]
- Burney, J., Woltering, L., Burke, M., Naylor, R., Pasternak, D.** (2010) Solar-powered drip irrigation enhances food security in the Sudano-Sahel. In: PNAS 2010, 107 (5), p. 1848-1853 [Link]
- Catelo, M. A.** (2006) Understanding the Links between Agriculture and Health – Livestock and Health. In: 2020 Focus 13 Brief 9. IFPRI, Washington D.C. [Link]
- CFS** (2012) Investing in smallholder agriculture for food and nutrition security. HLPE paper. A zero-draft consultation. [Link]
- CFS** (2013) Brochure: The Committee on World Food Security. [Link]
- CFS/FAO** (2012) Voluntary Guidelines on the responsible governance of tenure of land, fisheries, and forests in the context of national food security. [Link]
- CFS/FAO** (2014) CFS Principles for Responsible Investment in Agriculture and Food Systems First Draft (For Negotiation). May 2014 [Link]
- Christian, A. K., Lartey, A., Colecraft, E. K., Marquis, G. S., Sakyi-Dawson, O., Ahunu, B., Butler, L. M.** (2012) Relationship between Caregivers' Income Generation activities and their Children's Animal Source Food Intake. In: African Journal of Food, Agriculture, Nutrition and Development, Volume 12, No. 1 [Link]
- CGIAR** (2014) : Nutrient-rich mola fish become popular among farmers. Penang www.WorldFishCenter.org/. [Link]



- Coates, J., Swindale, A., Bilinsky, P.**, (2007) Household Food Insecurity Access Scale (HFIAS) for Measurement of Food Access: Indicator Guide Version 3. Food and Nutrition Technical Assistance Project, Academy for Educational Development, Washington D.C. [Link]
- Cohen M. J., Tirado C., Aberman N.-L., Thompson B.** (2008) Impact of climate change and bioenergy on nutrition. International Food Policy Research Institute/FAO, Washington D.C.
- Coles, C.** (2013) Social protection and resilient food systems – Summary 5: The role of structured demand activities. Overseas Development Institute (ODI), London [Link]
- Concern** (2013) Confronting Crisis: Transforming lives through improved resilience – Concern Worldwide's learning from the Sahel and the Horn of Africa. Concern, Dublin [Link]
- Concern** (2013a) An overview of approaches to social behavior change. Dublin
- De Schutter, O.** (2009) Report of the Special Rapporteur on the right to food, Olivier De Schutter: Agribusiness and the right to food. A/HRC/13/33 [Link]
- Deitchler, M., Ballard, T., Swindale, A., Coates, J.** (2010) Validation of a Measure of Household Hunger for Cross-Cultural Use. Food and Nutrition Technical Assistance II Project (FANTA-2), FHI 360, Washington D.C. [Link]
- Deitchler, M., Ballard, T., Swindale, A., Coates, J.** (2011) Introducing a Simple Measure of Household Hunger for Cross-Cultural Use. Food and Nutrition Technical Assistance II Project (FANTA-2), FHI 36, Washington D.C. [Link]
- DFID** (2011) Defining Disaster Resilience: A DFID Approach Paper. Department for International Development, London/Glasgow [Link]
- DFID** (2012) Multi-Hazard Disaster Risk Assessment. Conflict Humanitarian and Security Department (CHASE), Department for International Development, London/Glasgow [Link]
- Emergency Capacity Building Project** (2012) Rapid Food Security & Livelihoods Assessment in Emergency – The “48 Hour Assessment Tool” [Link]
- European Commission** (2011) Addressing Undernutrition in External Assistance: An integrated approach through sectors and aid modalities. European Commission, Brussels [Link]
- European Commission** (2012) Communication from the Commission to the European Parliament and the Council – The EU Approach to resilience: Learning from Food Security Crises. European Commission, Brussels [Link]
- EU/UNICEF** (2014a) Multi-sectoral Approaches to Nutrition: Nutrition-specific and Nutrition-sensitive Interventions to accelerate Progress. [Link]
- EU/UNICEF** (2014b) Multi-sectoral Approaches to Nutrition: The Case for Investment by Agriculture [Link]
- EU/UNICEF** (2014c) Multi-sectoral Approaches to Nutrition: The Case for Investment by Social protection Programmes [Link]
- EU/UNICEF** (2014d) Multi-sectoral Approaches to Nutrition: The Case for Investment by Public Health, water, sanitation, and hygiene [Link]
- EU/UNICEF** (2014e) Multi-sectoral Approaches to Nutrition: The case for investment by education Programmes [Link]
- FANTA** (2008) Training Guide for Community-Based Management of Acute Malnutrition (CMAM). Food and Nutrition Technical Assistance II Project, Washington D.C. [Link] (Download per chapter possible. French version from 2010)
- FAO (n.d.) GIEWS** – The Global Information and Early Warning System on Food and Agriculture [Link]
- FAO** (1997) Agriculture food and nutrition for Africa – A resource book for teachers of agriculture. FAO, Food and Nutrition Division [Link]
- FAO** (2001a) Improving nutrition through home gardening: a training package for African field workers. FAO, Nutrition Programmes Service Food and Nutrition Division [Link]
- FAO** (2001b) Food Balance Sheets – A Handbook. FAO
- FAO** (2005) Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security. FAO [Link]
- FAO** (2007) Maintaining Quality of Food and Feed Grain through Trade and Processing. Ed: Peter Golob

