Disaster Risk Management Strategy in West Africa and the Sahel | FAO (2011-2013)

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Rome 2011

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ACRONYMS

CAADP	Comprehensive Africa Agriculture Development Programme
CH	Cadre Harmonisé
CILSS	Permanent Interstate Committee for Drought Control in the Sahel
DRM	Disaster Risk Management
ECLO	Emergency Centre for Locust Operations
ECOWAP	Regional Agricultural Policy for West Africa
ECOWAS	Economic Community of West African States
EMPRES	Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases
EWS	Early Warning System
FAO	Food and Agriculture Organization of the United Nations
FEWS NET	Famine Early Warning Systems Network
GDP	Gross Domestic Product
GIEWS	Global Information and Early Warning System for Food and Agriculture
GLEWS	Global Early Warning and Response System for Major Animal Diseases Including Zoonoses
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IPC	Integrated Food Security Phase Classification
NAPA	National Adaptation Programmes of Action
NGO	Non-governmental organization
OCHA	Office for the Coordination of Humanitarian Affairs
OIE	World Organisation for Animal Health
PREGEC	Prevention and Management of Food Crises in West Africa (of CILSS)
REACH	Renewed Effort Against Child Hunger
ROPPA	Network of Farmers' and Agricultural Producers' Organizations of West Africa
SO	Strategic Objective
TECA	Technology for Agriculture
UN	United Nations
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNISDR	United Nations International Strategy for Disaster Reduction
WFP	World Food Programme
WHO	World Health Organization
WOCAT	World Overview of Conservation Approaches and Technologies

EXECUTIVE SUMMARY

Every year, countries of the West Africa and Sahel subregion are adversely affected by natural disasters, such as droughts and floods, as well as transboundary animal diseases, economic crises and civil conflicts. These events result in losses of life, assets and livelihoods, consequently weakening the food and nutrition security of the populations. Given the increasing frequency and complexity of such crises, a holistic approach is needed. Such an approach would integrate actions intended to strengthen crisis preparedness and to prevent and to mitigate risks through effective and rapid response and interventions that facilitate the transition towards conditions of stability and development.

In line with this need, the Food and Agriculture Organization of the United Nations (FAO) has elaborated a new **Strategic Framework** (2010-2019). The goals set in the FAO's Strategic Framework 2010-2019 are to improve preparedness for and response to food and agricultural threats and emergencies through timely action before, during and after a crisis. The Strategic Framework provides the basis for **FAO's Disaster Risk Management Strategy in West Africa and the Sahel** (2011-2013).

This subregional strategy provides an integrated approach to planning disaster risk management and disaster risk reduction activities for the relevant FAO country offices, while at the same time laying the foundation for the development of national Plans of Action. The strategy will be implemented in coordination with other relevant actors, such as regional and subregional institutions, the governments involved, United Nations agencies and other non-governmental organizations.

The overall objective of this strategy is to strengthen community resilience and to reduce their vulnerability to various shocks, in an effort to help the countries of this subregion to become more food secure and to enable them to focus on developing sustainable food and agriculture systems. Specific goals and priority activities have been identified based on risks and challenges that have been recognized. The following countries will be covered by this subregional strategy: Benin, Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, Ghana, the Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

Introduction

Natural disasters, transboundary animal diseases, and plant pests and diseases, as well as socio-economic and political crises have been more frequent in the subregion of West Africa and the Sahel[1], significantly increasing food insecurity, child malnutrition and vulnerability of populations to shocks. The subregion's vulnerability to disaster is already exacerbated by a number of structural factors, such as: poverty, low education levels and a lack of access to basic services, political instability, conflicts, poor governance, weak economies dependent on international markets, high population growth and a trend towards urbanization and rural exodus. Indeed, as of 2010[2], all of the countries in the subregion, with the exception of Cape Verde, were among the countries with the lowest level of human development[3].

These crises characterizing West Africa and the Sahel are aggravated by the impact of climate change: over the last fifty years, the subregion has undergone changes in rainfall patterns that have translated not only into serious, extensive droughts in the Sahel, but also – especially since 2005 – into destructive floods that have weakened agriculture-based livelihoods. Such increasingly complex and diverse crises, the majority of which are transnational, require substantial joint commitments from all parties involved. Among these parties, the Food and Agriculture Organization of the United Nations (FAO) has a key role to play in protecting and restoring agriculture-based livelihoods and in strengthening food and nutrition security.

1 FAO defines West Africa and the Sahel as a "subregion", comprised of the following countries: Benin, Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Mali, Niger, Nigeria, Senegal, Sierra Leone and Togo.

2 In West Africa and the Sahel, 28 percent of children under age five are underweight and 38 percent suffer from delayed growth (chronic malnutrition).

3 The Human Development Index combines indicators of life expectancy, education levels and income in a composite index.

In this context, FAO has, therefore, developed a subregional disaster risk management (DRM) strategy for West Africa and the Sahel consistent with the broader aims of FAO's Strategic Objective I (SO I), which focuses on "improved preparedness for, and effective response to, food and agricultural threats and emergencies". The subregional programmatic DRM approach will help to enhance programme coherence among the various FAO country offices, enable effective and efficient resources and serve as a basis for devising national Plans of Action.

This programme-based approach fits into a number of DRM initiatives and programmes that have been developed by the regional and subregional institutions, as well as the United Nations (UN) agencies, non-governmental organizations (NGOs) and other stakeholders. This strategy is also in line with the Comprehensive Africa Agriculture Development Programme (CAADP), a coordinated effort by African national governments, under the framework of the New Partnership for Africa's Development, to underline the importance of investing in agriculture in Africa. FAO's DRM strategy for the subregion is specifically linked to the third pillar of the CAADP, which emphasizes the importance of increasing the food supply, reducing hunger and improving responses to food emergency crises.

This strategy will be implemented in coordination with national governments, the Economic Community of West African States (ECOWAS), subregional institutions such as the Permanent Interstate Committee for Drought Control in the Sahel (CILSS), the UN agencies, particularly the World Food Programme (WFP) and the Office for the Coordination of Humanitarian Affairs (OCHA), as well as the International Federation of Red Cross and Red Crescent Societies (IFRC), NGOs and other stakeholders in the subregion.

1. Subregional context

The subregion of West Africa and the Sahel is comprised of 17 countries: Benin, Burkina Faso, Cape Verde, Chad, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone and Togo.

1.1 Contrasting socio-political situations

Today, the majority of West African and Sahelian countries are politically stable. However, a certain number of them are affected by political crises resulting from dysfunctional or contested election processes, unconstitutional changes in government or other threats to constitutional legitimacy and governance. According to the report *"The state of food insecurity in the world: addressing food insecurity in protracted crises"* (WFP-FAO, 2010), of the 22 countries currently faced with protracted[4] crises in the world, five are located in West Africa and the Sahel: Chad, Côte d'Ivoire, Guinea, Liberia and Sierra Leone.

Socio-political crises in these countries severely affect the livelihoods and vulnerability to food and nutrition security of populations, limiting the availability of and access to food and disrupting the stability of food markets. In these situations, vulnerability to food and nutrition in security is further exacerbated by population displacements, as people leave their countries and their belongings in search of refuge, often in host communities. As of 29 April 2011, the United Nations High Commissioner for Refugees (UNHCR) estimated that over 170 000 people had left Côte d'Ivoire following political violence to find refuge in neighbouring countries, primarily Liberia, while over 800 000 Ivorians were internally displaced. These thousands of refugees and

4 Protracted crises can be described by the following characteristics: natural disasters or repeated conflicts, long-term food crises, an upheaval in livelihoods and insufficient institutional capacity to react to crises. Countries faced with protracted crises are classified in a separate category and require special attention from the international community devoted to development.

displaced persons have abandoned most of their assets and their agricultural activities, thus making an already fragile food and nutritional situation (for both the people displaced and their host communities, which must share food supplies, water and shelter) even more precarious.

Unconstitutional changes of government and other threats to the democratic processes in certain countries of the subregion, especially in the coastal area, adversely affect the political, social and economic stability in West Africa and the Sahel. Furthermore, despite the progress achieved towards strengthening human rights and civil society and in promoting gender equality, the ethnic and religious intolerance, as well as some localized cases of violence, continue to cause tension, damaging prospects for peace and security. Currently, this situation is exacerbated by the presence of Al-Qaeda in the Islamic Maghreb (AQIM) in certain subregions of the Sahel, which has resulted in increased security restrictions and limited humanitarian access to vulnerable populations.

1.2 A vulnerable economy despite growth

Despite the positive economic growth rates registered in the countries of West Africa and the Sahel, the subregion's macroeconomic situation is still suffering the consequences of the 2008–2010 global recession. Hence, maintaining these positive economic trends will depend on the pace of the global economic recovery. Furthermore, the current economic growth is not benefiting the majority of the population. All too often, the poorest and most vulnerable households continue to require external aid in order to meet their basic needs. According to the Human Development Report 2010 by the United Nations Development Programme (UNDP), poverty levels remain high in the entire subregion and persistent low per-capita income is still associated with low education levels and low life expectancy. In the UNDP's 2010 Human Development Index, all the countries in the subregion are classified in the group of countries with low human development.

Countries in West Africa and the Sahel remain heavily dependent on the international markets both at national and household levels. In the area covered by the Regional Agricultural Policy for West Africa (ECOWAP), 48 percent of all imported goods are products for which the subregion is competitive: grains, dairy and meat. The cost of these imported goods doubled between 1994 and 2004. In Mauritania, between 75 and 80 percent of all cereal needs are covered by food aid or by imports; the situation is similar in Senegal, which is one of the biggest importers of rice in the world, along with Nigeria and Côte d'Ivoire.

At the household level, many subsistence farmers depend on the market for their basic supply of staple foods for several months each year, as harvests are often insufficient. Many farmers have to sell their produce shortly after the harvest, a time of the year when prices are at their lowest, and are then forced to buy food on credit, at higher prices, during the lean period to pay off their debts.

