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NUTRITION AND RESILIENCE



THE MANY DIMENSIONS OF NUTRITION



Strengthening the links between resilience and nutrition in food and agriculture

A discussion paper

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

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Abstract

The concept of 'resilience' and its practical application in food security (and nutrition) policy formulation and implementation has recently become influential in humanitarian and development communities. This interest is born from the recognition that the frequency of natural disasters is growing, human-induced political crises persist and investments in development and humanitarian aid have failed to effectively prevent humanitarian crises. This has led to increasing focus on how emergency programmes can be designed to support households and governments in a more effective and sustainable way, and how disaster risk reduction, preparedness and prevention measures can be better included in development policies and programmes. Simultaneously, nutrition has received greater attention as illustrated by the growing number of countries and partners joining the Scaling Up Nutrition movement. A key element of this new emphasis concerns the role of food and agriculture in nutrition. In this context, this paper is an attempt to bring together the thinking on nutrition and resilience from a food and agriculture perspective and to discuss the linkages between the two agendas from a conceptual, strategic and operational perspective. The paper argues that good nutrition is both an essential "input" for resilience and an outcome of resilience. It highlights key areas of convergence between the two concepts as well as opportunities to enhance the nutritional impact of resilience-building programming in the context of the food and agriculture sector. Building on the United Nations Food and Agriculture Organization's resilience strategy, this paper then suggests concrete actions which can be taken to strengthen resilience along with addressing the root causes of malnutrition. The paper concludes with an acknowledgement of the challenges that remain in linking the two agendas and highlights some areas where further research is needed.

Foreword

Addressing malnutrition requires complementary multisectoral strategies and approaches that respond both to long-term development challenges and to immediate needs, linked to the survival and well-being of families and communities. There is increasing commitment to enhance the role of food systems for improving nutrition, as part of multisectoral strategies.

Fighting malnutrition is at the heart of the Millennium Development Goals and the Zero Hunger Challenge and is central to the post-2015 development agenda and Sustainable Development Goals. There is unprecedented commitment from a very wide range of stakeholders to improve nutrition, as illustrated by the growing number of countries and development partners joining the Scaling Up Nutrition (SUN) movement. The Second International Conference on Nutrition (ICN2), an inter-governmental meeting on nutrition jointly organized by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) to be held in Rome in November 2014, is an essential milestone to further galvanize and consolidate commitments to nutrition.

However the contribution of nutrition to sustainable development cannot be achieved if disasters risks are not anticipated, prevented and mitigated. Current global trends in terms of crises and shocks provide compelling evidence of the urgent need to strengthen the resilience to multi-hazard shocks. Natural disasters can destroy lives and livelihoods and wipe out years of development gains in a matter of hours or even seconds. People around the world, and particularly people depending on crop, livestock, fish, tree, or other natural resources, are increasingly exposed to natural hazards, to plant pests and diseases and to animal diseases and food safety events, to socio-economic shocks, to conflicts and to protracted crises which often present a combination of threats. People who rely on agriculture for their livelihoods, including farmers, herders, fishers and tree dependent communities, are often the most affected when a crisis or disaster strikes, putting their livelihoods and food and nutrition security at serious risk. When the resilience of families degrades in emergency situations, so does their nutritional status.

Both nutrition and resilience are very high on FAO's agenda and figure prominently in the Organization's five strategic objectives. Its strategic objective 5 on resilience (Increase the resilience of livelihoods to threats and crises) is built on 4 mutually reinforcing pillars that encompass various complementary dimensions of the Organization's work from policy framework for risk management, risk monitoring

& early warning systems and resilience analysis, to emergency preparedness and response through vulnerability reduction and crisis prevention. FAO is actively engaged in developing the capacities of families, communities and institutions to protect, restore and enhance livelihoods through measures to prevent and mitigate the adverse effects of hazards. FAO support communities and countries to shift paradigm from reactive crisis response to proactive anticipative risk reduction and management for sustainable agriculture-food and nutrition outcomes.

Efforts to make agriculture work better for nutrition also pervades in FAO's strategic thinking and work. Nutrition is mainstreamed across FAO's five strategic objectives and we, together with other UN agencies, are committed to make the aspiration of eradicating all forms of malnutrition a reality, in particular as part of the One UN through the UN System Network for SUN.

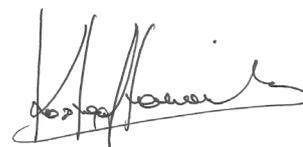
This paper, *Strengthening the links between resilience and nutrition in food and agriculture*, is the result of a collaborative effort between the Nutrition Division (ESN), the Emergency and Rehabilitation Division (TCE) and the Agricultural Development Economics Division (ESA) of the FAO. It seeks to bring together the Organization's thinking on resilience and nutrition. We hope that the approaches and operational recommendations promoted by this paper can contribute to the policy dialogue around the ICN2 and preparation of the post-2015 development agenda and help transform concepts into real changes on the ground and achieve sustainable progress in fighting malnutrition and building households' and communities' resilience.



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Acronyms

AGDF	Food Safety and Codex Unit, FAO
AIDS	Acquired Immune Deficiency Syndrome
DFID	Department for International Development (UK Government)
DRM	Disaster risk management
DRR	Disaster risk reduction
ESA	Agricultural Development Economics Division, FAO
ESN	Nutrition Division, FAO
ESP	Social Protection Division, FAO
EU	European Union
FAO	United Nations Food and Agriculture Organization
FAOKE	FAO Country Office in Kenya
FAOSFE	FAO Subregional Office for Eastern Africa
FIP	Fisheries and Aquaculture Policy and Economics Division, FAO
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
HFIAS	Household Food Insecurity Access Scale
IFA	Income and Food Access
PSNP	Productive Safety Net Programme
RFM	Risk Financing Mechanism
RIMA	Resilience Index Measurement and Analysis
SUN	Scaling Up Nutrition
TCE	Emergency and Rehabilitation Division, FAO
UN	United Nations
UNICEF	United Nations Children's Fund
UNISDR	United Nations Office for Disaster Risk Reduction
WFP	World Food Programme
WHO	World Health Organization

1. BACKGROUND AND OBJECTIVES

Since the 2007–08 food price crisis, the question of how to feed a population of 9 billion by 2050 has become increasingly central at both political and economic levels. The World Health Organization (WHO) considers that poor nutrition is the single most important threat to the world’s health [1]. In many developing countries, poor nutrition is an underlying cause of at least one-third of all child deaths and 20 percent of maternal mortality every year [2]. It is now widely recognized that investing in good nutrition, especially during the first 1 000 days of a child’s life (from conception to the child’s second birthday), has huge pay-offs, increasing individuals’ educational achievement and earning potential and boosting the country’s gross domestic product (GDP) by at least 2–3 percent annually [3]. This growing attention on food and nutrition security has resulted in increased commitment to multistakeholder action. This includes the United Nations (UN) Secretary General’s Zero Hunger Challenge, the Scaling Up Nutrition (SUN) movement and initiatives such as the G8 New Alliance for Food Security and Nutrition and the Africa Union’s Renewed Partnership for a Unified Approach to End Hunger in Africa. The Second International Conference on Nutrition (ICN2), hosted by FAO and WHO in November 2014, will provide an opportunity for governments to discuss further how to translate this political commitment into action.

Despite this momentum, in 2011 a severe regional drought plunged 13.3 million people into crisis in the Horn of Africa [4]. Only a few months later, another severe food and nutrition crisis emerged in the Sahel; 18 million people were at risk of food insecurity and more than one million children suffered from severe acute malnutrition across nine West African countries^a[5]. Overall, the effects of economic shocks, rising and fluctuating food prices, demographic pressure, climate change, pressure on natural resources, inappropriate land tenure and land planning and insufficient investment in agriculture, rural development, food security and nutrition, have, in many parts of the world, resulted in greater exposure and vulnerability to risk.

These trends have resulted in the concept of “resilience” rising to the top of the agenda of key actors in the humanitarian and development communities, in-

a Burkina Faso, Cameroon, Chad, the Gambia, Mali, Mauritania, Niger, Nigeria and Senegal.

cluding UN agencies,^b non-governmental organizations, donors and governments. It also illustrates the failure of current development efforts to effectively strengthen capacities to withstand shocks in the long term and to prevent food and nutrition crises. In the food and agriculture^c sector, this has led to increasing focus on how emergency agricultural programmes can be designed to support households and governments in a more effective and sustainable way, and how disaster risk reduction (DRR), preparedness and prevention measures can be better included in agricultural and rural development planning.

In parallel with this rising interest in resilience, there has been growing momentum since 2008 around the fight against malnutrition, as illustrated by the increasing number of countries and partners joining the SUN movement.^d The persistence of high levels of malnutrition – particularly in areas affected by shocks and crises but also in contexts of strong economic growth and adequate food production – has led to a renewed recognition^e that malnutrition cannot be addressed through long-term sustainable development alone but will require complementary multisectoral strategies and approaches that respond both to long-term development challenges and to short-term immediate needs. In this context, there is a growing body of work on the role of the various sectors in addressing malnutrition, and more particularly on the role of food systems and agriculture–nutrition linkages [6].