A

- FAO** (2010), Crop calendar
- FAO** (2010a) Improving Nutrition through Home Gardening [Link]
- FAO** (2010b) Assisting the food and agriculture sector in addressing malnutrition. FAO [Link]
- FAO** (2011) The state of Food and Agriculture 2010-11. Women in Agriculture. Closing the gender gap for development [Link]
- FAO** (2012) Climate Change Adaptation and Mitigation Challenges and Opportunities in the Food Sector. FAO [Link]
- FAO** (2013a) The State of Food and Agriculture – Executive Summary. FAO [Link]
- FAO** (2013b) The State of Food Insecurity in the World – Executive Summary. FAO [Link]
- FAO** (2013c) Children's work in the livestock sector: Herding and beyond. FAO [Link]
- FAO** (2013e) FAO Discussion Paper on Strengthening the Links between Resilience and Nutrition in Food and Agriculture, Draft. FAO [Link]
- FAO/WFP** (2009) Joint Guidelines for Crop and Food Security Assessment Missions (CFSAMs). FAO/WFP
- FAO/World Bank** (2010) Workshop on reducing post-harvest losses in grain supply chains in Africa. Lessons Learned and practical guidelines [Link]
- Farrington, J.** (2013) Social protection and resilient food systems – Summary 3: The role of insurance. Overseas Development Institute (ODI), London [Link]
- Fultz, E., Francis, J.** (2013) Cash transfer programmes, poverty reduction and empowerment of women: A comparative analysis: Experiences from Brazil, Chile, India, Mexico and South Africa. Working Paper 4/2013. Gender, Equality and Diversity Branch and Social Protection Department, International Labour Office (ILO), Geneva [Link]
- GAIN** (2014) Leaflets and factsheets about GAIN from GFFA, Berlin. January
- GIZ** (2012) What is sustainable agriculture. BMZ-GIZ. Eschborn/Bonn [Link]
- Global Platform for Disaster Risk Reduction** (2013) Resilient People, Resilient Planet: Chair's Summary – Fourth Session of the Global Platform for Disaster Risk Reduction. Geneva, 21-23 May [Link]
- GLS Treuhand (Zukunftsstiftung Landwirtschaft Stiftung, Eine Welt, Eine Zukunft)** (2009) Wege aus der Hungerkrise. Die Erkenntnisse des Weltagrarberichtes und seine Vorschläge für eine Landwirtschaft von morgen. Berlin [Link]
- Greenpeace** (2009) Agriculture at a Crossroads: Food for Survival. Greenpeace International, Amsterdam [Link]
- Hall, A., Horton, S.** (2009) Copenhagen Consensus Best Practices Paper: Deworming [Link]
- Harvey, P., Bailey, S.** (2011) Cash transfer programming in emergencies. Humanitarian Practice Network, Overseas Development Institute (ODI), London [Link]
- Headey, D.** (2013) Presentation on "The economics of agriculture and nutrition: Theory, Evidence and Policy Implications" at CGIAR Science Forum, 23-25 September 2013, Bonn "Nutrition and Health Outcomes: Targets for Agricultural Research" [Link]
- Helen Keller International (HKI) Cambodia** (2003) Handbook of Home Gardening in Cambodia the complete Manual for Vegetable and fruit production. Helen Keller Worldwide: Phnom Penh [Link]
- Helen Keller International (HKI)** (2009) Internal HKI Program Approach, Community-Based Management, of Acute Malnutrition (CMAM) [Link]
- Herforth, A.** (2013) Synthesis of Guiding Principles on Agriculture Programming for Nutrition. FAO [Link]
- Hoddinott, J., Headey, D., Dereje, M.** (2013) Cows, Missing Milk Markets and Nutrition in Rural Ethiopia. Washington D.C., IFPRI [Link]
- Holmes, R., Bhuvanendra, D.** (2013b) Social protection and resilient food systems – Summary 1: The role of cash transfers. Overseas Development Institute (ODI), London [Link]
- Hotz, C., Gibson, R. S.** (2007) Traditional Food-Processing and Preparation Practices to Enhance the Bioavailability of Micronutrients in Plant-Based Diets. Presented at: Symposium: Food-Based Approaches to Combating Micronutrient Deficiencies in Children of Developing Countries. In: J. Nutr. April 2007, 137: 4, p. 1097-1100 [Link]
- Hubley, J., Copeman, J.** (2008) Practical Health Promotion. London