The direct consequence of the 2008 global food crisis at the household level was a reduction in purchasing power triggered by increases in grain prices in the subregion. The upward trend of food prices registered in 2011 in international markets reflects new tensions in certain local markets and heightened accessibility problems for households that have already been severely weakened in recent years. These factors create a vicious circle of poverty and weak production, which aggravate the problems of accessibility and availability of food, and coupled with inadequate food utilization, as they become the main causes of undernourishment and malnutrition, especially in rural areas.

1.3 Recurrent natural disasters, increasingly related to climate change

Food and nutrition security in the subregion are also strongly affected by climate hazards and environmental challenges faced on a regular basis. As a consequence of climate change, the frequency and intensity of natural disasters has increased, especially with regard to cases of extreme events such as droughts and floods. The impact of natural disasters is more severe among the poorest and most vulnerable populations, particularly among those whose livelihoods depend on agriculture. In fact, these populations are increasingly confronted with recurrent climate risks that cause production deficits, livestock losses and reduced availability of fish and timber stocks.

About 65 percent of the active West African and Sahelian population – more than half of which are women – work in the agricultural sector and are therefore vulnerable to climate hazards and environmental factors. Their vulnerability is further increased by the fact that the majority of agricultural production in the subregion is dominated by subsistence farming almost exclusively based on rainfed agriculture and extensive animal husbandry systems. From now until 2100, it is estimated that agricultural sector losses owing to climate hazards will vary between 2 and 4 percent of the subregional gross domestic product (GDP).

Rainfall, vegetation and soil quality are critical food security factors for West Africa and the Sahel. Cereal crops, which centre chiefly on cereal production in the Sahel, depend primarily on the characteristics of the rainy season. Over the last 50 years, West Africa and the Sahel have witnessed heavy reduction of precipitation. This tendency has brought about a process of aridification of the climate in the area. Rainfall reduction has been most marked in the Sahel, but it has also affected the Sudanian and Guinean zones[5]. Also, these changes in rainfall patterns have translated into increasingly irregular and violent rainstorms, especially since 2005; these storms have caused recurrent floods and have damaged public infrastructure, homes, crops and livestock. Climate change, favourable or not, will alter the quantity and quality of pastures and lead to new forms of transhumance in the subregion, thus increasing the risk of weakening of livestock and the spread of animal diseases as well as the risk of territorial conflicts among farmers.

5 OECD. 2008. *Climate and climate change*. Regional Atlas of West Africa. Paris.

The years 2009–2010 have provided diverse examples of the impact of climate change and its effects on food and nutrition security in the subregion. In 2009, irregular rains in Niger, Chad, northeast Mali, northern Burkina Faso and the northernmost part of Nigeria caused substantial deficits in cereal production, animal fodder and drinking water for livestock, which directly contributed to the food and nutrition crisis in 2010 that claimed more than ten million victims.

Senegal: Reinforcing beneficiaries' skills in DRM

In 2009, floods in Senegal affected nearly 40 000 homes. In some rural areas, harvest, seed stocks and crops were washed away by the rising waters. Given the urgency, FAO funded and implemented a project aimed at boosting agricultural activities and strengthening the capacity of 2 500 vulnerable households affected by the floods in the Saint Louis region (in northern Senegal). In addition to distributing seeds to help strengthen beneficiaries' capacity to cope with climate hazards, training sessions in DRM were organized for more than 60 community leaders. This training hinged on promoting resilience and changes in the behaviour of local actors. Different modules were arranged to discuss the link between climate change and food security in the Sahel, as well as how to identify and assess risks at a community level. The participants began drafting contingency plans and examined practical examples of community resilience in the medium and long term. Following the initial sessions, local leaders in turn imparted their knowledge by training other beneficiaries. For this purpose, guides were printed and distributed. The DRM training sessions helped strengthen the capacity of vulnerable households to react to and cope with climate hazards. As such, they can be considered an example of best practices to replicate elsewhere in the subregion.

Despite the assistance provided by the governments and international organizations, the livelihoods of the most vulnerable households have been severely eroded, resulting in a consequent increase in indebtedness, loss of earning assets, loss of livestock and considerable migrations. As a result of this food and pastoral crisis, malnutrition rates (already high in the Sahel before the 2010 crisis) have surpassed critical thresholds[6]. Unlike in 2009, the rainy season in 2010 brought abundant rainfall, which significantly improved the food supply, but also caused serious flooding that damaged a considerable portion of crops. A total of 1.8 million people were affected, as over 141 000 hectares of cereal crops and cash crops were destroyed, especially in Benin (over 73 000 hectares) and Chad (52 600 hectares), followed by Burkina Faso (6 500 hectares), Niger (5 000 hectares), and to a lesser extent in the Gambia, Ghana, Guinea, Mali, Senegal and Sierra Leone. Animal breeding was also affected by floods, which led to numerous cattle deaths, whether by drowning or by water-related diseases: over 70 000 head of cattle died in Niger and about 3 000 died in Mali.

These extreme meteorological events have further adversely affected the vulnerable households by destroying their livelihoods, reducing their purchasing power and weakening their resilience, an ability already reduced by underlying factors like poverty, limited access to basic services and unstable food prices. Local populations and national governments in the subregion have a rather limited capacity to deal with natural disasters, so the increasing frequency and intensity of extreme meteorological events in the context of a changing global climate constitute direct threats to the food and nutrition security of the people of West Africa and the Sahel[7].

National adaptation programmes of action (NAPA) on climate change provide a way for less advanced countries to identify priority actions that need to be taken to respond to the most urgent and immediate needs in terms of adapting to climate change. The main goal is to identify a list of ranked priority adaptation activities, as well

6 For example, the results of a national nutrition survey in Niger conducted in 2010 showed an overall acute malnutrition rate of 16.7 percent, higher than the rate reported during the 2005 food crisis.

7 CAADP, Pillar III: Framework for food security.

as profiles of each project, designed to facilitate the development of proposals for implementation of NAPA[8]. In West Africa and the Sahel, 14 countries have developed NAPA: Benin, Burkina Faso, Cape Verde, Chad, the Gambia, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Senegal, Sierra Leone and Togo.

1.4 Considerable prevalence of transboundary animal diseases, and plant pests and diseases

Transboundary animal diseases, and plant pests and diseases constitute a crucial risk for the agriculture and livestock sector in the subregion. Certain animal diseases are endemic in a number of areas, and the risk of these diseases spreading is increased by environmental trends like global warming, more intensive farming, changes in animal breeding systems, the globalization of trade, poverty and a general dearth of hygiene and biosecurity. Animal diseases have a substantial impact on poor households' income, as well as on their access to good quality proteins, which in turn poses a significant challenge to their food and nutrition security. A general lack of updated, accurate information on the livestock sector, combined with insufficient veterinary and breeding services, non-existent or inadequate regulations concerning production, commerce and animal health control are also other important obstacles to the prevention and control of such diseases.

Moreover, there are sizeable areas in the subregion where pests, such as the desert locust, the Senegalese grasshopper or the Peruvian cotton stainer, as well as seed-eating birds and rodents, reproduce seasonally, thus making these areas susceptible to outbreaks and large-scale infestations under the right environmental conditions. Seasonal reproduction takes place chiefly in the countries on the "frontline" locust outbreaks: Chad, Mali, Mauritania and Niger. Regular monitoring in reproduction zones helps curb potential outbreaks at an early stage, before they expand and become difficult to contain[9]. Climate change will influence the prevalence of these crop-destroying insects because of the direct correlation between the climate, geographical range of certain groups of insects and spreading of these insects into new areas. Pests in this subregion are typically strongly reactive to climate change and have been able to take advantage of conditions that favour their propagation and expansion. For example, an increase in rainfall, especially if it occurs outside of the usual rainy season, which consequently expands wetlands, plays in favour of the development of the desert locust and the Peruvian cotton stainer, thus increasing a risk for crop production already posed by these pests.

Mauritania: Controlling Rift Valley fever

In November 2010, the Rift Valley fever virus was detected among both human patients and animals in the Adrar Province. In December 2010, the epidemic among humans had reached a fatality rate of 20.7 percent, and the virus had already spread widely in animal populations, essentially among small ruminants and dromedaries. In response, FAO, in close cooperation with local veterinary services and other parties involved, implemented options to control the epidemic, aiming to limit the spread of the virus to avoid further economic damages to livestock holders and, at the same time, to reduce the risk of contagion for the livestock holders, producers and other groups at risk. FAO's strategy to fight Rift Valley fever is based on the following model: central coordination of the crisis through an inter-ministerial committee bringing together the various actors involved; detection of disease and determination of the extent of disease among animals through active and passive surveillance and monitoring of suspected cases and rumours; control of animal movement (commerce and migration); information provision among at-risk communities and public awareness-raising; potential vaccination of animals in non-infected areas and/or of selected livestock; and

8 To facilitate access to NAPA projects, the Secretariat of the UN Framework Convention on Climate Change (UNFCCC) has developed a database of NAPAs. As of October 2008, the UNFCCC Secretariat had received the NAPAs of 38 Least Developed Countries.

9 At present, only Mauritania has implemented an institutional framework for the implementation of a preventative strategy for desert locust control.

2. Agriculture in West Africa and the Sahel

West Africa and the Sahel have a potential of about 284 million hectares of arable land, including long fallows, but only 60 million hectares are actually cultivated[10]. To this total amount of potentially cultivable land, more than 215 million hectares of pastures located in the Sahelian and the Sahelo-Sudanian zones are added. Another asset to the subregion is its great diversity of ecosystems: this is a potential source of diversification in terms of agricultural production, which would allow the subregion to make the most of its advantages and to bring about a subregional economy based on the complementary qualities of the local environments. As for the population, over 55 percent reside in rural areas[11], three-fourths of which live in humid subregions and in subhumid zones, 20 percent in the semi-arid zone (the Sahel) and the remaining 5 percent in the arid zone[12].

Agriculture[13] remains the leading sector of the economy in West Africa and the Sahel, contributing to the food needs of its people, generating global wealth and providing employment and income. Although the rural economy has become increasingly diversified (agroprocessing, mining, crafts, trade, transport and tourism), it is nonetheless dominated by farming, which still provides the bulk of the rural population's income[14]. The agricultural sector accounts for about 35 percent of the subregion's overall GDP and as much as 60 percent of the national GDP of some countries in the subregion[15]. The agricultural sector is also the leading provider of employment: more than 60 percent of the active population of West Africa and the Sahel work in and derive their livelihoods from the agricultural sector.