Indeed, nutrition and resilience are obviously strongly interlinked: nutrition is both an input to and an outcome of strengthened resilience. Reducing malnutrition is crucial to strengthening resilience because well-nourished individuals are healthier, can work harder and have greater physical reserves; households that are nutrition secure are thus better able to withstand external shocks. Conversely, households that are most affected by shocks and threats face the greatest risk of malnutrition [7, 8]; thus, strengthening resilience is essential to efforts to reduce malnutrition.

This paper aims to bring together thinking on nutrition and resilience, to clarify

b FAO, for example, and this is reflected in its strategic framework through Strategic Objective 5: Increase the resilience of livelihoods to threats and crises.

c The term “agriculture” in this paper covers all food production activities, including crop production, livestock, fisheries and forestry, as well as food processing.

d www.scalingupnutrition.org/

e This recognition is “renewed” because it had already been noted in 1992, in the context of the First International Conference on Nutrition, but attention to nutrition had then dwindled until being revived in 2008.

the role of food and agriculture in each of these agendas and to define potential synergies between nutrition and resilience concepts, policies and programmes. It seeks to inform the policy dialogue in the preparation of the ICN2 and the post-2015 Development Agenda. The primary audience of this paper are professionals working in the food and agriculture sector. Therefore, while the author fully acknowledges that multisectoral approaches are central to improving both resilience and nutrition, the paper focuses on the contributions the food and agriculture sector can make to these outcomes. This said, some of the concepts and recommendations presented here may be of interest to practitioners working in other sectors.

The purpose of this paper is three fold:

1. To describe the common ground between approaches designed to improve nutrition and those aimed at strengthening resilience and to highlight how the growing attention to resilience represents an opportunity to engage in more effective nutrition programming and vice versa (section 2);
2. To discuss how a nutrition lens can maximize the nutritional outcomes of resilience programmes, from a food and agriculture sector standpoint (section 3), and;
3. To highlight issues that require greater clarification, more evidence or further research/debate (section 4).

2. UNDERSTANDING THE CONCEPTS OF NUTRITION AND RESILIENCE IN THE FOOD AND AGRICULTURE SECTOR

2.1. The multiple causes of malnutrition and the role of agriculture

Malnutrition can take on various forms (see Box 1). This paper focuses primarily on undernutrition, including micronutrient deficiencies.

There are two questions that are central to any strategy or intervention that aims to address malnutrition: 1) who is most vulnerable to or affected by malnutrition (which individuals and groups)? and 2) why are they vulnerable to or affected by malnutrition?

Who is vulnerable or affected by malnutrition?

Regarding the first question, it is important to make a distinction between physiological vulnerability and socio-economic vulnerability. Those who are usually the most physiologically vulnerable to health and nutrition-related diseases include pregnant and lactating women, children less than five years old, the elderly, people living with human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) and disabled people. Moreover, research has shown that malnutrition during the 1 000 days between pregnancy and a child's second birthday has the greatest adverse long-term effects on the individual's educational achievement and earning potential. Conversely, it is now firmly established that sufficient and adequate nutrition during the same period increases resilience to shocks and stresses not only at the individual level but also at the household, community and national level. This 1 000-day period therefore represents a critical window of opportunity to establish a lasting foundation for health through adequate nutrition [9]. In socio-economic terms, those individuals and households most affected by malnutrition tend to be those with the lowest incomes, who are most economically and socially marginalized and whose livelihoods are most eroded [10]. It is important to consider both types of vulnerability and the interactions between them.

☑ **Box 1. What is malnutrition?**

“Malnutrition” refers to an abnormal physiological condition caused by deficiencies, excesses or imbalances in energy and/or nutrients necessary for an active, healthy life. The term encompasses undernutrition, overnutrition and micronutrient deficiencies.

Overnutrition is a result of excessive food intake relative to dietary nutrient requirements. Undernutrition, too little food intake relative to nutrient requirements, can manifest in the form of acute malnutrition or wasting (low weight for height), chronic malnutrition or stunting (low height for age) and underweight (low weight for age). Both over and undernutrition can be associated with micronutrient deficiencies (shortage of minerals or vitamins).

Malnutrition undermines economic growth. Well-nourished children perform better in school than malnourished children and this can add at least 10 percent to their personal lifetime earnings and contribute to a more productive labour force – resulting in a 2–3 percent increase in annual GDP for the country [11].

Why are these people vulnerable or affected by malnutrition?

With regard to the question of why individuals or households are malnourished, it is crucial to recognize that the determinants of malnutrition are multisectoral. This applies to both undernutrition and overnutrition.

For the past 23 years the nutrition community has been using the conceptual framework of malnutrition developed by the United Nations Children’s Fund (UNICEF) [12] (see Figure 1) for programming. This framework identifies three levels of interrelated causes of undernutrition:

- **Immediate causes:** these operate at the level of the individual and are related to inadequate food and nutrient intake and to disease.
- **Underlying causes:** these influence households and communities. They are grouped into three broad categories: household food insecurity (in terms of food availability, access, utilization and stability); inadequate care (e.g. poor breastfeeding, weaning practices or personal hygiene and child care); and poor access to, and availability of, clean water, sanitation and health services. These are further affected by factors such as agricultural practices and levels and sources of household income.

- **Basic causes:** these relate to structures, processes and phenomena that operate at the level of the society. They include political and socio-economic factors, such as governance and institutional capacities (including public services and the private sector), gender relations, social solidarity mechanisms and the presence of safety nets, access to education, presence of infrastructure, trade policies and systems, as well as conflict. Basic causes also include environmental factors, such as climate change, and the agro-ecological context in which communities live.

Given the multifactorial nature of malnutrition, the causes of malnutrition vary in space, time and according to households' livelihoods and social, economic and cultural characteristics.

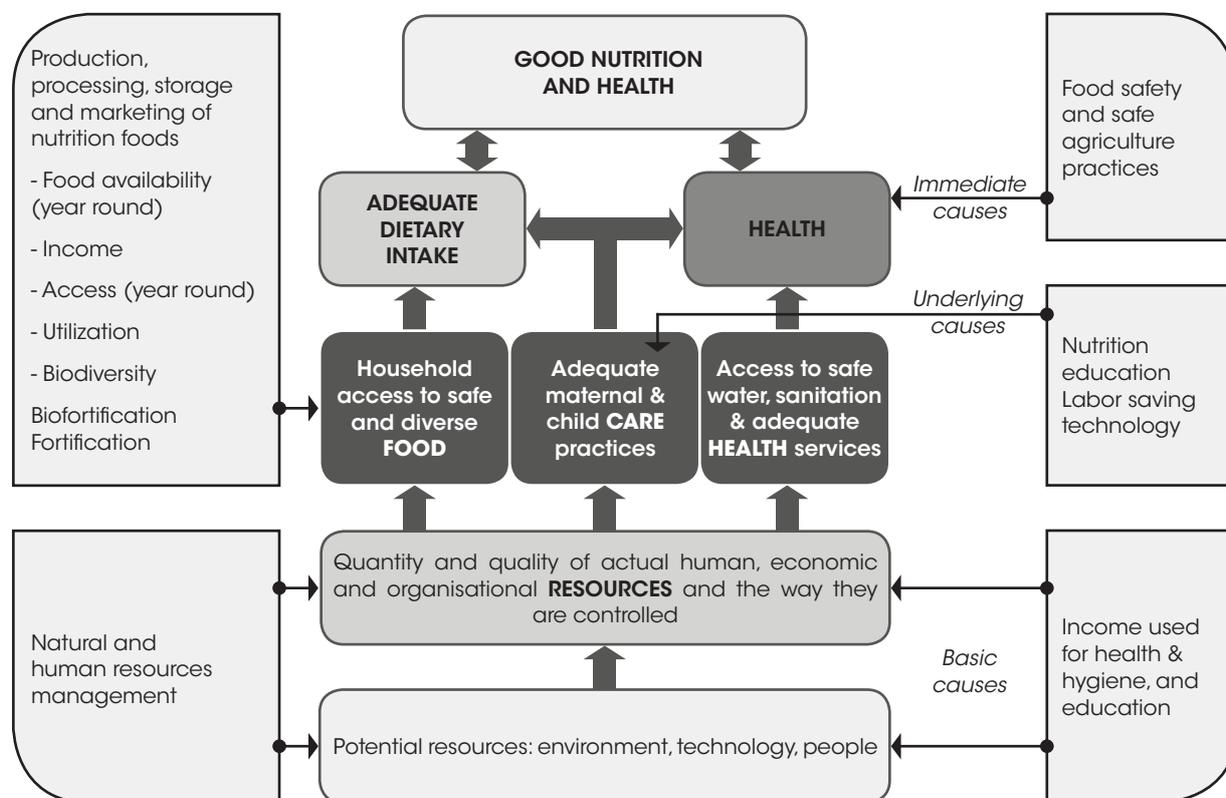
Fighting malnutrition in a comprehensive way thus requires the adoption of approaches that combine short- and long-term actions and fostering of linkages between curative and preventive aspects of humanitarian and development interventions. Unfortunately, in emergencies the tendency to date has been to focus essentially on the treatment of acute malnutrition and the use of specially formulated "ready to use therapeutic foods," with too little investment in prevention of malnutrition and the promotion of healthy diets using local foods. At the same time, development actors often pay too little attention to treatment of malnutrition, considering malnutrition (in particular acute malnutrition) to be an "emergency problem."