- HU (Humboldt Universität) – SLE (Seminar für Ländliche Entwicklung)** (2013) Promoting Civil Society Resilience in Haiti (French). Port-au-Prince [Link]
- IAASTD** (2009) Agriculture at a Crossroads – Synthesis Report. International Assessment of Agricultural Knowledge, Science and Technology for Development [Link]
- ICRC/IFRC** (2007) Guidelines for cash transfer programming. International Committee of the Red Cross/International Federation of Red Cross and Red Crescent Societies, Geneva [Link]
- IPC Global Partners** (2012). Integrated Food Security Phase Classification Technical Manual Version 2.0. Evidence and Standards for Better Food Security Decisions. FAO. [Link] and factsheet [Link]
- IFPRI** (2005) Women: Still the key to food and nutrition security. Washington D.C. [Link]
- IFPRI-CONCERN-Welthungerhilfe** (2013) The World Hunger Index: Washington D.C. [Link]
- ILEA online magazine** (2014) Farming matters. Family farming: The way of life. 12: 2013 [Link]
- ILRI** (2013) ILRI News: Agricultural interventions for food safety and nutrition: Livestock reports at this week's CGIAR Science Forum [Link]
- Kennedy, G., Ballard, T., Dop, M. C.** (2010) Guidelines for measuring household and individual dietary diversity. FAO [Link]
- Lachat, C., Nago, E., Roberfroid, D., Holdsworth, M., Smit, K., et al.** (2014) Developing a Sustainable Nutrition Research Agenda in Sub-Saharan Africa - Findings from the SUNRAY Project. PLoS Med 11(1): e1001593 [Link]
- Latham, M.** (1997) Human Nutrition in the Developing World. FAO
- Leroy, J., Ruel, M. T., Verhofstadt, E., Olney, D.** (2009) The Micronutrient impact of multi-sectoral programs focusing on nutrition: examples from conditional cash transfer, microcredit with education and agricultural programs. IFPRI & INSP, Washington D.C. [Link]
- Levinson, J.** (2011) Nutrition and Food Security Impacts of Agriculture Projects: A Review of Experience. Infant & young child nutrition project (IYCN). USAID
- Lipinski, B., Hanson, C., Lomax, J., Kitinjo, L., Waite, R., Searchinger, T.** (2013). "Reducing Food Loss and Waste" Working Paper, Installment 2 of Creating a Sustainable Food Future. World Resources Institute, Washington D.C. [Link]
- Lor-Mehdiabadi, W., Adams, L.** (2008) Evaluation and Review of the Use of Cash and Vouchers in Humanitarian Crises-Part 1 Evaluation Report; Part 2 Review Report. PROLOG Consult, Brussels [Link]
- Kabaka, S., Kisia, C. W.** (2011) National deworming program: Kenya's experience. Draft Background paper 22 for World conference on Social Determinants of Health. [Link]
- Maunder, N.** (2013) Social protection and resilient food systems –Summary 6: The role of food reserves. Overseas Development Institute (ODI), London [Link]
- Maxwell, D., Coates, J., Vaitla, B.** (2013). How Do Different Indicators of Household Food Security Compare? Empirical Evidence from Tigray. Feinstein International Center, Tufts University: Medford [Link]
- Micronutrient Initiative (MI)/UNICEF** (2004) Vitamin & Mineral Deficiency – A global damage assessment report. The Micronutrient Initiative, Ottawa, UNICEF, New York [Link]
- Mitchell, T., Harris, K.** (2012) Resilience: A risk management approach. Background Note January 2012. Overseas Development Institute (ODI), London [Link]
- McCord, A.** (2013) Social protection and resilient food systems – Summary 2: The role of Public Works Programmes. Overseas Development Institute (ODI), London [Link]
- McElroy, K.** (1988) An ecological perspective on health promotion programs. Health education quarterly 15: 351-77
- McNulty, J.** (2005) Positive Deviance/Hearth Essential Elements: A Resource Guide for Sustainably Rehabilitating Malnourished Children (Addendum). Core Group, Washington D.C. [Link]
- Niamir-Fuller, M.** (1994) Women Livestock Managers in the Third World: a focus on technical knowledge. International Fund for Agricultural Development [Link]
- Nickolson et al.** (2007) Role of livestock in human nutrition and health for poverty reduction in developing countries, American Society of Animal Science. 85: p. 2788-2800 [Link]
- ODI-Slater, R., Holmes, R., Bhuvanendra, D.** (2013) Synthesis: Social Protection and Resilient Food Systems. Overseas Development Institute (ODI), London [Link]