10 Moreover, less than 10 percent of the over 10 million hectares of irrigable land is used to grow rice or vegetables.
11 FAO. *The Global Food and Agriculture Situation 2010–2011*. Rome.
12 OECD. 2007. *Rural environment and agricultural changes.* Regional Atlas of West Africa. Paris.
13 In the present document, the term 'agriculture' is intended to include crop farming, animal raising, forestry and fishing.
14 OECD. 2007. *Rural environment and agricultural changes* . Regional Atlas of West Africa. Paris.
15 Exports of agricultural products account for 15.3 percent of all goods and services exported by the subregion.

From a climatic point of view, West Africa and the Sahel can be divided into several zones, based on differences in annual precipitation[16] :

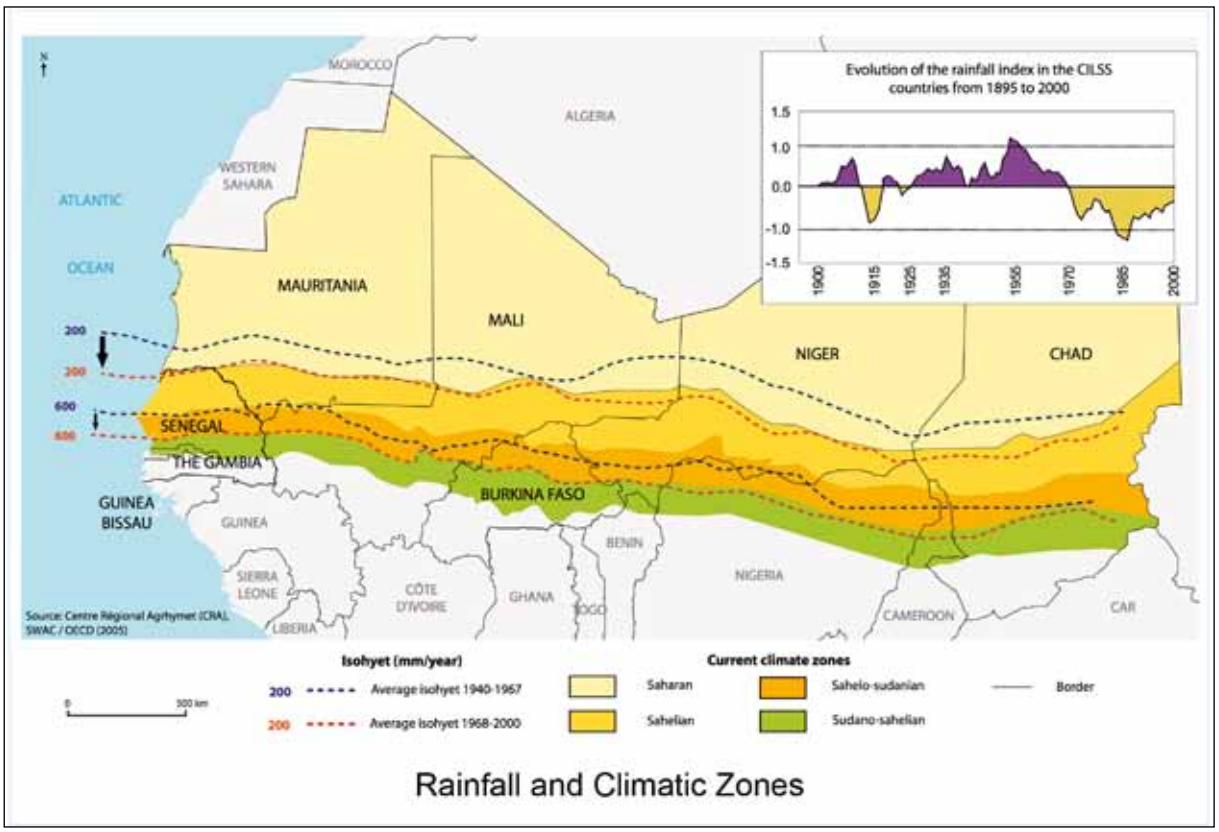
Arid zone: average annual precipitation of less than 200 mm. This strip of land passes through six countries in continental West Africa: Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal.

Sahelian zone: average annual rainfall of 200 to 600 mm. Mainly composed of savannahs and bushlands, this zone covers parts of southern Mauritania, northern parts of Mali, Niger and Chad, as well as central and northern parts of Senegal and of Burkina Faso.

Sudanian zone: annual precipitation of 800 to 1 200 mm. It includes the southern parts of Burkina Faso, Mali, Niger and Senegal, as well as the north of Gambia and of Côte d'Ivoire. The savannah is much thicker than in the Sahelian zone, the tree population is much greater, and there are scattered forests.

Guinean zone: annual rainfall of 1 400 to 1 800 mm. Guinean forests are composed of a series of distinct forms of vegetation that range from rainforests along the coast to freshwater swamp forests (e.g. in the Niger delta) to semi-deciduous interior forests with prolonged dry seasons. This area covers the major part of the subregion: south Casamance in Senegal, Benin, Côte d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Sierra Leone and Togo.

Aridification process in the Sahel, 1940–1967 and 1968–2000[17]



16 For practical reasons, in this document, the countries in the subregion are divided into two main groups according to climatic and geographical characteristics: first, Sahelian countries (Burkina Faso, Cape Verde, Chad, Mali, Mauritania, Niger and Senegal) and second, coastal countries (Benin, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone and Togo).

17 OECD. 2006. *The fragile ecological zone of the Sahel.* Regional Atlas of West Africa. Paris.

2.1 Global farming systems

In the different climate zones of West Africa and the Sahel, the major **global farming systems** are the following:

- Rainfed agriculture centred on millet and sorghum, in combination with livestock raising, in the Sahel and northern Sudanian zones;
- Pastoralism (extensive raising of camel, cattle, sheep and goats) in the Sahel and pre-desert zones in the north;
- Rainfed agriculture centred on sorghum, maize and rainfed rice, in combination with semi-intensive livestock raising and the cultivation of cash crops like cotton, peanuts and fruits in the Sudanian and Guinean zones;
- Rainfed agriculture centred on maize, plantains, tubers and roots, in addition to cash crops like cacao and coffee in bimodal rainfall regime of the Gulf of Guinea coastal areas;
- Flood recession agriculture, along major rivers traversing the Sahel;
- Irrigated agriculture in the major landscaped waterbeds along the floodplains of large rivers, to grow rice and sugar cane;
- Irrigated agriculture for vegetable gardening, fruit farming and floriculture.

In the subregion's main agricultural ecosystems, most of the economy and the population depend on semi-subsistence farming. More than half of the rural population depends directly on local crops. A population boom has generated the need to increase agricultural production. This increase has been achieved largely by extending the amount of cultivated land and by growing crops on marginal lands subject to erosion, instead of by way of improving the production potential of pre-existing farmland. The effect of this tendency has been further environmental degradation caused by erosion and the depletion of nutrients in the soil, leading to a decline in the fertility of the land[18].

Soils have also become less productive because lands are being left fallow for shorter periods of time. Another risk factor in the West African agricultural sector is rainfall, an essential element in agricultural production. Precipitation levels can vary considerably and are rather unpredictable in the semi-arid and sub-humid parts of West Africa and the Sahel, which influence productivity. Agricultural practices to respond to these climate risks have been adopted, as only a limited portion of the subregion is covered by irrigation.

Alongside cereal production, **livestock raising** plays an important role in Sahelian countries, contributing around 10 to 15 percent of the GDP of each country (Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal). The income earned from livestock is often the primary source of monetary income for rural households in the Sahel[19], and the products derived from cattle (meat and milk) are also an important source of protein. It is estimated that between 70 and 90 percent of livestock raising is transhumant, a mode of production that is very well suited to many ecosystems in the Sahel and Sahara. Transhumant pastoralism gives rise to a wide range of activities that help reduce the vulnerability of the disadvantaged in the subregion, including trade and the exchange of knowledge and skills in breeding, farming, craftsmanship, as well as seasonal manual labour. In recent years, however, nomad livestock farmers have changed their routes and routines to adapt to climate change, as well as to deal with growing pressure from the expanding use of land for food crops, which have altered the quantity

18 Agricultural Systems. 2007. *Soil organic carbon dynamics, functions and management in West African agro-ecosystems.* 94 (1):13-25.
19 OECD. 2006. *The fragile ecological zone of the Sahel.* Regional Atlas of West Africa. Paris.

and quality of their pastures. The centre of gravity for livestock raising has thus shifted southward from the Sahelian countries into the northern parts of the coastal West African countries. These changes could lead to considerable conflicts, whether because of agricultural colonization of plains traditionally used as pastureland, transhumance in areas where crops are cultivated, or management of natural resources like water. These are subregional issues in numerous cases[20].

One specific aspect of the Sahel is **agropastoralism**, i.e. the combination of agriculture and livestock raising on the same farmland. This new form of resource exploitation is a result of a strategy farmers and livestock holders have adopted to limit climate risks: livestock holders reduce the amount of grain they need to purchase during lean seasons, while farmers' investments in livestock help them diversify and capitalize on their sources of income[21]. Within the agropastoral system, the dominant food crops are millet in the north and sorghum in the south.

West Africa and the Sahel also has about 107 million hectares of forests. **Forest ecosystems** supply numerous non-wood products, including food, fodder, firewood, medicinal plants and building materials, crucial for the food and nutrition security, rural livelihoods and national economies. Consumption of bushmeat is high, and it includes birds and their eggs, insects, rodents and mammals; they supply an important dietary source of protein for people living in proximity to forests and fallow lands. Trees are also an important resource, providing food (e.g. acacia) for livestock in the dry season and a source of income (e.g. the shea tree – FAO estimates 600 000 tonnes of shea nuts are produced per year), especially for women in the subregion. Indeed, approximately 4 to 5 million women are employed in collecting, treating and marketing shea nuts and butter, accounting for about 80 percent of their income. Shea butter is used as a fat in cooking and in skin care products.