For example, rates of acute child malnutrition are chronically very high in many parts of the Sahel. As such, treatment should be a core and continuous component of the public health services, but this is seldom the case. This suggests that the existing dichotomy between "emergency" and "development" presents severe limitations from a nutrition perspective.

Many efforts have been recently made to break the silos between food security, nutrition and livelihoods sectors and to promote a global and comprehensive approach that includes both nutrition-specific interventions (interventions that address the immediate causes of malnutrition) and nutrition-sensitive interventions (interventions that address underlying and basic causes of malnutrition and avoid negative impacts on nutrition) [13, 14].^f Agriculture has a key role to play in both nutrition-specific and nutrition-sensitive interventions, as illustrated in Figure 1.

^f These terms were introduced in the 2010 SUN framework [14].

✓ **Figure 1. The conceptual framework of malnutrition and the role of agriculture in addressing causes of malnutrition**



Source: 15

The food and agriculture sector can play a key role in improving people’s diets by increasing the availability, affordability and consumption of diverse, safe and nutritious foods and diets, aligned with dietary recommendations and environmental sustainability. Growing crops that are more nutritious (including fruits and vegetables) or rearing animals (for meat, eggs and milk) can increase and diversify food consumption and income sources. In many parts of the developing world, income from agriculture can contribute significantly to household investments in health, water and sanitation and education. Labour-saving technologies in agriculture can help reduce women’s workload and thus increase the time available for child care. Food and nutrition education is key to helping inform farmers’ production choices, consumers purchasing decisions and the way food is prepared and distributed inside the household. In addition, safe food and agriculture practices improve public health and food utilization, and consequently improve nutrition. Indeed, food-borne diseases and chemical and biotoxin contaminants directly affect food utilization; acute diarrhoea which is commonly caused by four major

food-borne disease pathogens^g [16], is the second greatest global cause of child mortality, the first being pneumonia [17].

Whether or not agriculture contributes to improved nutrition depends on how agricultural interventions are designed. The annex presents ten key recommendations for ensuring that the nutritional impact of agricultural interventions is maximized great as possible. These recommendations have been formulated following an extensive review of available guidance on agriculture programming for nutrition [18].

2.2. Resilience and the food and agriculture sector

The concept of resilience was first used in mechanical engineering in the 1940s. It was subsequently picked up by ecologists in the 1960s to refer to the ability of an ecosystem to respond to a shock by resisting damage and recovering quickly. It was then applied in various disciplines and in a wide range of contexts in which there is a need to anticipate and manage change and uncertainty better. The term began to gain popularity among humanitarian and development actors after the 2008 food, fuel and financial crises left people searching for new approaches to tackling poverty [19]. The humanitarian emergency response review by the United Kingdom Department for International Development (DFID) in 2011 [20] and the large-scale food crises in the Horn of Africa and Sahel in 2011 and 2012 further motivated development and humanitarian actors to review their ways of working. Since then, much research has gone into defining the properties, principles and processes that strengthen resilience at the individual, household, community, institution and ecosystem levels, and many definitions and frameworks have been developed (see Box 2) [21]. The purpose of this paper is not to adopt or validate one or another definition of resilience but to present some key attributes of the concept, shared by most definitions.

^g Rotavirus, Cryptosporidium, enterotoxigenic Escherichia coli (ETEC) producing heat-stable toxin (ST), and Shigella.

☑ **Box 2. Definitions of resilience**

United Nations Development Programme (2013): Transformative process of strengthening the capacity of people, communities and countries to anticipate, manage, recover and transform from shocks [22].

European Union: Resilience is the ability of an individual, a household, a community, a country or a region to withstand, to adapt, and to quickly recover from stresses and shocks [23].

United Nations International Strategy for Disaster Reduction (UNISDR): The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner [24].

United States Agency for International Development: Resilience is the ability of people, households, communities, countries, and systems to mitigate, adapt to and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth [21].

The Resilience Alliance: The capacity of a system to absorb disturbance and reorganize while undergoing change [25].

DFID: Resilience is 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 [26].

Building on existing definitions and its experience of supporting agriculture-based livelihoods, the Food and Agriculture Organization of the UN (FAO) has proposed a definition of resilience that highlights the relevance of this concept to the food and agriculture sector: “Resilience is the ability to prevent disasters and crises, and to anticipate, absorb, accommodate or recover from them in a timely, efficient and sustainable manner. This includes protecting, restoring and improving food and agricultural systems under threats that impact food and nutrition security, agriculture, and/or food safety/public health” [27].

In all these definitions, resilience is referred to and measured at individual, household or country level. These definitions also share three common elements: (i) the capacity to bounce back after a shock; (ii) the capacity to adapt to a changing environment; and (iii) the transformative capacity of an enabling institutional environment [19]. Some of these issues are further explored in section 2.3 Nutrition and resilience: the common ground.

When talking about resilience, it is important to clarify precisely what one is referring to: resilience of what/whom and to what.

In terms of what or whom, the resilience concept has been developed mainly to deal with complex systems and to focus on the relationships and interdependence between system components [28]. In the food and agriculture sector, resilience is often analysed at household or community level, and/or in relation to a specific livelihood or socio-economic group or zone (e.g. pastoralists, farmers, fishers etc.) or to a specific environmental and ecological context (including rural/urban context).

“Resilience to what” refers to the need to identify the type of shocks and stresses faced by the system and its components. Shocks are sudden events that increase the risk of system or component failure. There are many different types of shock that can strike at different levels. These range from sudden onset shocks (e.g. earthquakes or flash floods) to slow onset shocks (e.g. drought). Some shocks recur and occur in conjunction with other events over a period of time to result in a complex or protracted emergency (e.g. conflict, drought and high food prices). Stresses are seasonal and/or long-term trends that undermine the potential of a given system or process and increase the vulnerability of actors within it. Examples of seasonal stress include dry seasons in arid areas (e.g. the Horn of Africa and the Sahel), harsh winters (e.g. the highlands in Afghanistan) and seasonal floods (e.g. in Bangladesh). Long-term stresses include natural resource degradation, loss of agricultural productivity, environmental pollution, rapid and haphazard urbanization, demographic pressure, climate change, political instability and economic decline. Countries often face multiple interconnected shocks and stresses.^h

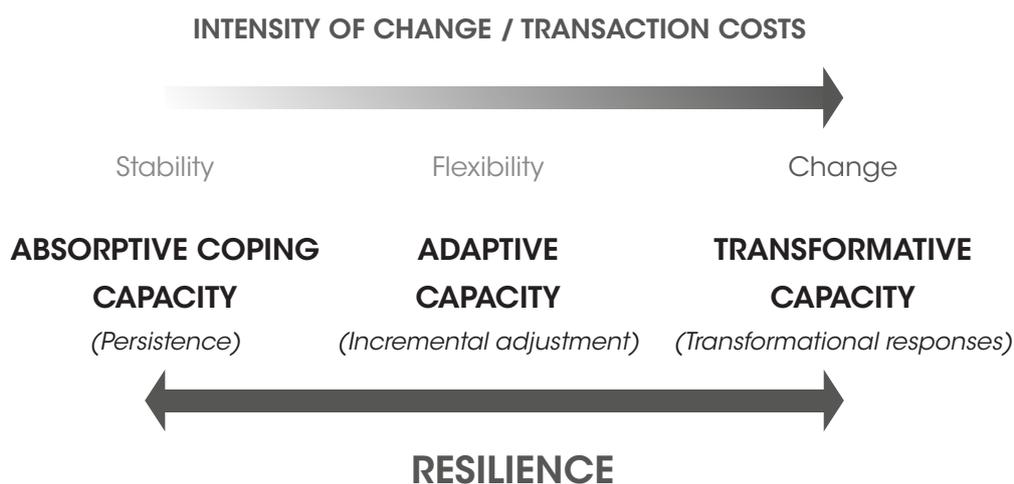
Defining what or whom is resilient to what is essential to the analysis of the capacities of the selected system to deal with a given shock or stress. This analysis can help identify areas in which resilience and nutrition programmes are of greatest relevance, i.e. those that are exposed to recurrent shocks and seasonal stresses, with high food and nutrition insecurity and that face recurrent food and nutrition crises or are in protracted crisis.