A

OECD (2013) What does resilience mean for Donors. An OECD fact sheet [Link]

Pain, A., Levine, S. (2012) A Conceptual Analysis of Livelihoods and Resilience: Addressing the 'Insecurity of Agency'. HPG Working Paper, Humanitarian Policy Group: Overseas Development Institute (ODI), London [Link]

Pangaribowo, E. H., Gerber, N., Torero, M. (2013) Food and Nutrition Security Indicators: A Review. FOODSECURE working paper 05, The Hague, The Netherlands [Link]

Pierre-Louis, J. N., Sanjur, D., Nesheim, M. C., Bowman, D. D., Mohammed, H. O. (2007) Maternal income-generating activities, child care, and child nutrition in Mali. In: Food and Nutrition Bulletin. Volume 28, No. 1, p. 67-75 [Link]

Provo, A. M. (2013) Towards Sustainable Nutrition for All: Tackling the double burden of malnutrition in Africa. In: Sight and Life Magazine 27(3)/2013, p. 40-48 [Link]

Qaim, M. (2013) Presentation on Undernutrition at CGIAR Science Forum, 23-25 September 2013, Bonn "Nutrition and Health Outcomes: Targets for Agricultural Research" [Link]

Sablah, M., Grant, F., Fiedler, J. L. (2013) Food fortification in Africa: Progress to date and priorities moving forward. In: Sight and Life Magazine 27(3)/2013, p. 18-24 [Link]

Sadler, K., Mitchard, E., Abdi, A., Shiferaw, Y., Bekele, G., Catley, A. (2012). Milk Matters: The impact of dry season livestock support on milk supply and child nutrition in Somali Region, Ethiopia. Feinstein International Center, Tufts University and Save the Children, Addis Ababa [Link]

Save the Children, UK (2012) A life free from hunger: Tackling child malnutrition. Save the Children, London, UK [Link]

Sight and Life/UNICEF/WFP (2013) Home Fortification with Micronutrient Powders (MNP). Sight and Life, Basel [Link]

Skoufias, E., Unar, M., González-Cossío, T. (2008) The Impacts of Cash and In-Kind Transfers on Consumption and Labor Supply: Experimental Evidence from Rural Mexico. World Bank Policy Research Working Paper WPS4778. The World Bank, Washington D.C. [Link]

Smith, J., Sones, K., Grace, D., MacMillan, S., Tarawali, S., Herrero, M. (2013) Beyond milk, meat, and eggs: Role of livestock in food and nutrition security. In: Animal Frontiers January 2013 vol. 3 no. 1, p. 6-13 [Link]