20 OCDE. 2008. *Climate and climate change*. Regional Atlas of West Africa. Paris.
21 *ibid.*

From 1990 to 2005, forest cover in the region was estimated to have declined by 1.2 million hectares a year, a much higher rate than the continental average. Forestland is receding owing to the fragmentation of forest cover, especially in the wetlands, as a result of not only extensive agriculture of cash crops like cacao and coffee, but also silviculture (wood-based energy and wood exports), mining, infrastructural developments and forest fires. Harvesting timber for domestic use also has had a growing impact on deforestation: in 2005, 90 percent of forest cover was used for commercial ends and to meet household energy needs[22].

Fishing[23] in West Africa and the Sahel accounts for 5 percent of the subregion's GDP on average. It is a source of money, employment and food for several million people involved in the fishing in the coastal waters and in the interior bodies of water, fish farming, transportation and fishmonger businesses. Fish is not only a source of income, but also provides an important source of protein: over 50 percent of animal protein consumed in the Gambia, Ghana and Sierra Leone come from fish. Over the last two decades, small-scale fishing has developed extraordinarily, reaching the current 90 percent of total fishing production in the subregion. In Mauritania, for instance, small-scale fishing provides 80 percent of the country's jobs.

The fishing and aquaculture sectors have been affected equally by environmental and demographic changes that have occurred in recent years. Climate changes and variability have altered fish supplies, while a twofold population growth in the span of one generation has sharply increased the demand for fish and fishing products. In addition, many species have been overfished, often as a result of concessions granted to foreign fishers, in both coastal waters and interior bodies of water. Also, especially in interior freshwaters, pollution and environmental degradation have altered fish supplies. The majority of the West African population and fishing industries in most of the member countries of the subregional fishing Commission are concentrated in coastal areas. This has

22 OECD. 2007. *Rural environment and agricultural changes.* Regional Atlas of West Africa. Paris.
23 In this document, 'fishing' comprises both sea and continental (lake and river) fishing.

resulted in domestic and industrial pollution that has had serious environmental consequences. Furthermore, intensive fishing by industrial fleets (which often operate illicit, undeclared and unregulated deep-sea fishing activities), as well as certain fishing techniques, such as bottom-trawling, can destroy the natural habitats of fish (by destroying rock formations and plant life). Some small-scale fishers indicate bottom-trawling as one of the causes of the decrease in populations of some species, such as groupers, in West Africa.

Guinea-Bissau: Improving rice varieties and production

Rice is the main staple food in Guinea-Bissau. Yet increasing cultivation of cashews has brought national rice production down. At the same time, chronic political instability has weakened the agricultural research system in the country to the point where it is no longer functional. Consequently, over the years local rice varieties have lost their traits; there are no longer true seeds, and yields have dropped very low. FAO thus collaborated with the NGO Africa Rice and, in cooperation with the national agricultural research institute, tested several rice varieties on inland valley bottoms and in developed mangroves. The best performing varieties in the region were selected; a participatory method involving the local farmers was employed for this initiative. The experimental method at the Countuboel and Caboxanque research centres will be replicated in each of the country's ecosystems, so as to allow new varieties to be distributed to the farmers very shortly to replace older, depleted rice seed varieties.

2.2 Gender issues in agriculture

It is essential to place renewed attention on gender analysis and identify gender-differentiated needs and capacities of women and men in order to implement appropriate DRM actions. Women play a fundamental role at all levels of the subregion's food systems. They account for more than 43 percent of the population active in the agricultural sector of the subregion, and over 19 percent of rural heads of household are women[24]. Women are often in charge of tending to small family farms or gardens around the home, and they are equally active in enhancing the value of larger plots of farmland belonging to the household. With the exception of tilling and ploughing, women perform other important tasks in the fields: weeding and harvesting. It is often the children's job to chase away birds from rice fields.

Many women are also active in small-scale or commercial fishing, whether as entrepreneurs or workers in all stages of the fishing process. For example, in the West African coastal countries, "fish-moms" play a leading role, usually managing their own capital and participating directly in coordinating the chain of fish production and sale[25]. Women play a very important part in converting crops into products (peanut butter, peanut oil, red palm oil and shea butter, etc.), and they also raise small ruminants and poultry, which constitute an important source of income during the lean season.

In West Africa and the Sahel, women are more vulnerable than men to natural disasters, insofar as their access to the means of production (notably, to credit, to inputs like seeds, fertilizers and plant protection products, as well as to farming tools and land) is more limited. For example, discrimination based on gender in terms of access to formally recognized property rights, as well as customary land tenure systems, increases women's vulnerability to the impacts of climate-related disasters like drought.

24 FAO, WFP. 2010. *State of Food Insecurity in the World: fighting food insecurity in protracted crisis*. Rome.
25 *ibid.*

In addition, working conditions are also more difficult for women. Poor rural women in West Africa and the Sahel normally work longer hours per day than men under similar circumstances. In Burkina Faso, for example, a man's average working day is 8.5 hours long, while a woman's is 14 hours long. Moreover, women's work is often much more strenuous: among other things, they must carry heavy loads on their heads to markets and collect firewood. A rural poverty assessment conducted by the International Fund for Agricultural Development (IFAD) estimates that women in the subregion devote on average between 1 and 2.5 hours per day to transport. For cultural reasons and owing to poverty, rural women's daily tasks are physically strenuous.

Niger: Improving land tenure rights for women

Women account for 80 percent of the total beneficiaries of FAO's emergency and rehabilitation interventions in Niger, especially those involving off-season activities and the distribution of small ruminants. Particular attention has been placed on female heads of household and mothers of children suffering from malnutrition. Women's access to land and water has been improved through leases of land to women's groups. The land tenure rights of these beneficiaries were secured for periods longer than five years by the decentralized land commissions, which is significant in that women typically do not have property rights or land tenure security. Agricultural inputs including seeds, tools and fertilizers were also supplied to help women cultivate their vegetable gardens. The main outcomes of these efforts are: (1) dietary requirements have been secured for at least two months per household, and the possibility for drying and preserving products over many months has increased, coinciding with the lean season period from June to October; (2) the average income per household generated from market gardening has increased by roughly XOF 30 000 per beneficiary, having deducted self-consumption and other grants; this amount is equal to slightly over 40 percent of the average quarterly income of both poor and destitute households, and 33 percent of a somewhat better endowed household income for the period covering January, February and March; (3) the global rate of acute malnutrition among children decreased from 9.9 percent to 7.3 percent, and the moderate malnutrition rate fell from 9.4 percent to 6.8 percent; and (4) the quality of oil produced by women and the quantity of their incomes have improved as a consequence, while at the same time, their working hours and costs have been reduced thanks to the peanut seeds and oil extraction kits provided to women's groups.

3. Factors of vulnerability to food and nutrition insecurity

Based on the characteristics of the subregion and its agricultural sector, as presented in the previous two chapters, the following factors of vulnerability to food and nutrition insecurity have been identified:

- Structural inequality and poverty:
  - insufficient purchasing power;
  - limited livelihood options;
  - reduced access to resources (gender issue); and
  - low education levels.
- Political instability;
- Strong tendency towards urbanization and rural exodus;
- Dependence on foreign market imports for food supplies;
- Declining household access to food owing to:
  - high food prices;
  - falling cash crop prices; and
  - lack of availability of food in years of low rainfall.
- Insufficient dietary diversity and poor dietary habits;

- Underdevelopment of the agricultural sector:

  - little investment in food crop production;
  - lack of strategic organization in the agricultural line of production;
  - lack of control in the management of forests and investment in sustainable forest management; and
  - lack of support for the development of small- and medium-sized forest businesses.

- The types of agricultural practices (subsistence farming, cash crop and single crop cultivation) and nomadic livestock raising (pastoral zones) as the only sources of livelihood, increasing dependence on markets and vulnerability to natural disasters;

- Deteriorating natural resources (erosion of the land and silt formation, sand bank formation and pollution in bodies of water, low soil fertility, losses of biomass and fauna extinctions).

- Transboundary animal diseases, and plant pests and diseases;

- Natural disasters; and

- Climate change.

4. The DRM approach: challenges in the subregion

With a view to applying the DRM approach to the agriculture sector and to the food and nutrition security situation in West Africa and the Sahel, the following key challenges have been identified:

- **Institutional strengthening and integrating agriculture and food and nutrition security into DRM policies and systems:** Agriculture and food and nutrition security are not yet sufficiently considered or included in DRM national and subregional policies. Similarly, DRM systems and practices are not yet completely integrated in agricultural policies and food and nutrition security policies. For this reason, strengthening the capacities of subregional and national institutions involved in DRM must be promoted. Participation of authorities – especially at the local level – in planning interventions to prepare for, mitigate and respond to crises, as well as activities for rehabilitation and for the transition to development, must also be enhanced. In addition, it would be appropriate to encourage the development of legislation on DRM, in order to take the dimension of food and nutrition security into account and to implement coordination and liaison mechanisms for the parties involved.

- **Analysis of risks and vulnerability:** The absence of or limited access to detailed, reliable and updated data (on food security, nutrition, vulnerability, markets, ways of life of different livelihood groups, standard mechanisms used to adapt to shocks, seed systems, land tenure systems and animal health) remains a challenge in many of the countries in the subregion. Moreover, data are not always based on gender analysis. This deficit of pertinent data hinders the correct analysis of the situation on the ground and makes it difficult to develop risk and vulnerability maps. It also impedes the process of devising timely, targeted and effective responses and makes it difficult to predict the level of demand for food and to ensure an appropriate food supply. In addition, despite the willingness of the regional bodies to harmonize, different data collection

methods used prevent comparisons between different zones within a country, between countries and between different periods of time. Adoption of common data collection and analysis methods would facilitate a better understanding of problems and preparations of coordinated and consistent emergency response interventions. Also, the exchange of information among sectoral ministries is not systematic, which causes considerable delays in the publication and distribution of the results of key surveys. Furthermore, assigning data collection and reporting responsibilities are often left out of the policy-making process[26]. On the other hand, at a regional level, the Regional Programme for the Prevention and Management of Food Crises in West Africa (PREGEC) allows information sharing about the food situation, both current and projected, and about response interventions that have been undertaken. It is therefore necessary to strengthen these already functioning information systems, consolidate the capacities of national bodies involved and conduct standard studies to improve understanding of the risks and vulnerabilities in the subregion.