Resilience, as defined by Béné et al. [28], has three dimensions, namely absorptive capacity, adaptive capacity and transformative capacities (see Figure 2).

^h FAO distinguishes five main types of disasters and crises: natural disasters; food chain emergencies/transboundary threats; socio-economic crises; protracted crises; and violent conflicts (FAO High level workplan August 2013).

Absorptive capacity refers to coping skills by which households and communities buffer themselves against shocks or moderate the impact of shocks to enable them to persist with their existing way of life. Adaptation, a term now often used in the context of climate change, refers to incremental adjustment to the impacts of a stress (e.g. adjusting planting schedules or shifting to drought-resistant crops), while transformation refers to the ability to create a fundamentally new system (or way of life) when conditions require it. The capacities of a social unit (individual, household or community) to resist, react and adapt to a given shock or stress depend on a number of variables, including vulnerabilities, income, marginalization, health and nutrition. Béné et al. [28] emphasize that building resilience requires interventions that strengthen all three components together at multiple levels (individual, households, communities, region etc.).

✓ **Figure 2. The three dimensions of resilience**



Source: 28

The concept of resilience is leading humanitarian and development organizations to review the way they design, finance, implement, monitor and evaluate their programmes. In particular, they are developing integrated strategies composed of various interventions designed to strengthen households' absorptive, adaptive and transformative capacities (Box 3 provides an example of such a strategy designed to strengthen resilience of Somali populations). This includes a greater emphasis on the reduction and management of risks (rather than reliance on crisis response alone) and enhanced investments in building productive, human, social, natural and financial resources within households and communities [29].

☑ **Box 3. The FAO, UNICEF and WFP joint strategy on resilience for Somalia**

Somalia must rely exceptionally on the resilience of individuals, households, communities and social networks to protect lives and livelihoods, given the lack of a formal state, the absence of reliable public and private systems that provide support, expertise and protection, and limited integrated humanitarian, development and investment strategies to address the root causes of crises. The people of Somalia are remarkably resilient, especially given the multiple and protracted challenges that have marked Somalia over time but this varies by gender, age and livelihood group. FAO, UNICEF and World Food Programme (WFP) have identified three complementary core building blocks to promote resilience in Somalia:

Source: 30

There are three key approaches to strengthening the resilience of populations:

1. Strengthen the productive sectors: This aims at increasing household income by diversifying livelihood strategies, intensifying production at household level and enhancing access to markets and to market information to extend households' frontier of possibilities.
2. Improve basic social services: This strengthens the human capital of vulnerable households by creating systems able to assess needs of communities and to develop and promote use of and access to social services and capacity-building opportunities.
3. Establish predictable safety nets: Safety nets are needed to meet the basic needs of the most vulnerable people. They include, for example, predictable and sustainable transfers of food or cash to destitute or seasonally at-risk populations.

Although it is critical to assess the potential of different approaches in the face of recurrent crises, measuring how these initiatives affect resilience represents a complex challenge. The complexity and interlinkages between activities aiming at reinforcing resilience make it difficult to identify which combinations of interventions are the most effective in specific contexts, to define relevant indicators and to measure their impact. Moreover, resilience is perceived differently by the affected populations and among practitioners. This poses additional challenges to the development of standards and global indicators.

Several models for measuring resilience are currently under development [31, 32, 33], but few have been field-tested and none has yet been adopted as a standard. In the food and agriculture sector, FAO has developed a resilience

index measurement and analysis (RIMA) model that identifies and weights factors that make a household resilient to food insecurity and traces the stability of these factors over time [34]. This provides the evidence base needed to more effectively design, deliver, monitor and evaluate assistance to populations in need, based on what they need most (see Box 4).

☑ **Box 4. FAO's resilience measurement tool**

FAO's resilience index measurement and analysis (RIMA) model explains the interaction between shocks and their effects on households, with resilience accounting for the difference in outcomes between two similar households exposed to the same shock. For FAO, the outcome examined is food security.

According to the RIMA model, the outcome for a given household is a function of: (i) the probability of being affected by a natural crisis as a result of the household's geographical location; (ii) the probability of suffering from a shock as a result of a particular set of household characteristics that determine a household's livelihood; and (iii) the resilience of the household. Factors that make households resilient to food security shocks and stresses include: income and access to food; assets such as land and livestock; social safety nets such as food assistance and social security; access to basic services such as water and health care; the household's adaptive capacity, which is linked to education and diversity of income sources; and the household's sensitivity to shocks and stresses. Sensitivity has two complementary aspects: (i) the degree to which the household is actually affected by the shock (i.e. a household deriving a large part of its total income from shock-affected activities has greater sensitivity than households with more diverse income sources); and (ii) the degree to which the household has been affected by the shock in the recent past.

These factors are linearly combined into an index that gives an overall quantitative "resilience score." Resilience dimensions are statistically weighted; weights (factor loadings) are not decided *ex ante* but rather are drawn from the data and reflect the real contribution that each dimension has in determining household resilience. The resilience analysis thus clearly shows where investments need to be made to further build resilience. Through this quantitative approach, decision-makers can objectively target their actions and measure results over time.

The resilience index can be used as an indicator of the impact of a project, as was done in South Sudan and as is currently applied for the UN joint programme in Somalia. In both cases the impact evaluation foresees the implementation of a multi-stage survey, with a baseline and endline surveys and mid-term reviews.

Source: 34

2.3. Nutrition and resilience: the common ground

Nutrition and resilience are co-dependent and mutually reinforcing. Although quantifying the contribution of nutritional status to household resilience is difficult because of the lack of appropriate data and the complex analyses required, evidence from several countries (including Kenya, Republic of Sudan and Malawi) using proxy indicators suggests that nutrition is a key element of household resilience (See Box 5). Furthermore, improving resilience entails addressing many, if not all, of the causal factors that lead to malnutrition; as such, improving resilience should also result in improved nutrition. Nutrition indicators are therefore increasingly used as indicators of impact of resilience programmes, as is the case in Somalia (see Box 3 and section 3.2)

Box 5. Importance of nutrition for food security resilience to shocks

Nutrition indicators are included in the RIMA (see Box 4) through a dimension called income and food access (IFA). The variables employed in this dimension vary depending on data availability. Although caloric intake would be ideally adopted, yet it is a quite un-frequent variable as it requires lots of computational efforts. As a result, other proxies are used including dietary diversity and food frequency score; Household Food Insecurity Access Scale (HFIAS).

All the resilience studies so far undertaken clearly indicate that IFA is a key dimension of resilience. For instance, in the Kenya exercise the resilient of the worse-off livelihood (pastoralists) was mainly influenced by IFA and within this dimension, caloric intake was the most relevant variable. The South Kordofan (Nuba Mountains, Republic of Sudan) exercise reported the same ranking with IFA being the most relevant dimension and caloric intake the most relevant variable. Household resilience to food insecurity in the Republic of Sudan is mainly influenced by household income and food access which in turn are dominated by household expenditure, calorie consumption and income. Recently, an analysis in Malawi revealed that IFA was the main relevant contributor to Resilience and food consumption score one of the most relevant variable of this dimension.

At the programming level, the concepts of nutrition and resilience clearly share key principles. Effective resilience and nutrition programming both require [35]:

- **A systemic approach (multisectoral, multilevel and multistakeholder):** Both the nutritional status and resilience of an individual, household or community results from a combination of interlinked factors that can be influenced by various sectors, at different levels and by a wide range of stakeholders. Con-

sequently, there is no single sector or response option that can effectively and sustainably build resilience and tackle malnutrition. Resilience and nutrition demand breaking down silos and working in partnerships.

- **A twin-track approach, tackling immediate needs and the root causes of vulnerability:** Fighting malnutrition in a comprehensive way and strengthening resilience require that acute needs in emergency situations and crises be addressed at the same time as investments are made in long-term responses to tackle the root causes of vulnerability and malnutrition.
- **A context-specific approach:** A successful nutrition or resilience-building intervention in one country or livelihoods zone may not be replicable in another context. Adapting interventions to local contexts requires in-depth understanding both of populations' and individuals' existing coping mechanisms, food systems and nutrition needs, and of environmental and social synergies.
- **Strong local/country/regional ownership and political leadership:** Political leadership is a prerequisite for the success of complex programmes requiring multisectoral, multilevel and multistakeholder approaches. Strong political leadership enables a favourable policy environment to be created and facilitates the integration of resilience-building and nutrition programmes across ministries (agriculture, health, trade etc.).

Nutritionists familiar with the conceptual framework of malnutrition have long been advocating for the application of the principles that are now being promoted as part of the resilience agenda (see, for example, Young and Jaspars (1995) [36]). However, until recently, very little political will was provided to support the institutional changes that would allow the adoption of this context-specific and systemic approach, which entails linking sectors as well as emergency relief and development [37]. Most of the agencies have thus continued to work on their own and within the sphere of their technical competencies, and little has been done to address malnutrition problems in a comprehensive way.