Sphere Project (2012) The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response [Link]

SUN – Scaling-up Nutrition (2011) A framework for action [Link]

Swindale, A., Bilinsky, P. (2006) Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide Version 2. Food and Nutrition Technical Assistance Project (FANTA), Washington D.C. [Link]

Thompson, B., Amoroso, L./FAO (Ed) (2011) Combating Micronutrient Deficiencies: Food-based Approaches. FAO, CAB International [Link]

Tubiello, F. (2012) Climate Change Adaptation and Mitigation: Challenges and Opportunities in the Food Sector. FAO, Natural Resources Management and Environment Department. Prepared for the High-level conference on world food security: the challenges of climate change and bioenergy, 3-5 June 2008 [Link]

UNITED NATIONS/ISDR (2005) Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters. Adopted at: World Conference on Disaster Reduction 18-22 January 2005, Kobe, Hyogo, Japan [Link]

UNITED NATIONS (2008) Declaration on the Rights of indigenous people [Link]

UNITED NATIONS (2012) United Nations Principles on Extreme Poverty and Human Rights. Human Rights Office of the High Commissioner [Link]

UNITED NATIONS (2013) A new global partnership. Eradicate poverty and transform economies through sustainable development. The report on the High Level Panel of Eminent Persons on the Post-2015 Development Agenda [Link]

UNICEF (1990) Strategy for improved nutrition of children and women in Developing countries. A UNICEF Policy Review. New York [Link]

UNICEF (2005) User guide to Multiple Indicator Cluster Survey (MICS) [Link]

UNICEF (2013) Improving Child Nutrition – The achievable imperative for global progress. New York [Link]

A

- USAID/IYCN** (2011) Good Nutrition, Healthy Futures – Our Solutions for preventing Malnutrition of Mothers, Infants, and Young Children Worldwide. USAID'S Infants & Young Child Nutrition Project, Washington D.C. [Link]
- USAID/IYCN** (2012) Our global efforts to prevent malnutrition during the first 1,000 days. USAID'S Infants & Young Child Nutrition Project, Washington D.C. [Link]
- USAID/OFDA** (2012) USAID Office of U.S. Foreign Disaster Assistance (USAID/OFDA) Guideline for Proposals. USAID/OFDA, Washington D.C. [Link]
- USAID et al.** (2008) The coping strategy index (CSI). A field methods manual. 2008 [Link]
- Von Braun, J.** (2013) Food and Nutrition Security – the concept and its realization. Bread and Brain – Education and Poverty Workshop of Pontifical Academies of Sciences and Social Sciences, November
- Weingärtner, L., Trentmann, C.** (2011) Handbuch Welternährung. Welthungerhilfe (Hrsg.) Campus
- Welthungerhilfe** (2007) Orientation Framework: Conflict-Sensitive Approach in Overseas Co-operation. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2008) Guidelines: Outcome and Impact orientation in the projects of Welthungerhilfe. Part I: Background information and definitions Part II: Step-by-step [Link]
- Welthungerhilfe** (2009a) Orientation Framework: Emergency Aid. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2009b) Land grabbing – poor people are losing the ground beneath their feet. IN BRIEF 8/2009 – April 2009. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe, Bollin, C.** (2011) Climate Proofing – An instrument for taking into consideration climate change and its impacts in the projects and programmes of Welthungerhilfe, Bonn [Link]
- Welthungerhilfe** (2012a) Sustainable Food and Nutrition Security under Changing Climatic Conditions. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2012b) Position Paper: Promotion of Civil Society in Partner Countries. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2012c) Position Paper: Rural Development – Strengthening the interaction of agriculture, society and economy to achieve sustainable food security. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2012d) Resilience – Concept and Practice at Welthungerhilfe. IMPULSE 05/2012 – December 2012. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2013a) Orientation Framework: WASH. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe** (2013b) Towards the Next Generation of Risk Reduction and Resilience. IN BRIEF 30/2013. Deutsche Welthungerhilfe e.V., Bonn [Link]
- Welthungerhilfe, Voigt, L.** (2013c) Baseline Study Report “Improved Food Security of Small Farmers in Northern Tajikistan”. Deutsche Welthungerhilfe, Bonn & JOVID, Tajikistan
- Welthungerhilfe** (2014) Knowledge eXchange Unit: Indicators related to Sustainable Food and Nutrition Security. Manual No. 7
- Wiesmann, D., Bassett, L., Benson, T. Hoddinott, J.** (2009) Validation of the World Food Programme's Food Consumption Score and Alternative Indicators of Household Food Security. IFPRI: Poverty, Health, and Nutrition Division, Washington D.C. [Link]
- WFP** (2008) Food consumption analysis. Calculation and use of the food consumption score in food security analysis. Version 1. WFP VAM Branch [Link]
- WFP/DSM/UNHCR** (2009) Micronutrient Powder (MixMe™) Use in Kakuma Refugee Camp in Kenya (AFRICA). In: Implementing, Improving Nutrition, Improving Lives, Issue 2, No. 3 [Link]
- WFP, Gentilini, U.** (2008) Vouchers and Cash Transfers as Food Assistance Instruments: Opportunities and Challenges. Policy Issues [Link]
- WHO** (2000) Nutrition for Health and Development – A global agenda for combating malnutrition. World Health Organization, Geneva [Link]
- WHO** (2011a) Guideline: Use of Multiple Micronutrient Powders for Home Fortification of Foods Consumed by Pregnant Women. World Health Organization, Geneva [Link]
- WHO** (2011b) Guideline: Use of multiple micronutrient powders for home fortification of foods consumed by infants and children 6–23 months of age. WHO, Geneva [Link]
- WHO** (2012) Nutrition Landscape Information System (NLIS) Country Profile Indicators – Interpretation Guide. Geneva [Link] and NLIS Country Profile [Link]