- **Early Warning Systems (EWS):** These systems are essential in order to assess, to monitor risks and to warn of a potential crisis. There are national and local initiatives in the subregion, and it is important to broaden them[27]. However, at the national level, wherever EWS exist, they often tend to prioritize analysis of food supplies rather than evaluate food access and utilization based on the livelihoods of the households: this prevents them from being able to identify vulnerabilities and formulate adequate preparation and response plans. At the same time, at the community level, households rarely have access to EWS, including their traditional knowledge systems. Establishing and promoting the use of EWS among national and local

26 CAADP, Pillar III: Framework for food security.

27 **Burkina Faso:** EWS in the country organize five joint annual surveys to monitor the food and nutrition situation with all partners involved (three of the surveys are for the winter campaign - installation, mid-point and end of campaign - while the other two are to determine areas at risk of food insecurity in February and in May). In addition, all actors involved in food and nutritional security now hold a monthly meeting as a platform for dialogue and information sharing.
Mauritania: Following locust oubreaks in 2003 and 2004, surveillance devices were strengthened, allowing regular information gathering by 2010; propagation risk assessments and implementation of effective operations starting in September 2010, which have also prevented further upsurge to other countries in the subregion.
Niger: The country's EWS collects food availability and accessibility data twice a year, helping the government and the international community react in 2010 to the food, nutritional and pastoral crisis that raged in 2010. Additionally, community-based EWS and emergency response initiatives have been promoted (SAP, CARE, etc.).

stakeholders, as well as strengthening capacities, remain a priority to ensure that reliable, quality data are available, so as to perform analysis and make decisions. It would be equally beneficial to enhance the implementation and use of EWS that take the various food and nutrition security threats into account, such as floods, transboundary animal diseases and plant pests and diseases – including diseases of fish and rodents.

- **Best practices in risk prevention and mitigation systematically identified and circulated:** In order to protect agriculture-based livelihoods and food and nutrition security, it is essential to reduce underlying risks and strengthen the resilience of farmers, livestock livestock holders, fishers and foresters. The negative impact of natural disasters and other threats to food security and nutrition can be effectively mitigated or even prevented by applying appropriate agricultural technology and methods, such as selecting crop varieties that are resistant to droughts and flooding, diversifying the crops, raising animals that are resistant to diseases, stocking fodder, as well as managing natural resources and using ecosystems sustainably. The subregion has the expertise and the know-how and also possesses the technologies and best practices. Yet in some cases, these technologies and their different applications are not well documented, or information on the subject is dispersed. Knowledge of some of the best performing technologies remains limited, which slows down their use and development in practice. Some technologies and practices, better known in some countries than in others, could easily be adopted and used subsequently by other countries in the subregion. This would encourage the use of proven technologies, while benefitting vulnerable communities and small farmers.

- **Preparedness for emergencies:** Establishing, developing and improving measures and mechanisms to prevent risks, analyse and monitor the agricultural situation and food and nutrition security are essential to improving the level of preparedness for emergencies and, in doing so, to ensure effective response to food and agricultural threats and reduce the negative impact of these events on food and nutrition security and on the affected populations' livelihoods. Preparedness capacities to deal with the extensive, frequent crises that hit West Africa and the Sahel are still weak on both governmental and community levels. It is therefore necessary to strengthen these capacities through specific preparatory activities, such as contingency plans and standard operating procedures, establishing efficient systems of coordination between different stakeholders and preparing sector and multi-sector guidelines for emergency aid, so as to ensure that everyone will be ready and able to respond quickly and effectively.

- **Coordination:** Concerted and more effective actions from all parties involved in food and nutrition security are fundamental. In emergency interventions, national governments are not always in a position to take the initiative or determine the modalities and areas of intervention. International agencies often encounter difficulties in translating their support into concrete action on the ground. NGOs generally operate in specific locations and are thus limited in their ability to serve as focal points for large-scale coordination, logistics and information management. As such, it is important to strengthen the following:

  - Information management: improve the exchange of information between the parties involved before, during and after a crisis;
  - Logistics: have the resources and supplies needed (for example, through seed multiplication

programmes[28], fodder and tools at community level) and be able to mobilize those resources; use standard operating procedures to improve communication and operational effectiveness of response interventions; guarantee access to certain areas (where there may be security problems);

- Coordinated approach between sectors: to ensure global and concerted actions, it is necessary to strengthen the coordination of interventions with other sectors (e.g. health, nutrition, WASH and local development projects) that are related to food security;
- Food security clusters: establish, reinforce and operate on subregional and national levels.

- **Integration of food security and nutrition:** The causes of malnutrition are complex, cross-sectorial and inter-dependent. These illustrate vulnerability of individuals to food and sanitary insecurity. Malnutrition affects first and foremost poor and disadvantaged families whose members cannot produce or obtain an adequate amount of food[29] and tend to have poor nutritional education. Acute malnutrition is generally a sudden phenomenon that arises when food and sanitary conditions of the populations deteriorate rapidly, which can occur following a disaster. It is therefore necessary to ensure that households benefit from efforts to protect, reinforce and diversify their livelihoods, so as to increase the food availability and access. Such efforts must be combined with nutritional education in order to improve food utilization as well as DRM awareness sessions. A coordinated food security, nutrition and livelihoods approach is crucial to restore and increase food and nutrition security of the most vulnerable households and those seriously afflicted by climatic and socio-economic shocks. An integrated gender-sensitive approach should also be privileged by including husbands[30] and local authorities (in most cases led by men) in nutrition programmes.

  Improving food and nutritional welfare, within a sustainable livelihood-based approach, has two advantages. First, it focuses on the population and stresses the need to strengthen local capacities to prevent food and sanitary shocks as well as to promote nutritional welfare. Second, focusing on improving nutritional well-being facilitates joint efforts from different sectors like health, agriculture and community development. These multi-sector efforts are essential in helping communities deal with long-term risks that threaten their livelihoods and nutritional welfare. This approach should also entail a causal, multi-sector analysis that produces reliable data and correct information needed to establish multi-sector programmes.

- **Improve links between emergency, rehabilitation and development:** Humanitarian interventions and those in response to crises must be completed with longer-term approaches and must consider social security systems. One example is the "twin-track" approach adopted by FAO, IFAD and WFP in emergencies. This approach encourages treating food insecurity and sustainable development issues as immediate priority while helping to improve productivity and resilience. Complementary solutions to traditional interventions need to be researched in order to provide suitable and efficient aid to the populations affected by food and agricultural emergency situations. It is essential to help vulnerable people to earn income, to have access to basic infrastructures, to accumulate goods and to establish sustainable livelihoods, especially for the populations living in the countries suffering from prolonged crisis situations. Support to institutions and communities is therefore essential in dealing with protracted crises.

28 The availability of improved seeds through the programme of seed multiplication supported by FAO has been crucial during the 2010 food crisis in Niger to respond to the needs expressed by the governments.

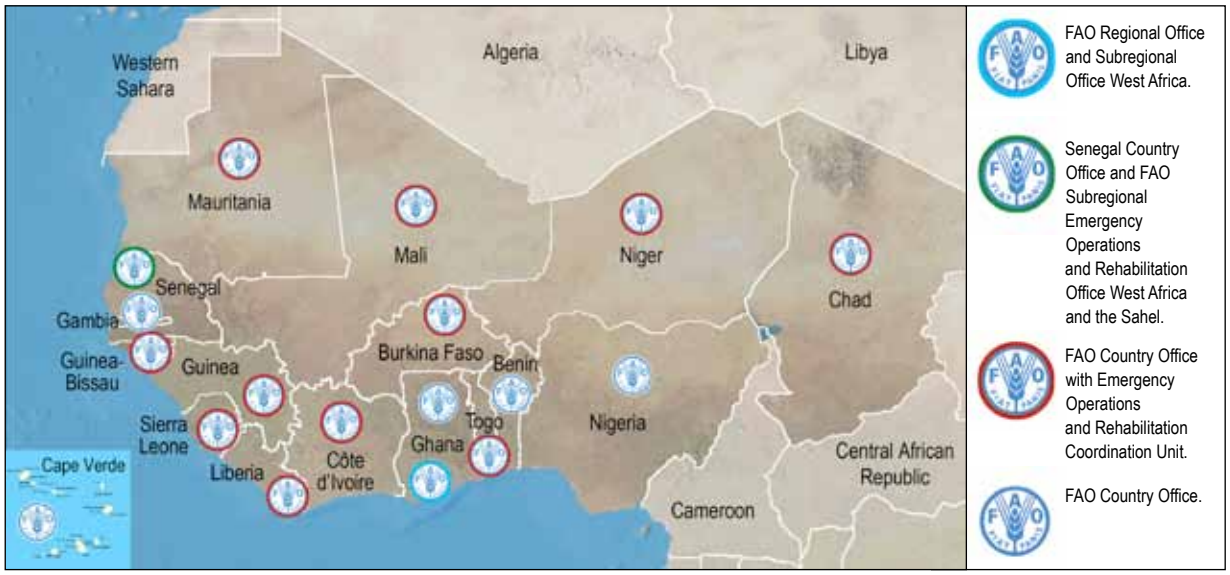
29 The decisive factors in availability and access to food are agricultural production as well as the structure and functioning of food markets, and the strengthening and diversification of the livelihoods.

30 The husband school experience developed by the UN Population Fund could be adopted into farming field school curricula as a transversal topic.

5. FAO in West Africa and the Sahel

FAO is currently present in the entire subregion via its country offices, and its activities are coordinated by the Subregional Office for West Africa located in Accra, Ghana[31]. In some of the countries, the FAO Offices are supported by Emergency Operations and Rehabilitation Coordination Units. FAO's Subregional Emergency Operations and Rehabilitation Office for West Africa and the Sahel was created in August 2006 in Dakar, Senegal, to provide strategic orientation for FAO's emergency and rehabilitation programme on the ground and to act as liaison between the various FAO Offices and the existing humanitarian aid network in the subregion, based in Dakar.