Today, the political commitment around the resilience agenda, combined with the momentum around the SUN movement, represents a unique opportunity to apply these programming principles. This is reflected in the policies and strategies of many donors, which are increasingly allocating funds to multisectoral and multistakeholder programmes [4, 26, 38]. Strengthening and further developing flexible funding mechanisms is an important prerequisite to support resilience approaches that combine short- and long-term interventions and link humanitarian and development activities. This represents a real challenge, as most of the humanitarian and development programmes, and the funding for them, have largely been dissociated (although this is now beginning to

change). There is hope that the resilience agenda can successfully transform the way programmes are designed, funded and implemented, and thus may finally allow investments to address the root causes of malnutrition and food insecurity as well as the symptoms, rather than just reacting to the symptoms.

Similarly, nutrition has much to add to resilience programming. Existing nutrition tools and approaches, such as participatory planning techniques for nutrition (e.g. 39 and 40) and the “public nutrition approach” (see 35 and 41),ⁱ have been extensively tested and used, and these methods are relevant to resilience programming. Furthermore, the recent crises in the Sahel and in the Horn of Africa have shown once again that there is an urgent need to build resilient systems able to address the basic, underlying and immediate causes of malnutrition, to promote and protect good nutrition at all times and to maintain nutritional status during periods of stress and crisis [42]. This can be only achieved by considering nutrition as an entry point for resilience planning.

The next section further develops the added value of applying a nutrition lens to the concept of resilience and suggests recommendations to maximize the nutritional impact of resilience programmes.

ⁱ This approach was developed in the late 1990s and promoted by several NGOs and academic institutions, particularly Tufts University.

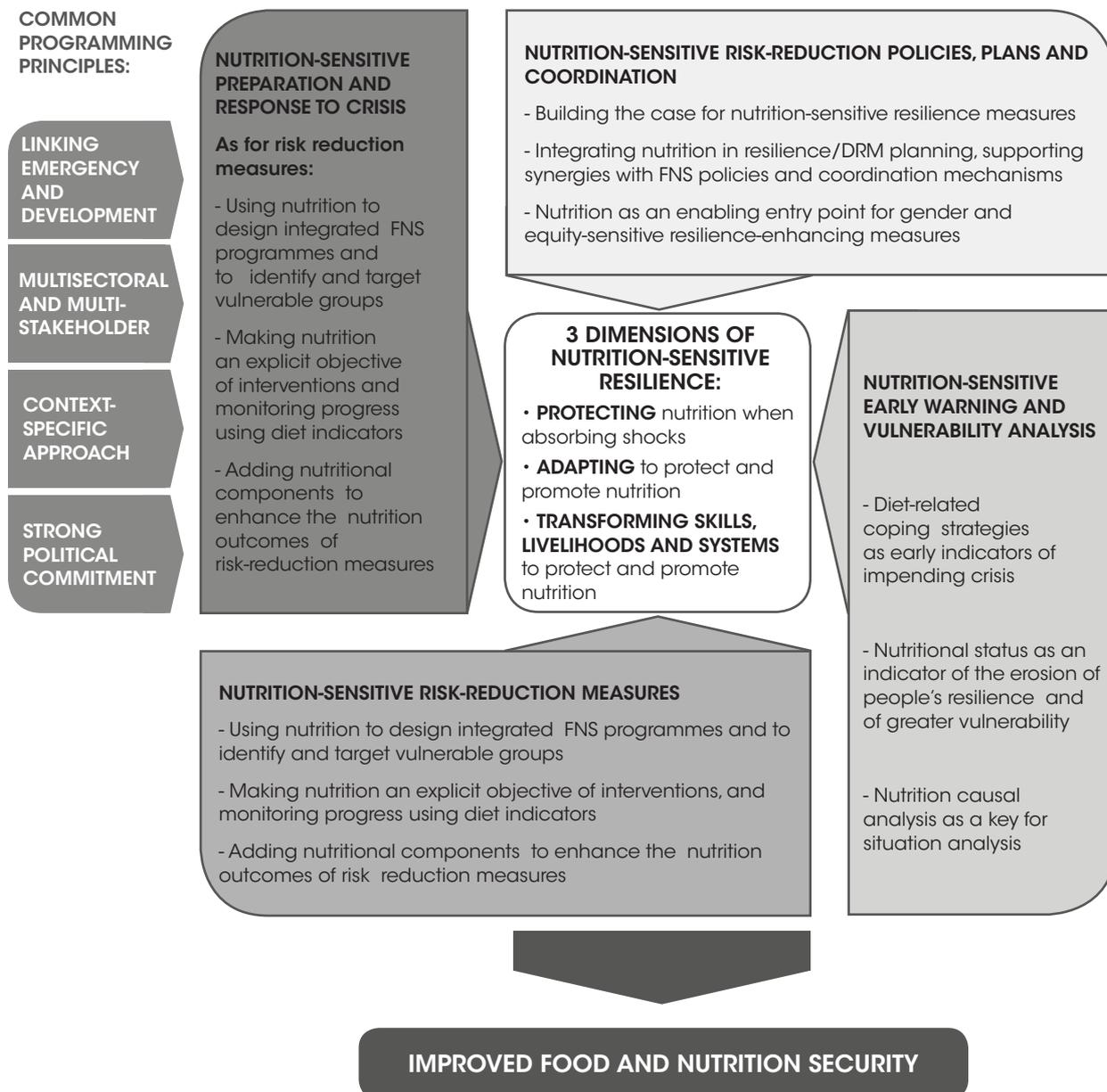
3. MAXIMIZING THE NUTRITIONAL IMPACT OF RESILIENCE PROGRAMMING

The main question this section attempts to address is “How can we enhance the nutritional impact of resilience programmes?” In other words, how can the absorptive, adaptive and transformative capacities of individuals, households and communities be enhanced in a way that enables them to better protect and improve their nutritional situation?

Applying a nutrition lens to resilience programming first and foremost entails ensuring that resilience-building policies and programmes aim to improve nutrition and include actions explicitly designed to prevent and address all forms of malnutrition, in particular wasting, stunting and micronutrient deficiencies.

To support the application of the resilience concept in planning in the food and agriculture sector, FAO has developed a Resilience strategy [27], adapted from the Hyogo Framework for Action 2005–2015 [43]. Based on four pillars, its purpose is to define the different sets of actions that need to be taken to enhance the resilience of livelihoods against threats and emergencies and to ensure the food security and nutrition of vulnerable groups [27]. This framework has been used to guide the formulation of Strategic Objective 5 in FAO’s new strategic framework, which aims to improve the resilience of livelihoods to threats and crises. The following section builds on this framework to provide operational recommendations for enhancing the nutritional impacts of approaches designed to increase resilience to food and agricultural shocks. The conceptual framework is presented in Figure 3.

✓ **Figure 3. A framework for action for maximizing the nutritional impact of resilience programmes**



3.1. Applying a nutrition lens to the concept of resilience in the food and agriculture sector: a people-centred approach

Focusing on individuals

As previously stated, the resilience concept deals with complex systems and focuses on the relationships within the systems. It was also noted that usually in the food and agriculture sector, the concept of the “microlevel” often, or even usually, goes no further than the household as a unit of analysis, overlooking the individual level. While analysing and addressing resilience at the household level is necessary, it is important to bear in mind that the nutritional needs of individuals within a household differ: a young child or an elderly person does not require the same type of food and nutritional content as an active adult or a pregnant or lactating woman. Adopting a nutrition lens to resilience is thus an invitation to put back the individual at the centre of the system, and to analyse the food system in terms of its ability to provide the right food at the right time for each individual. This entails paying specific attention to individuals who are most vulnerable to malnutrition (e.g. pregnant and lactating women, children less than two years old and people living with HIV) and to the first 1 000 days of a child’s life. It requires a greater focus on the type of food available and the way food is prepared, utilized and shared between individuals within the household.

Absorptive, adaptive, transformative capacities with a nutrition lens

What does it mean to view these three capacities with a nutrition lens? From a nutritional perspective, an individual or a household could be said to have a high absorptive capacity if, in the face of a shock, that individual or household is not compelled to adopt negative nutritional coping strategies (such as switching to less nutritious foods, reducing the amount eaten at each meal or skipping meals altogether). High adaptive capacity might imply being able to access foods that meet nutritional requirements from sources that are, for example, more reliable in the face of climate change (e.g. switching quickly to accessing and consuming crops that are earlier maturing and more drought tolerant than traditional crops). High transformational capacity might refer to being able to fundamentally alter the sources and types or varieties of food in the face of crisis while maintaining or improving nutritional status. An example of this would be the capacity to shift from intensive agricultural and livestock production on flood-prone lowlands to a more diversified livelihood portfolio that includes up-

land cultivation combined with off-farm labour and increased remittances while maintaining or increasing consumption of macro- and micronutrients.