- WHO** (2013) Essential Nutrition Actions: Improving Maternal, Newborn, Infant and Young Child Health and Nutrition. World Health Organization, Geneva [Link]
- WHO** (2013a) Guideline: Updates on the management of severe acute malnutrition in infants and children. World Health Organization, Geneva [Link]
- WHO/UNICEF** (2006) Infant and Young Child Feeding Counselling: An Integrated Course – Participants Manual. World Health Organization, Geneva [Link]
- WHO/UNICEF** (2009) WHO child growth standards and the identification of severe acute malnutrition in infants and children. Geneva/New York [Link]
- World Bank** (2013a) Improving Nutrition through Multisectoral Approaches. The World Bank, Washington D.C. [Link]
- World Bank** (2013b) Improving Nutrition through Multisectoral Approaches: Agriculture and Rural Development brief. The World Bank, Washington D.C. [Link]
- World Bank** (2013c) Improving Nutrition through Multisectoral Approaches: Health brief. The World Bank, Washington D.C. [Link]
- World Bank** (2013d) Improving Nutrition through Multisectoral Approaches: Social Protection brief. The World Bank, Washington D.C. [Link]
- World Bank-UK's Natural Resources Institute-FAO** (2011) Missing Food: The Case of Postharvest Grain Losses in Sub-Saharan Africa [Link]