FAO's Emergency and Rehabilitation Units in West Africa and the Sahel



31 Mauritania and Chad are covered by the Subregional Offices located in Tunis and Libreville, respectively.

6. FAO's approach to DRM

FAO envisions a world free of hunger and malnutrition where food and agriculture contribute to improving the living standards of all, especially the poorest, in an economically, socially and environmentally sustainable manner.

Disasters put agriculture and food security at risk and tend to have the most severe consequences on vulnerable and poor agriculturally-dependent people. Food and agriculture sectors can play a key role in increasing the resilience of vulnerable populations to crises and in helping them recover. FAO is the lead specialized agency in the UN system for agriculture and food security. FAO integrates operational capacity in emergencies and crises, with long standing technical expertise and experience in sustainable development. The organization offers technical advice designed to integrate preparedness, prevention, mitigation of risks, emergency response and recovery, and supports the transition from recovery to development, covering all phases of DRM.

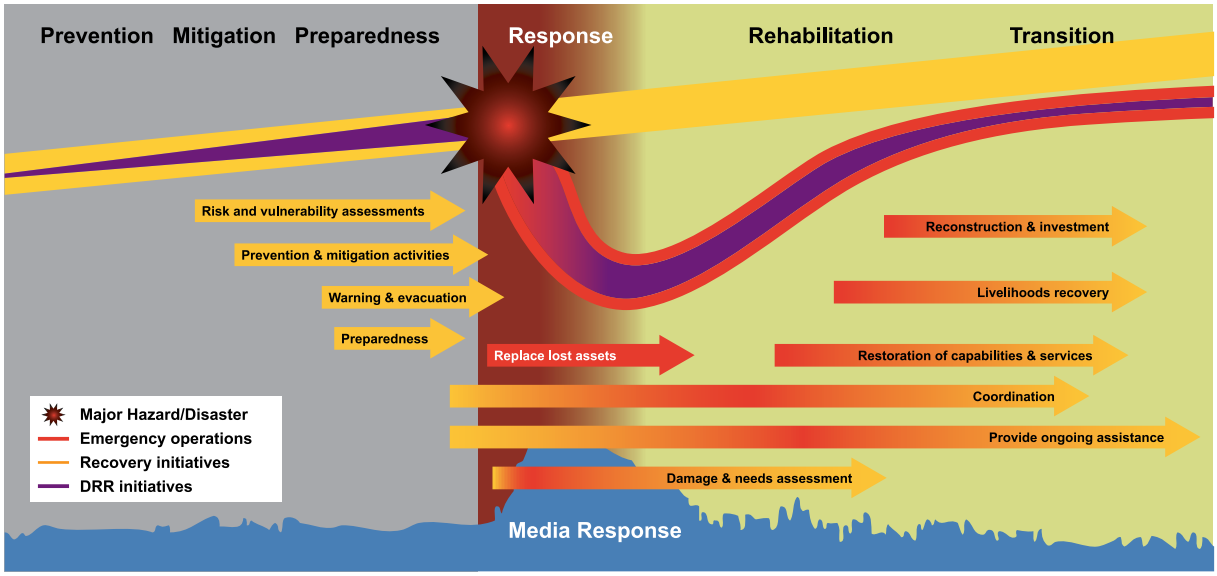
In response to questions raised in the report of an Independent External Evaluation published in 2007, FAO has formulated a new Strategic Framework that covers the ten-year period from 2010 to 2019, as a guide for the organization's medium- and long-term work. Within this Strategic Framework, FAO has assigned the Strategic Objective I (SO I) to DRM: "Improved preparedness for, and effective response to, food and agricultural threats and emergencies". This strategic objective is subdivided into three outcomes, referred to as Organizational Results (OR):

- **OR 1:** Countries vulnerability to crisis, threats and emergencies is reduced through better preparedness and integration of risk prevention and mitigation into policies, programmes and interventions.

- **OR 2:** Countries and partners respond more effectively to crises and emergencies with food and agriculture-related interventions.
- **OR 3:** Countries and partners have improved transition and linkages between emergency, rehabilitation and development.

The DRM Framework is organized in pillars, which distinguish temporally and conceptually the different actions of the DRM cycle: pre-disaster, response and post-disaster. The DRM actions are aimed at strengthening the capacities and resilience of households and communities to protect their lives and livelihoods, through measures to avoid (prevention) or limit (mitigation) adverse effects of hazards and to provide timely and reliable EWS.

FAO's DRM Framework



In its DRM Framework, FAO:

- supports governments and partners in mainstreaming DRM into agriculture and food sectors. Despite its efficacy, a risk reduction strategy cannot eliminate emergency interventions.
- aims to protect and restore the agricultural and rural livelihoods as quickly as possible whenever the coping capacity of communities has been exceeded in the post-disaster period.
- addresses crises and disasters that have an impact on agriculture and on food and nutrition security: natural disasters, transboundary animal diseases, and plant pests and diseases, economic and social emergencies (including high food prices and HIV/AIDS), complex emergencies and protracted crises.

FAO in emergencies is committed to key humanitarian principles of humanity, impartiality, independence and neutrality. FAO has identified six guiding principles that underpin the Organization's work in DRM, to:

1. work in a participatory, people-centered, process-oriented way;
2. build on what already exists (e.g. traditional, local knowledge, already available training materials and successfully tested methods and capacities of existing institutions and organizations);

3. ensure complementarity of actions and links with other actors, including government, other UN agencies, donors, NGOs, civil society organizations and the private sector;

4. focus on capacity development of communities and all levels of government and institutions to support replication processes and scaling up/sideways;

5. focus on gender equality through gender-sensitive needs assessments and targeted efforts in response to gender issues; and

6. promote "do no harm" and "rights-based" approaches.

In line with the United Nations International Strategy for Disaster Reduction (UNISDR)[32], FAO participates in the UN system's coordination mechanisms for disaster risk reduction. FAO's work on disaster risk reduction contributes to the Hyogo Framework for Action 2005–2015. The World Conference on Disaster Reduction, held from 18 to 22 January 2005 in Kobe, Hyogo, Japan, adopted this Framework for Action for 2005 to 2015, to build the resilience of nations and communities to disasters. A unique occasion to promote strategic and systematic approaches to reducing vulnerabilities and risks to hazards, the Conference underlined the need to build nations and communities that are resilient to disasters and made evident the ways in which this can be accomplished.

In this context, FAO has developed a Programme Framework for DRM, which primarily focuses on disaster preparedness, prevention and mitigation. This Framework provides an interdisciplinary and multi-sectorial approach combining agriculture, livestock, fisheries, forestry and natural resource management sectors, to respond faster and better to the needs of smallholder farmers and to the complex factors that constitute disaster risks in rural areas.

In addition, the Programme Framework adopts an ecosystem perspective and livelihood approach that take into account integrated management of resources, such as the land and water, with a view to promote conservation and sustainable, equitable use of natural resources and ensure sustainable livelihoods. The Programme is based on four pillars: 1) institutional strengthening and good governance; 2) information and EWS on food and nutrition security risks; 3) preparedness for effective interventions; and 4) prevention and mitigation with technologies and agricultural practices. Each of these pillars has a specific objective and contributes directly to one of the priorities of the Hyogo Framework for Action.

32 UNISDR was ratified in 2000 by the UN Member States following the International Decade of Natural Disaster Prevention (1990–1999). This international strategy aims to significantly reduce losses owing to disasters and to bring about an era in which communities and nations are resilient to disasters, a condition considered essential to sustainable development.

7. FAO's tools and guidelines

In the DRM, since 1970, FAO has developed tools and guidelines and has strengthened EWS to improve its capacity to prevent and respond to agricultural threats and emergencies[33].

The main systems and tools are listed below:

GIEWS – Global Information and Early Warning System on Food and Agriculture

GIEWS provides country briefs with up-to-date information on the food security situation. The country briefs, issued four times a year, include information on the ongoing agricultural season, on the harvest prospects for main staple food crops and on livestock situation. In addition, the briefs provide estimates and forecasts of cereal production and imports together with latest developments of food prices and policies.

EMPRES – Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases

The mission of EMPRES is to promote the effective containment and control of the most serious epidemic pests and diseases and food safety threats through international cooperation involving early warning, early response, enabling research and coordination.

One of EMPRES' objectives is therefore to address prevention and early warning across the entire food chain:

- ***EMPRES Animal Health:*** Global Early Warning System for Animal Diseases including Zoonoses (GLEWS). GLEWS is a joint initiative of FAO, the World Organisation for Animal Health (OIE) and the World Health

33 The information covering the technical fields in which FAO is involved was taken from the relevant sites.

Organization (WHO) that synergistically builds on combining and coordinating the alert and response mechanisms of the three organizations. Through sharing of information on animal disease outbreaks and epidemiological analysis, the GLEWS initiative aims at improving global early warning as well as transparency among countries. The response component of the GLEWS will be complementing the existing response systems of FAO, OIE and WHO in order to deliver rapid coordinated international response to animal disease emergencies.

- ***EMPRES Plant Protection:*** Emergency Centre for Locust Operations (ECLO)
  Emergency assistance to countries facing desert locust outbreaks is coordinated by ECLO. The centre continually monitors the locust situation and sets priorities for assistance based on information provided daily by the National Locust Control Units and Plant Protection Services in the affected countries, supplemented by reports and the advice from FAO personnel in the field. ECLO works closely with the FAO Commission for Controlling the Desert Locust in the Western Region, which is responsible for coordination of locust control activities in nine front-line countries of the region.

- ***EMPRES Food Safety:***
  The main tasks of this programme are to identify the sources of potential and imminent threats to human health associated with the safety and wholesomeness of food supply and assess the likelihood of such threats occurring and their consequences, as well as to ensure that these risks are controlled.

IPC – Integrated Food Security Phase Classification

The IPC is a standardized tool used to describe the severity of the food and nutrition security situation. Based on quantitative and qualitative evidence, the IPC classifies the severity of the food security situations at the national and subnational levels and allows for a regional comparability analysis. Developed in 2004 in Somalia and then extended to other regions of Africa, the IPC tool and approach have been designed and implemented by an informal group of specialized organizations to analyse food security (FAO, WFP, CARE International, Oxfam, Save the Children [US and UK], the Famine Early Warning Systems Network [FEWS NET[34]] and the Joint Research Centre of the European Commission). These institutions are also responsible for consistently applying and further developing the IPC worldwide. Specific governance structures (IPC Steering Committee, IPC Coordination Unit and IPC Technical Working Group) that have been setup at a global level to support strategic, technical and institutional development of the IPC.