3.2. Applying a nutrition lens to resilience programming in the food and agriculture sector

Pillar 1: The enabling environment

The question here is how to strengthen the legislative and policy environment in order to maximize the nutritional impact of measures designed to improve resilience. The following opportunities can be seized to help create an enabling environment for resilience-building that tackles nutritional problems.

Convincing policy-makers of the case to invest in nutrition and resilience

Policy-makers concerned with resilience-building must be made aware of the social, economic and human costs of undernutrition. This will increase the likelihood that nutritional considerations are fully taken into account in development of policy, programme and coordination frameworks for disaster risk management (DRM) and food security. Conversely, the growing political commitment to improving nutrition represents an opportunity when advocating for a resilience approach. Explaining how resilience-building measures are essential to address nutritional problems in a sustainable way can help mobilize support for investments in resilience and ensure resilience-building measures are mainstreamed in food security and nutrition policies and strategies.

Integrating nutrition in resilience/DRM planning and supporting synergies with food security and nutrition policies, strategies and coordination mechanisms

Explicit nutrition objectives should be included in resilience and DRM policy frameworks (including development policies related to specific risks and hazards such as climate change). This will help ensure that the needs of vulnerable individuals and groups are addressed, and that resilience-building and DRM programmes at least do not have negative impacts on people's nutritional status. Furthermore, synergies should be sought between resilience/DRM strategies and multisectoral food and nutrition security policies and planning processes. These are often unconnected and managed from different perspectives (i.e. food security from an agricultural-production perspective; nutrition from a health perspective; and resilience from a disaster-management perspective).

There are opportunities to build stronger links between development-oriented multisectoral policy support and coordination initiatives on food security and nutrition (e.g. those supported through the SUN movement) and more emergency-related coordination bodies (such as the Nutrition and Food Security clusters) and initiatives related to DRM and resilience at national, regional and global levels.

Nutrition as an enabling entry point for gender-sensitive measures to enhance resilience

In many contexts, tackling gender and equity issues can be culturally and politically sensitive. In such cases, adopting a nutrition lens (i.e. asking who is most at risk of malnutrition and why) can be a more neutral and very practical entry point for gender-sensitive and equitable resilience programming. Different age, gender and socio-economic groups within a population play different roles in food production, processing, purchase and preparation, as well as income generation and caring practices. Therefore, where targeting food security interventions to women or a marginalized group may be perceived as challenging existing social relations, integrating such interventions as a means of tackling child malnutrition may be much less threatening and may help overcome resistance to their adoption. Addressing gender and equity issues is vital because improving access to, and control over, resources and inputs for women or the most marginalized groups in a community is an essential feature of policies and strategies that aim to strengthen resilience and food and nutrition security.

Pillar 2: Watch to safeguard

Greater integration of nutrition-related information in food and agricultural information systems has several benefits in terms of better monitoring of threats, situation and context analysis and causal analysis. All of these attributes are beneficial for supporting resilience in the food and agriculture sector.

Early warning

Diet-related coping strategies are early indicators of pending crisis. People do not wait until food is in short supply before they begin to change their behaviours. Thus changes in consumption behaviour not only reflect current status, they also reflect the best judgment of household decision-makers about the foreseeable future; thus, measurement of coping behaviours offers some predictive ability (see Box 6) [44]. Including indicators of food consumption, such as dietary diversity and number of meals, in early warning systems can therefore in-

crease their ability to detect forthcoming shocks and to identify the households or livelihoods groups at greatest risk.

☑ **Box 6. Diet-related coping strategies**

Experience with the Coping Strategy Index (CSI) [44] has shown that, typically, food-insecure households employ four types of consumption coping strategies. First, they may change their diet. For instance, households might switch from preferred foods to cheaper, less-preferred substitutes. Second, the household can attempt to increase its food supplies using short-term strategies that are not sustainable over a long period. Typical examples include borrowing food or purchasing it on credit. More extreme examples include begging or consuming wild foods, immature crops or even seed stocks. Third, if the available food is still insufficient or inadequate to meet dietary needs, households can try to reduce the number of people that they have to feed by sending some of them elsewhere (for example, by sending the children to a neighbour's house when those neighbours are eating). Fourth, and most common, households can attempt to manage the shortfall by rationing the food available to the household (cutting portion size or the number of meals, favouring certain household members over others or going for whole days without eating).

Sources: 44 and 45

Situation assessment and surveillance

Nutrition indicators should be part of the key indicators used to measure resilience when conducting a situation analysis (and when monitoring impact of resilience programmes; see section 3.2 below). This should be taken into account in the development of resilience measuring tools and methods (see Box 5). Poor nutritional status (especially stunting) is an indicator of the erosion of people's resilience and of greater vulnerability. Nutritionally vulnerable groups are less able to take appropriate actions to withstand or recover from shocks. Nutritional status can inform resilience programming by highlighting the groups that are most at risk and that may need to be monitored and specially targeted. Monitoring nutritional trends over time also helps understand how various shocks and threats impact households' and individuals' well-being.

Analysis of the causes of malnutrition as a key for situation analysis

An understanding of the causes of malnutrition in different livelihoods groups provides the background against which to analyse early warning indicators and predict impact on specific groups. Malnutrition problem trees in particular

are a useful tool for identifying relevant indicators and sources of information when designing early warning and surveillance systems for food security and nutrition. A good causal analysis of the nutrition situation is a foundation for sound response planning (see section 3.2 and Box 7).

Pillar 3: Apply prevention and mitigation measures to disasters and crises and Pillar 4: Preparedness and response

Activities under pillar 3 are designed to reduce the risk of communities being exposed to a shock and to mitigate its impact should the shock arise. Activities under pillar 4 are designed to ensure that the national and international response to the shock is adequate, timely and effective (through preparedness and contingency planning, rapid post-disaster assessments and a well-coordinated response).

Pillars 3 and 4 correspond to different stages of the resilience programming cycle, but they are presented together because the recommendations for making prevention, preparedness and response activities more nutrition-sensitive are extremely similar. This is because, in the food and agriculture sector, prevention and response activities are often closely related when it comes to field implementation. Indeed, certain types of interventions can start off as risk-reduction initiatives (e.g. provision of small livestock to vulnerable households and promotion of home gardens) but can be scaled up in times of emergencies to become part of the emergency response. This said, the fact these two pillars are combined here does not mean that there are not specific issues to be addressed in prevention, preparedness and response. For example, the treatment of acute malnutrition may need to be scaled up as part of a disaster response, in which case it is important the food and agriculture sector ensures livelihoods support is provided to food-insecure families to prevent new cases of acute malnutrition and relapses.

Key entry-points for nutrition-sensitive programming to build resilience

Use nutritional indicators to identify and target vulnerable groups: Using nutrition indicators (stunting, wasting and micronutrient deficiency diseases) to inform targeting strategies for prevention measures and for emergency responses helps ensure programmes reach the most vulnerable groups. In the case of prevention and DRR, the use of malnutrition data can help target prevention activities to groups who face chronic food security or health problems or are exposed to frequent nutrition-related shocks. In the case of preparedness and contingency planning, identifying the groups in which malnutrition has the high-

est prevalence, together with an analysis of the causes of this malnutrition, can help anticipate which groups risk being hardest hit by a given shock or threat. Malnutrition rates may not be the most sensitive indicators of vulnerability following a disaster; depending on the type of crisis and pre-shock context, it can take some time for individuals to lose weight). However, other nutrition-related indicators such as food consumption (e.g. reduction in the number of meals or drastic changes in consumption patterns) can be useful in identifying which groups need urgent help. Finally, nutrition-sensitive programming has a gender dimension; the nutritional impact of food security interventions is much greater when programmes are targeted to women. The analysis of malnutrition rates should therefore be complemented with a gender analysis that will assist in effective targeting and improving understanding of the potential empowerment effects of interventions.

Analysis of the causes of malnutrition as an effective entry point for response planning: Analysing the causes of malnutrition is a very effective entry point for planning integrated food and nutrition security measures, whether for prevention, preparedness or response. An analysis of the causes of malnutrition presents a multisectoral overview of the factors affecting nutritional status within a given community. Ideally, such an analysis should be done for each livelihoods group, as livelihoods determine many features of a household's access to food, caring practices and health practices; the relevant interventions for each group will therefore most likely be different. Ideally, such analyses should draw upon both quantitative data collected through surveys (nutritional surveys and comprehensive assessments of food security and livelihoods) and participatory assessment and planning methods. Problem trees and solution trees for malnutrition can be constructed for each livelihoods group through a participatory planning process (Box 7). The amount of time available to conduct such an analysis will depend on whether one is working on a prevention programme or an emergency response. However, it is essential to do at least a cursory causal analysis even in emergencies as no resilience-building or food security intervention will have a significant impact on nutrition if it does not address the underlying and immediate causes of malnutrition.