All internet sites last visited 09.03.2015

The Lance Series 2013

- Bhutta, Z. A.** (2013) Early nutrition and adult outcomes: pieces of the puzzle. In: The Lancet, Volume 382, Issue 9891, p. 486-487 [Link]
- Bhutta, Z. A., Das, J. K., Rizvi, A., et al.** (2013) Evidence-based interventions for improvement of maternal and child nutrition: what can be done and at what cost? In: The Lancet, Volume 382, Issue 9890, p. 452-477 [Link]
- Black, R. E., Alderman, H., Bhutta, Z. A., et al.** (2013) Maternal and child nutrition: building momentum for impact. In: The Lancet, Volume 382, Issue 9890, p. 372-375 [Link]
- Black, R. E., Victora, C. G., Walker S. P., et al.** (2013), Maternal and child undernutrition and overweight in low-income and middle-income countries. In: The Lancet, Volume 382, Issue 9893, p. 666-667 [Link]
- Gillespie, S., Haddad, L., Mannar, V., et al.** (2013) The politics of reducing malnutrition: building commitment and accelerating progress. In: The Lancet, Volume 382, Issue 9891, p. 552-569 [Link]
- Horton, R., Lo, S.** (2013) Nutrition: a quintessential sustainable development goal. In: The Lancet, Volume 382, Issue 9890, p. 371-372 [Link]
- Lemma, F., Matji, J.** (2013) Delivery platforms for sustained nutrition in Ethiopia. In: The Lancet, Volume 382, Issue 9891, p. 488-489 [Link]
- Nabarro, D.** (2013) Global child and maternal nutrition - the SUN rises. In: The Lancet, Volume 382, Issue 9893, p. 666-667 [Link]
- Pinstrup-Andersen, P.** (2013) Nutrition-sensitive food systems: from rhetoric to action. In: The Lancet, Volume 382, Issue 9890, p. 375-376 [Link]
- Ruel, M. T., Alderman, H.** (2013) Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition? In: The Lancet, Volume 382, Issue 9891, p. 536-551 [Link]
- Stevens, G. A., Finucane, M. M., De-Regil, L. M., et al.** (2013) Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: a systematic analysis of population-representative data. In: The Lancet Global Health, Volume 1, Issue 1, p. e16-e25 [Link]
- Taylor, A., Dangour, A. D., Reddy, K. S.** (2013) Only collective action will end undernutrition. In: The Lancet, Volume 382, Issue 9891, p. 490-491 [Link]



List of Graphics and Tables

List of Figures

Figure 1	Vicious Cycle of Malnutrition	13
Figure 2	Children < 5 Years	19
Figure 3	The Causal Model of Malnutrition (UNICEF, 1991)	21
Figure 4	Assess the situation and maximise the positive impact of interventions on nutrition (2014 Global Hunger Index by Severity)	26
Figure 5 to 8	Dimensions and Interventions Addressed by 46 FNS Projects in Welthungerhilfe's 2013	27
Figure 9	UNICEF's 'Triple-A' Concept: What Kind of Information do we need?	29
Figure 10 to 11	Country Profile: LIBERIA	32
Figure 12	Relevant Indicators to Measure changes in Individuals, Households and Communities ..	41
Figure 13	The Linkages between Agriculture and Nutrition (Qaim, 2013)	63
Figure 14	The Multiple Uses of Home Gardens (Helen Keller International, 2003)	68
Figure 15	The Benefits of Livestock	73
Figure 16	The Linkages between Animal Production, Nutrition and Health	74
Figure 17	The Stages of Behaviour Change	94
Figure 18	Ecological Model for Health and Nutrition Promotion (McElroy 1988, Hubley, 2008)	95
Figure 19	The Four Elements of a Resilience Framework (DFID 2011; 2012)	107
Figure 20	Coping Strategies of Food Insecure Households Faced by Extreme Natural Events or Economic Shocks (adapted from Maxwell, 2008)	109
Figure 21	Challenges at the Local, National and International Level	113

List of Tables

Table 1	Typical Nutrition-specific and Nutrition-sensitive Interventions for Improving Nutrition Security	23
Table 2	Cut-off Points for the Most Relevant Indicators to Classify Malnutrition in Children and Adults	44
Table 3	Prevalence Cut-off Values of the Nutritional Indicators for Public Health Significance ...	45
Table 4	Indicators for the USE of Food and Diet Diversity	46
Table 5	Indicators for the UTILISATION of Food and Health Status	46
Table 6	Indicators and Variables for AVAILABILITY and ACCESS	47
Table 7	Examples of Typical Home Gardening Products	70
Table 8	The Advantages and Disadvantages of Livestock on Nutrition	75
Table 9	Typical Income-generating Activities Related to Food	80
Table 10	Typical Income-generating Activities Related to Services	81
Table 11	The Role of Cash Transfers in Supporting Food and Nutrition Security	84
Table 12	Planning a Communication Strategy for Improving Nutrition	95
Table 13	Risks Related to Extreme Weather Events, Climate Change and SFNS	105
Table 14	Current Movements and Alliances Towards Nutrition Security	116

Deutsche Welthungerhilfe e.V., IBAN DE15 3705 0198 0000 0011 15, BIC COLSDE33

Deutsche Welthungerhilfe e.V., Friedrich-Ebert-Straße 1, 53173 Bonn, Tel. +49 (0)228 2288-0, Fax +49 (0)228 2288-333, www.welthungerhilfe.de