The IPC's analytical approach and consensual process have raised an interest in West Africa and the Sahel, where for ten years now, CILSS had been developing a harmonized framework for permanent analysis of the current vulnerability, called the Cadre Harmonisé (CH). Over the past three years, FAO has been participating in discussions led by the CH Technical Committee and the CILSS towards further developing the CH and its tools and encouraging its implementation in West Africa and the Sahel. Certain elements of the IPC have been integrated into the CH, and a methodological note was produced.

34 FEWS NET is a network of EWS funded by the United States Agency for International Development, which works with international, regional and national partners to provide appropriate information and accurate early warnings as to vulnerability in food security trends.

To respond better to agricultural emergencies, FAO has also, developed a series of guidelines for emergency and rehabilitation operations in collaboration with its partners:

- FAO Cluster Coordination Guidance;
- Global Nutrition Cluster Toolkit for Nutrition in Emergencies;
- Assessment and Programme Formulation Guidelines for Agriculture Emergencies;
- Guide for Beneficiary Results Assessment of Agricultural Emergency Interventions;
- Livelihoods Assessment Toolkit[35];
- Guidelines for Crop and Food Supply Assessment Missions;
- Protecting and Promoting Good Nutrition in Crisis and Recovery;
- Livestock Emergency Guidelines and Standards[36];
- FAO Guidelines on the Use of Pesticide;
- FAO Guidelines on Fertilizers and their Use;
- Mineral Fertilizer Specifications;
- Guidelines for DRM Systems Analysis;
- Climate and Flood Forecast Applications in Agriculture[37].

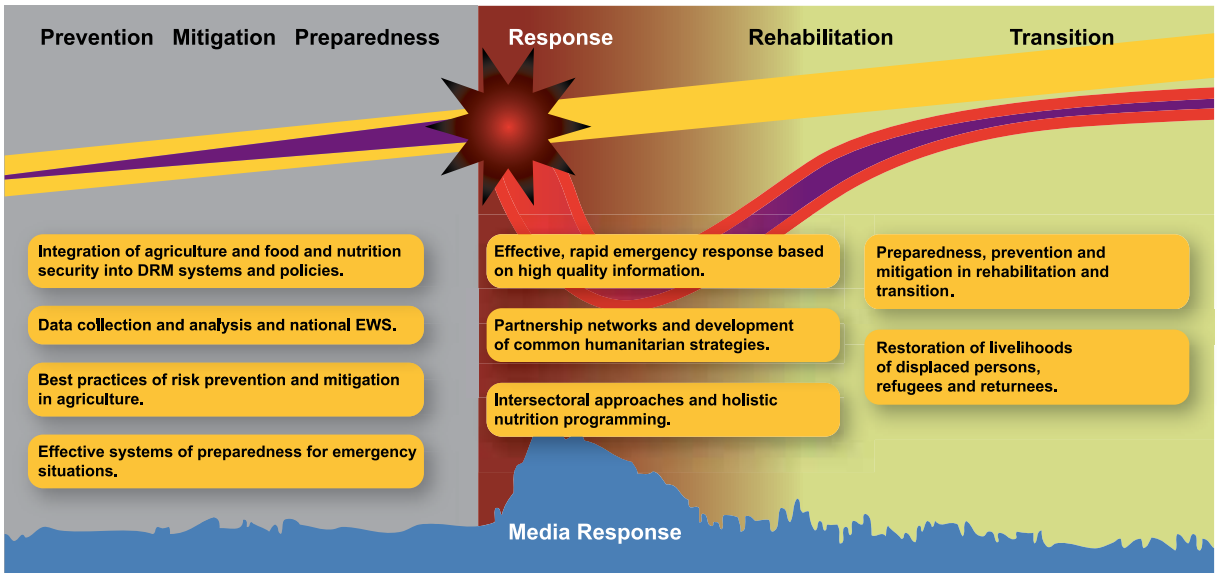
FAO has also drafted guidelines on gender issues in emergency and rehabilitation programmes:

- Guidelines on Gender-based Violence Interventions in Humanitarian Settings;
- Passport to Mainstreaming a Gender Perspective in Emergency Programmes[38], consisting of key questions to be asked in emergencies for data collection to help guide the design of emergency interventions so that they will be sensitive to gender differences;
- Socio-economic and Gender Analysis for Emergency and Rehabilitation[39].

35 In partnership with the International Labour Organization.
36 In collaboration with several partners.
37 In collaboration with several partners.
38 In partnership with WFP.
39 In partnership with WFP.

8. FAO's priority DRM actions in West Africa and the Sahel

This Strategy proposes a series of priority objectives and activities based on the factors of vulnerability and challenges identified in the subregion. Each objective, including corresponding activities, contributes towards the accomplishment of an organizational result for FAO. To prepare for, prevent and mitigate risks, four objectives have been identified, in line with the four pillars of the DRM programme framework. The objectives for each phase of the DRM cycle are illustrated in the graph below:



MATRIX: OBJECTIVES AND PRIORITY ACTIVITIES

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 1 : Countries vulnerability to crisis, threats and emergencies is reduced through better preparedness and integration of risk prevention and mitigation into policies, programmes and interventions.	Institutional strengthening and integration of agriculture and food and nutrition security into DRM policies and systems.	1. Governments and relevant actors are sensitized and engaged for effective consideration and inclusion of the agriculture, food and nutrition security into DRM policies and systems.	1.1 Establish strategic partnerships with relevant DRM actors in West Africa and the Sahel (ECOWAS, the African Centre of Meteorological Application for Development [ACMAD], etc.). 1.2 Advocate for the inclusion of agricultural, food and nutrition security into DRM policies; and advocate introducing DRM mechanisms in agriculture, food security and nutrition policies. 1.3 Provide technical support to the programming and implementation of DRM initiatives at subregional level - particularly to ECOWAS – and to national mechanisms. 1.4 Contribute to the analysis of DRM systems in X countries of the subregion. 1.5 Advocate for addressing nutrition concerns in agricultural policies in order to address global malnutrition. 1.6 Participate in the initiative Renewed Effort Against Child Hunger (REACH[1]), subregional and national levels. 1.7 Organize specific trainings for senior/ mid-level technical officers of local governments/ministerial departments, agricultural and rural development agencies and relevant partners (NGOs and others) working on DRM as well as for extension agents in agriculture, livestock, forestry, fisheries. 1.7a training on institutional analysis of DRM systems; 1.7b Training on community-based DRM and adaptation to climate change; 1.7c Training on Livestock Emergency Guidelines and Standards for relevant stakeholders (community and institutional level).

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 1 : Countries vulnerability to crisis, threats and emergencies is reduced through better preparedness and integration of risk prevention and mitigation into policies, programmes and interventions.	Risk and vulnerability analysis and EWS.	2. Data on food and nutrition security are regularly collected and analysed; technical support to the development and/or strengthening of national EWS is provided.	2.1 Coordinate FAO's participation in joint evaluations (market, agricultural season, food and nutrition security) at subregional and national levels in cooperation with the Ministries of Agriculture, CILSS, FEWS NET, WFP and other UN agencies. 2.2 Participate in the food security and nutrition working group (subregional and national levels) and in the multidisciplinary working group on food security analysis (e.g. IPC, CH or in Côte d'Ivoire, etc.). 2.3 Promote gender-based risk and vulnerability analyses. 2.4 Prepare climatic hazard and risk maps at community level in X pilot countries. 2.5 Develop and/or strengthen national EWS and improve existing methodologies. 2.6 Support subregional and national partners, including CILSS, in the development and implementation of the Cadre Harmonisé (CH) through: – support to the development of the CH in pilot countries (Sahelian/coastal countries); and – continued support to the implementation of IPC in Côte d'Ivoire.
	Best practices in prevention and mitigation systematically identified and disseminated.	3. Countries and partners are aware of best practices in risk prevention and mitigation in agriculture.	3.1 Identify, test and disseminate best practices in risk prevention and mitigation in agriculture in the subregion, such as rock lines, windbreaks, firewalls, hedges, as well as interventions in nutrition and livestock (e.g. destocking operations in Niger in 2011). 3.2 Update FAO databases on best practices in risk prevention and mitigation in agriculture (Technology for Agriculture [TECA] and the World Overview of Conservation Approaches and Technologies [WOCAT]). 3.3 Capitalize and share the results of successful experiences in capacity building in DRM. 3.4 Contribute to the development of DRM training modules tailored to West Africa and the Sahel as well as handbooks for local actors and field agents.

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 1 : Countries vulnerability to crisis, threats and emergencies is reduced through better preparedness and integration of risk prevention and mitigation into policies, programmes and interventions.	Emergency preparedness.	4. Countries and partners have developed and/or improved mechanisms for effective emergency preparedness.	4.1 Chair or actively participate in working groups for emergency preparedness and in coordination meetings at subregional or national level, such as the regional Emergency Preparedness and Response Working Group, the thematic working group of the Inter-Agency Standing Committee on Early Recovery and other ad hoc working groups. 4.2 Provide technical support to the preparation of sectorial and cross-sectorial contingency plans to ensure that agriculture and food security are effectively considered. 4.3 Promote the development, adoption and sharing of standard emergency procedures. 4.4 Map the functioning of seed systems in the countries of the subregion. 4.5 Classify seed varieties per area/country taking into account the preferences of local populations. 4.6 Promote the production of improved short-cycle seeds among producers organizations. 4.7 Prepare crop calendars in countries where these are not yet available and update those already prepared. 4.8 Strengthen measures to control and respond to outbreaks of transboundary animal diseases: – Prepare guidelines on management of and response to outbreaks of transboundary animal diseases; and – Organize simulations of response operations to outbreaks of transboundary animal diseases. 4.9 Improve knowledge capacity of the livestock feed industry in West Africa and the Sahel. 4.10 Establish fodder stocks at community level when this intervention is necessary to supplement response to livestock emergencies. 4.11 Draft and provide instructions on emergency aid in the fishing and aquaculture sector.