☑ **Box 7. Problem and solution trees of malnutrition: the example of South Sudan**

At the request of partners in South Sudan, FAO organized a two-day workshop to increase stakeholders' understanding of the nutritional implications of food security and livelihoods (FSL) programmes. The workshop brought together representatives from the ministries of Agriculture, Health and Rural Development and members of nutrition and FSL clusters in South Sudan. Rather than being a formal training event, the workshop consisted of very lively and participatory exchanges of views on the findings of an analysis of the causes of malnutrition disaggregated by livelihood group (pastoralist, agropastoralist, agriculturalist and petty traders). Participants also elaborated solution trees for good nutrition. The workshop provided ample evidence that nutrition should be both addressed through multisectoral policies and programmes and mainstreamed into relevant sectoral strategies. It also enabled participants to identify initiatives that would be instrumental in transforming plans into action.

The use of problem and solution trees is a very effective approach for supporting strategic planning for integrated nutrition programmes and partnerships for improving nutrition, food security and livelihoods [40]. Such participatory exercises tap into local knowledge for "telling the story behind the numbers" and strengthen dialogue and coordination among stakeholders who will most likely have to work together during programme implementation.

Source: 46

Make nutrition an explicit objective and monitor progress against this: Nutrition should be an explicit objective of resilience-building programmes to ensure that they enhance the nutritional status of target populations. This implies using nutrition indicators for monitoring and evaluation. Ideally, a set of indicators, including individual nutritional status, should be used to measure the nutritional impact of food and agriculture programmes aimed at building resilience to shocks. However, this can be complex. Given the slow onset of stunting (in most cases, it becomes established over the first two years of a child's life) it can take time to reverse (at least two years). This makes it difficult to measure the impact on stunting of programmes of limited duration. Using wasting as a monitoring and impact indicator is also challenging because the prevalence of wasting tends to vary seasonally and is strongly determined by health status and disease trends. This makes it difficult to assess and attribute impact to a food and agriculture intervention. Indicators of food consumption, in particular of dietary diversity (e.g. using the dietary diversity score developed by FAO and Food and

Nutrition Technical Assistance [FANTA] [47]), are a good proxy for estimating the nutritional impact of a food and agriculture intervention. Using such indicators is essential for linking information on household access to food with nutritional status.

Examples of nutrition-friendly resilience programming

Nutrition education to empower households: Nutrition education is essential for people to improve their feeding practices, and thus contributes to prevention of malnutrition as well as increasing human capital. Nutrition education addresses all three dimensions of resilience (coping, adapting and transforming). It is already considered a critical component of health programmes. Including a nutrition education component in food and agriculture-based resilience-building programmes is essential to help households decide what foods to produce or purchase and how to store, process, prepare and consume them for optimal nutrition (including infant and young-child feeding practices). Nutrition education is also an effective way of linking food and agriculture programmes to other sectoral interventions, namely health, water and sanitation and education. Box 8 illustrates how a voucher scheme, when well-targeted and accompanied by nutrition education, improves food consumption, nutritional status and general health of the target population.

Diversification of food intake and livelihoods: Support for diversification of food intake and livelihoods is a good example of a nutrition-sensitive intervention to reduce risk of malnutrition. All too often, the objective of agricultural programmes is focused on increasing the yield of a staple crop (quantity) rather than on producing a wider range of nutritious foods (quality); however, both are equally important when it comes to improving resilience and nutrition [49]. Persuading people to grow and consume (not just sell) more-nutritious crops (including fruits and vegetables) or to rear animals and poultry for meat, milk and eggs greatly contributes to the prevention of both chronic and acute malnutrition through both direct consumption and income generation. Furthermore, providing people with opportunities to diversify the food they produce (whether through different crops or crop varieties or different enterprises such as keeping small livestock) contributes to reducing their vulnerability to shocks. Livelihood diversification offers economic alternatives – if one source of food or income is affected, others remain – and hence is key to strengthening food and nutrition security and enhancing people’s resilience.

☑ **Box 8. Nutrition education and vouchers for Somali refugees in northeastern Kenya**

A voucher scheme combined with nutrition education was implemented by Action Against Hunger USA between 2007 and 2009 in three Somali refugee communities in the town of Dadaab, North Eastern Province, Kenya.* The objectives of the intervention was to increase the refugees' consumption of nutritious fresh foods, improve infant and young-child feeding practices, balance diets and improve food hygiene. The scheme targeted mothers with children between 6 and 59 months of age. The mothers were given vouchers worth 600 KSh each month, enabling them to purchase fresh vegetables, fruit, milk and eggs in the local market. Caregivers participated in nutrition education sessions with cooking demonstrations. Consumption patterns and dietary diversity were monitored; no anthropometric or biochemical measurements were taken.

Results showed that receiving the vouchers significantly increased access to fresh food, fruit and vegetables, milk and eggs and increased dietary diversity. There was a clear benefit to the local economy, with the voucher programme stimulating local markets to increase the range and availability of fresh fruit and vegetables and eggs. Local milk suppliers also benefitted from increased sales, as many fruit and vegetable sellers also began distributing milk.

The changes were attributed to both nutrition education and improved availability of fruit and vegetables in the market. Cooking demonstrations increased awareness of the dietary value of locally available vegetables. The overall malnutrition rate fell in each of the three camps, although the extent to which this was due to the intervention alone was not measured.

** The project has since been implemented by Save the Children UK.*

Source: 48

Linking food and agriculture interventions with social protection measures to improve nutrition and strengthen resilience: Social protection interventions are becoming increasingly relevant in the current climate of economic uncertainty, food price volatility and increasing frequency of extreme weather events. Social protection programmes increase food expenditure and increase dietary diversity [50]. In many families, children become malnourished and stunted not because there is no nutritious food available but because the family cannot afford to buy it or because it cannot access health care. In such circumstances, providing families with cash, food or livelihoods alternatives can be the best way to protect the families' nutritional status (short and long term and in particular for children less than five years old) and to prevent asset depletion and the risk of being drawn into the downward spiral of impoverishment. Hunger-related safety

nets can also be used to rehabilitate or develop the community and household asset base (see Box 9). Food and agriculture interventions are central to such livelihood support strategies as they are a means of producing food, generating income and strengthening households' productive asset base (e.g. direct transfer of agricultural or livestock assets and linking agricultural extension and access to inputs with cash transfers).

Box 9. Ethiopian Productive Safety Net Programme (PSNP)

Implemented in 2005 by the Ethiopian government, the PSNP is one of the largest social safety net programmes in Africa. As part of Ethiopia's wider Food Security Programme, the PSNP aims to provide households with enough income, in the form of either cash or food, to meet the food gap. The ultimate goal is to end dependency on emergency food relief and stimulate sustainable livelihoods. Varying from 6 to 9 months according to need, the programme mobilizes labour for public works activities – building infrastructure such as roads, soil and water conservation, and irrigation systems, in order to promote agricultural productivity and access to markets. Payment for this public work comes in the form of either cash or food. Thus, rather than simply addressing the symptoms of food insecurity, the PSNP aims to help people 'graduate' out of chronic food insecurity and the programme. From 2005 to 2008, the number of beneficiaries increased from five million to eight million, who were eating more food of better quality more often, while the programme has helped protect people's assets and reduced the need for premature harvesting of crops. While many households have graduated, it is increasingly recognized that households that remain with similar land assets (more than 60 percent of smallholder farmers in Ethiopia have holdings of less than 1 hectare and are therefore unable to meet their annual food and income needs) and livelihood profiles may graduate but they remain 'at risk' in difficult years. Some households have therefore graduated and later been readmitted to the PSNP.

The PSNP has most recently improved its capacity through the introduction of a Risk Financing Mechanism (RFM) in order to help address humanitarian emergencies. The RFM comprises an early warning system, contingency finance, contingency planning and capacity development components, all of which contributed to a most cost-effective response to the 2011 food crisis.

The PSNP is currently in a re-design phase that will result in a modified design for 2014 to 2018. Among other issues and approaches, the PSNP re-design process will consider ways in which links between the PSNP and National Nutrition Programme can be strengthened.

Source: 51

By protecting assets and livelihoods, social protection schemes can be used for disaster prevention, preparedness and response. Outside times of crisis, they help keep families above the poverty line and allow them to progressively build up their resilience. Safety nets act as a buffer, protecting families' livelihoods, enabling families to absorb shocks better while reducing the effects of the shocks. During periods of crisis, such schemes reduce the need for households and communities to adopt negative coping strategies (e.g. selling assets, livestock or food reserves, early harvesting of immature crops and reducing the number of meals including eating less protein) and are key for recovery. Social protection programmes should be scaled up during crises and targeted to the most shock-affected areas. This will help reduce the acute and long-term negative effects of the crisis and strengthen capacities for nutritional resilience.^j

Linking food and agriculture to health, water and sanitation and education to enhance nutritional impact: In addition to ensuring that food and agriculture-based resilience programmes improve food consumption, it is essential to link them to other sectoral programmes that address other determinants of malnutrition, namely health and water and sanitation. This can be done through joint situation and response analysis, joint or harmonized targeting and aligning delivery mechanisms to ensure that communities and households are reached with a complementary set of interventions (see Box 10). Partnerships are thus central to effective strategies for building resilience and improving nutrition.

^j The impact of social protection measures on the food and nutrition security of poor and vulnerable households depends on who is targeted and how; nutrition and gender-related information are essential to inform this targeting [50].

☑ **Box 10. Building community resilience to acute malnutrition, Dar Sila region, Chad**

Learning from past experiences, Concern in Chad has designed a medium-term intervention (running from 2012 to 2016) that brings together activities related to water, nutrition, disaster risk reduction, livelihoods and inequality to improve the overall health, nutrition and livelihood security of the rural population of Dar Sila while improving their resilience to shocks. The aim of this integrated approach is to address multiple needs through coordination across a variety of sectors to achieve common goals. The first part of the intervention is to provide an integrated package to beneficiary communities to build long-term community resilience. Areas being addressed include:

- **Improving agricultural production and diversifying livelihoods and assets** (promotion of conservation agriculture and homestead gardening, improving soil fertility, delivery of extension messages to farmers, developing Community Animal Health Workers, developing links to local and regional markets).
- **Improving access to health services** (community health outreach, community case management and care groups, effective management of moderate acute malnutrition, support to the government to strengthen the management of the formal health system).
- **Increasing access to safe water** and improving sanitation and sanitary practices at community level.
- Working with community groups at all levels to **produce a disaster-management plan**.
- **Promoting social and behaviour change** (changing feeding practices, encouraging better hand-washing techniques, changing how farmers plant their crops).

The programme also incorporates a comprehensive community-based early warning system to identify the early onset of potential shocks. The first level of intervention will be implemented by the community themselves, acting on their own disaster-management plans. In a second phase, the programme will implement activities such as strengthening capacities for market analysis and nutrition surveys, putting systems in place to scale up cash interventions, bringing together humanitarian and development programmes in an integrated manner to distribute emergency supplies, target the most vulnerable to shock and scale up staff capacity.

Success will be assessed by measuring household wealth (through proxies such as livestock ownership and household assets). Improvements in health and nutrition will be assessed based on improvement of practices related to child health and behaviour, while improvements in water and sanitation will be in terms of increased access to potable water and latrines. The impact of the whole programme will be reflected in terms of improvements in nutritional status of children and maternal health.

Source: 52

4. CONCLUSION: REMAINING CHALLENGES OF BRINGING A NUTRITION LENS TO RESILIENCE PROGRAMMING

The resilience agenda provides an opportunity for transforming the way humanitarian and development challenges are addressed. The failure of the aid community to prevent the recent crises in the Sahel and in the Horn of Africa have reminded us – once again – that we need to change the way we work to strengthen people’s resilience capacities and to maximize the nutritional impact of our food and nutrition security programmes. Changing mind-sets, policies, strategies and planning will require some time, but promising progress has already been made in some areas and should be further supported and encouraged. In the food and agriculture sector, resilience is more than ever on the top of the agenda and several initiatives and programmes have been designed with a short- and long-term perspective, combining preventive, preparedness and curative aspects of humanitarian and development programmes.

Nutrition offers a new perspective to resilience programming in the food and agriculture sector. This paper argues that good nutrition is essential for resilience and should be the desired outcome of resilience. Why? Nutritional status is a proxy for human well-being, as healthy nutrition requires good health, eating well, and psychological and social well-being. Adopting a nutrition lens therefore brings the individual back to centre stage and invites a more people-centred approach to resilience programming. It is also a natural entry point for multi-sectoral planning and linking interventions that address immediate and underlying causes of human suffering. Systematic application of a nutrition lens to the policy environment, risk and vulnerability monitoring and early warning, risk reduction and post-disaster response can significantly enhance the impacts of resilience-building programmes on the food and nutrition security of vulnerable individuals, households and communities.

However, challenges remain in transforming these opportunities into action. While the discourse on resilience has been gaining ground, capacities to put the concept into action at field level remain weak. Effectively implementing resilience-building measures requires adjustments in staff’s planning and technical skills, information systems, funding mechanisms, logistics arrangements and coordination mechanisms and improved linkages between information systems (e.g. early warning systems) and action. Much of the added value of resilience-building measures lies in new thinking about twin-track, integrated, multise-

toral and complementary approaches to working with communities. This entails strengthening partnerships and refining the combination, sequencing and targeting of various technical interventions. This is particularly challenging to do in contexts affected by climate variability, political instability, poor infrastructure and limited human capital, which are precisely the contexts where resilience-building measures are necessary. Similarly, the translation of the growing interest in and commitment to nutrition is held back by limited capacities for multisectoral nutrition programming and for mainstreaming nutrition into other sectors, including agriculture. Investments are needed in nutrition education at all levels, from policy-makers to individuals, and in the strengthening of nutrition information systems for assessments, monitoring and evaluation (especially in regard to monitoring and understanding food consumption patterns).

Effective capacity development, improved programming and mobilization of financial and human resources will require development of an evidence base regarding which strategies are most effective to simultaneously strengthen resilience and improve food security and nutrition. The operational recommendations presented in this paper are based on past field experiences as well as conceptual considerations, but more practical and operational research is required to test their feasibility and effectiveness in a variety of contexts. One key area of research involves developing tools and methods to measure the contribution of good nutrition to resilience on the one hand and the nutritional impact of resilience-strengthening programmes on the other. Considerable efforts are currently underway to measure resilience from both assessment and impact evaluation perspectives and we need to ensure that nutrition is integrated in these initiatives to reflect the nutritional sensitivity of resilience programmes.

These common challenges can be turned into common opportunities by maximizing synergies between the current political commitment and investments in resilience on the one hand and in nutrition on the other. These are indeed two facets of one agenda: ensuring that hunger and malnutrition becomes a scourge of the past, despite the challenges of climate change, demographic growth, diminishing natural resources and complex political crises.

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ANNEX: Key recommendations for improving nutrition through agriculture

Food systems provide for all people's nutritional needs while at the same time contributing to economic growth. The food and agriculture sector has the primary role in feeding people well by increasing availability, affordability, and consumption of diverse, safe, nutritious foods and diets aligned with dietary recommendations and environmental sustainability. Applying the following recommendations helps strengthen resilience and contributes to sustainable development.

Agricultural programmes and investments can strengthen impact on nutrition if they:

1. Have a nutrition objective(s) and measure progress towards the objective(s) by monitoring and evaluating relevant indicators; track and mitigate potential harm.
2. Base goals and activities in the context and causes of malnutrition at the local level.
3. Target the vulnerable and improve equity through participation, access to resources and decent employment.
4. Empower women.
5. Increase production and reduce post-harvest losses of nutrient-rich foods; facilitate diversification of production.
6. Incorporate nutrition promotion and education around food and food systems that builds on existing local knowledge, attitudes and practices.
7. Improve processing to retain nutritional value, increase shelf-life, enhance food safety and make healthy foods convenient to prepare.
8. Expand markets, particularly for nutrient-rich foods, and enhance market access for vulnerable groups.
9. Collaborate with other sectors (health, environment, social protection, labour, water and sanitation, education, energy).
10. Maintain or improve the natural resource base (water, soil, air, climate, biodiversity).

For more information, see FAO. 2013. *Synthesis of guiding principles on agriculture programming for nutrition*. Rome (<http://www.fao.org/docrep/017/aq194e/aq194e00.htm>).



Food and Agriculture Organization
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OUR PRIORITIES

The FAO Strategic Objectives

Achieving FAO's goals to end hunger and poverty is a challenging and complex task. Today, thanks to major changes in how we do business, FAO is a fitter, flatter and more flexible organization, whose activities are driven by five strategic objectives. The new and improved FAO has a real chance to win the battle against hunger, malnutrition and rural poverty.

HELP ELIMINATE HUNGER, FOOD INSECURITY AND MALNUTRITION

We contribute to the eradication of hunger by facilitating policies and political commitments to support food security and by making sure that up-to-date information about hunger and nutrition challenges and solutions is available and accessible.

MAKE AGRICULTURE, FORESTRY AND FISHERIES MORE PRODUCTIVE AND SUSTAINABLE

We promote evidence-based policies and practices to support highly productive agricultural sectors (crops, livestock, forestry and fisheries), while ensuring that the natural resource base does not suffer in the process.

REDUCE RURAL POVERTY

We help the rural poor gain access to the resources and services they need – including rural employment and social protection – to forge a path out of poverty.

ENABLE INCLUSIVE AND EFFICIENT AGRICULTURAL AND FOOD SYSTEMS

We help to build safe and efficient food systems that support smallholder agriculture and reduce poverty and hunger in rural areas.

INCREASE THE RESILIENCE OF LIVELIHOODS FROM DISASTERS

We help countries to prepare for natural and human-caused disasters by reducing their risk and enhancing the resilience of their food and agricultural systems.