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 2 : Countries and partners respond more effectively to crises and emergencies with food and agriculture related interventions.	Coordination in the following sectors: information management, logistics, coordinated approach between sectors, Food Security Clusters.	5. Emergency responses aiming at restoring livelihoods are effective, rapid and based on high quality information.	5.1 Support the agriculture livelihoods, including livestock, forestry and fisheries through the following activities : – access to seeds and other inputs/ farming equipment through direct distribution and/or fairs and/or vouchers distribution; – money transfers, micro-finance; – vegetable gardens; – wider dissemination of principles of micro-fertilization (mineral and organic), especially in the Sahelian context; – livestock interventions: vaccinations, destocking/restocking; – distribution of food concentrates, fodder/water; and – delivery of inputs and tools to fishers (nets, boats, cages). 5.2 Offer technical advice to governments and other relevent stakeholders. 5.3 Develop an efficient and timely system for post-crisis evaluations, taking into account the following issues: – seed systems; – land tenure systems; – animal health; – fishing and aquaculture; and – small forestry businesses.
		6. Sectorial leadership and coordinated response are reinforced through partnerships and development of common humanitarian strategies.	6.1 Support the governments concerned in their role of coordination of emergency responses. 6.2 Actively participate in the UN coordinated response mechanisms: consolidated appeal process (especially in the context analysis for the preparation of sector strategy), flash appeals and other mechanisms. 6.3 Support the activation and functioning of the food security cluster, when needed, in collaboration with governments concerned. 6.4 Ensure a good transition from the clusters engaged in emergency situations to those sectorial groups focusing on transition and development. 6.5 Advocate for and participate in post-crisis assessments and joint projects with governments concerned, other UN agencies and relevant stakeholders. 6.6 Facilitate information exchange between FAO, governments concerned and partners.

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 2 : Countries and partners respond more effectively to crises and emergencies with food and agriculture related interventions.	Integration of food and nutrition security into policies, interventions and multi-sectorial plans.	7. Intersectorial approaches and holistic nutrition programmes are adopted to achieve broader coverage and deeper impact.	7.1 Mainstream nutrition security in FAO emergency response plans and projects through: – nutrition education combined with vegetable gardens; – establishment of small processing units of fortified food; – school gardens; – participatory cooking demonstrations; – dissemination of crops with high nutritious value and underutilized (fonio, Moringa, Ziziphus and cassava leaves); and – increase access to highly nutritious seeds for households with children suffering from malnutrition.

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 3 : Countries and partners have improved transition and linkages between emergency, rehabilitation and development.	Improved linkages between relief, rehabilitation and development.	8. Preparedness, prevention and mitigation measures are integrated in rehabilitation, transition and development interventions.	8.1 Contribute to the programming and identification of priority agricultural interventions in national transition plans. 8.2 Support trainings in vegetable production techniques and in marketing of agricultural and dairy products. 8.3 Promote warrantage schemes: – traditional: to increase access to inputs, to stock during the lean season and to improve incomes; and – social: mechanism of early recovery in connection with the distribution of inputs to the most vulnerable in times of crisis. 8.4 Support the introduction of a training component on agricultural technologies and practices for risk prevention and mitigation and adaptation to climate change in the Farmer Field Schools[2]. 8.5 Promote seed multiplication at community level and introduction of new seed varieties (short-term cycle varieties resistent to climate change). 8.6 Promote agro-forestry practices (e.g. apple-ring acacia) and the integration of specific forestry sector actions into national rehabilitation plans. 8.7 Prepare risk reduction and climate change adaptation plans specific to the fisheries and forestry sectors. 8.8 Provide training in conflict resolution related to natural resource management (grazing vs. arable land). 8.9 Promote interventions to improve water management through: – development and/or rehabilitation of hydro-agricultural infrastructure, development of garden wells, provision of equipment, pumps, promotion of drip irrigation, monitoring and technical trainings; – rehabilitation of lowland (gardening, irrigated fodder, etc.) through the establishment of micro-dams, shallow wells, boreholes, pumps, water distribution networks and training on irrigation practices and gardening techniques; and – rehabilitation of water points to improve livestock access to water.

ORGANIZATIONAL RESULTS	PROBLEMS / CHALLENGES	OBJECTIVES	ACTIVITIES
OR 3 : Countries and partners have improved transition and linkages between emergency, rehabilitation and development.	Improved linkages between relief, rehabilitation and development.	8. Preparedness, prevention and mitigation measures are integrated in rehabilitation, transition and development interventions.	8.10 Facilitate the association of rural communities around activities as seeds production, commercialization and transformation of agricultural products through advocacy and training in cooperative management. 8.11 Provide training to animal health community workers and support programmes for immunization and protection of cattle from epizootic diseases.
		9. The livelihoods of displaced populations and/or refugees and/or returnees are restored in the aftermath of a conflict and/or natural disasters.	9.1 The production capacity of displaced populations, refugees and returnees is restored and strengthened through activities supporting their livelihoods as well as those of host communities: – facilitation of local agreements to promote access to land for returnees and/or resettled populations; – strengthening the capacities of returnees and/or resettled populations and host communities in managing natural resources; and – participation in environmental restoration of sites housing displaced populations.

TABLE FOOTNOTES:

1. The Renewed Effort Against Child Hunger (REACH) is a partnership initiative aiming to eliminate hunger and malnutrition in children.
2. Apprenticeship aims to improve cultivation methods and relies on the observation, analysis and experimentation of new ideas from group members in their own fields. The farmer field school approach is based on the population-focused apprenticeship concept and principle. Schools schedule weekly meetings with farmers throughout the production cycle, from planting to harvesting, to track progress in crop growth, measure the level of soil humidity, identify hazardous creatures as well as beneficial ones (e.g. earthworms and spiders) and conduct field experiments. Field school trainers are usually extension workers or farmers that have acquired experience in another farmer field school.

9. Partners

This strategy will be implemented in coordination and in partnership with the main actors in the subregion involved in the areas of agriculture, food and nutrition and DRM; these include subregional institutions and organizations, governments, agencies of the UN system, NGOs, professional agricultural organizations and farmers' groups, donors and other relevant stakeholders.

FAO works in conjunction with a number of subregional West African institutions to address issues related to agriculture and food and nutrition security. These institutions include CILSS, which groups nine countries in the subregion (Burkina Faso, Cape Verde, Chad, the Gambia, Guinea-Bissau, Mali, Mauritania, Niger and Senegal) and whose mandate is to invest in research for food security and to combat the effects of drought and desertification in order to have a new ecological equilibrium in the Sahel. In emergencies, FAO collaborates with the Humanitarian and Social Affairs Department of ECOWAS, which is in charge of organizing and coordinating humanitarian response to crises, conflicts and disasters.

At a national level, FAO regularly cooperates with the ministries of agriculture, environment, commerce and health, as well as with other ministries according to the type of intervention. Other institutions also play a key role in DRM, such as national civil protection departements, the Executive Secretariats of the National Council on Food Security/EWS and national farmers' associations.

FAO has also established solid partnerships on a subregional and national level with numerous other UN agencies, most notably WFP, the United Nations Children's Fund (UNICEF), WHO, OCHA, UNDP and UNHCR, as well as with the World Bank, other international and national NGOs, IFRC, FEWS NET and the Network of Farmers and Agricultural Producers Organizations of West Africa (ROPPA).

In addition, at the subregional level, FAO participates in humanitarian coordination groups, such as the subregional Humanitarian Coordination Group, and in information sharing meetings organized by the UN Office for West Africa[40]. FAO is also a member of numerous working groups and subregional and national initiatives that bring together governmental institutions, UN agencies, NGOs, donors and other stakeholders; these groups serve as a forum to exchange information, analyse food and nutritional situation and coordinate preparedness for and responses to crises.

Among these groups are the subregional Food Security and Nutrition Working Group, the subregional Emergency Preparedness and Response Working Group, the subregional Nutrition Working Group, the Renewed Effort Against Child Hunger (REACH) initiative, regional food crises prevention and management mechanisms (the PREGEC project of CILSS and the Food Crisis Prevention Network of the Organisation for Economic Cooperation and Development), joint evaluation missions (led by CILSS, FEWS NET, FAO, WFP and the governments involved) of food security, agricultural markets and agricultural production.

40 The UN Office for West Africa was founded by the Secretary General in 2002 as a regional peacebuilding office, with the mendate of improving the UN's contribution to achieving peace and security in West Africa.

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INTERNET

CILSS - www.cilss.bf

ECOWAS - www.ecowas.int

FAO - www.fao.org

FAO and emergencies - www.fao.org/emergencies

FAO and emergencies in West Africa - www.fao.org/emergencies/country_information/list/regional/westafricasahel/en

FEWSNET - www.fews.net

IFAD - www.ifad.org

IFRC - www.ifrc.org

International Conservation - www.conservation.org

OECD - www.oecd.org

OCHA - www.unocha.org

UNFCCC - www.unfccc.int

RPCA - www.food-security.net

ROPPA - www.roppa.info

TECA - www.teca.fao.org

UNICEF - www.unicef.org

UNISDR - www.unisdr.org

UNOWA - www.unowa.unmissions.org

WFP - www.wfp.org

WMO - www.wmo.int

WOCAT - www.fao.org/ag/agl/agll/wocat/default.stm

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Climate Change

(a) The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forces, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".

(b) The United Nations Framework Convention on Climate Change (UNFCCC) defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods".

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impact, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster Risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster Risk Management

The systematic process of using administrative directives, organizations and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster Risk Reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events.

Early Warning System

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organizations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Hazard

A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption or environmental damage.

Prevention

Set of activities carried out to avoid adverse impacts of climactic hazards and to minimize the associated environmental, technological and biological disasters.

Recovery

The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors.

Resilience

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, including the preservation and restoration of its essential basic structures and functions.

Risk

The combination of the probability of an event and its negative consequences.

United Nations International Strategy for Disaster Reduction

The UNISDR has prepared a compilation of key terms on disaster risk prevention to promote a common understanding on the subject of disaster risk reduction.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

Improved preparedness for, and effective response to,
food and agricultural threats and emergencies

www.fao.org/emergencies