Drought and Vulnerability – A review of context, capacity and appropriate interventions with respect to drought and the problem of acute malnutrition in the Sahel Region of West Africa

Concept Paper

Final Version
February 2007

Date of review: **July to October 2006**
Names of evaluators: **Lene Poulsen, Team Leader**
Marcus Michael, Health/Nutrition Specialist
Nigel Pearson, Health/Humanitarian Aid Specialist

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Prepared by:

Cardno Agrisystems Limited – Lead Member of Agrisystems Consortium

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ABBREVIATIONS

CILSS	Permanent Interstate Committee for Drought Control in the Sahel
DANIDA	Danish International Development Agency
DFID	Department for International Development
DG	Directorate General
DHS	Demographic Health Survey
ECHO	European Commission's Directorate General for Humanitarian Aid
ECOWAS	Economic Organization of West African States
EWS	Early Warning System
FAO	Food and Agricultural Organization
FEWS-NET	Famine Early Warning Systems Network
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
GHD	Good Humanitarian Donorship
GTZ	German Technical Cooperation
IFPRI	International Food Production Research Institute
MICS	Multiple Indicator Cluster Survey
MSF	Médecins Sans Frontières
OCHA	United Nations Office for the Coordination of Humanitarian Assistance
ODI	Overseas Development Institute
PRRO	Protracted Relief and Recovery Operation
RSO	Regional Support Office

SIDA	Swedish International Development Assistance
UNDP	United Nations Development Programme
UNICEF	United Nations Fund for Children
USAID	United States Agency for International Development
VAM	Vulnerability Assessments and Mappings
WFP	World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organisation

1. BACKGROUND AND APPROACH

1.1 Background

In response to concerns about continued high levels of vulnerability in the population and the risk of severe and prolonged droughts in the Sahel Region of West Africa, DG ECHO launched an ex-ante study to review the situation. Drawing on the positive initial assessments of the Improved Drought Management Initiative in the Greater Horn of Africa[1], the study was specifically designed to facilitate the design of a new strategy for DG ECHO for possible operations in the Sahel region. After a tender procedure, DG ECHO contracted Cardno Agrisystems Ltd. to carry out the assignment based on a set of specific Terms of Reference for a study into "Drought and Vulnerability in the Sahel Region of West Africa – A review of the context, capacities, and appropriate interventions with respect to drought, with a particular attention to the problem of acute malnutrition" (ECHO/ADM/BUD/2006/01205).

The output of the assignment was defined as a Concept Paper to provide basic input for DG ECHO's future strategy in the Sahel and a set of Operational Guidelines to assist DG ECHO in developing a strategy to reduce acute malnutrition, to promote food security and to support drought risk management in the Sahel region in West Africa.

To undertake this regional assessment and prepare the Concept Paper and the Operational Guidelines Cardno Agrisystems assembled a Team in agreement with DG ECHO consisting of a Team leader (Lene Poulsen), a health expert (Marcus Michael), a health expert (Nigel Pearson), a drought expert (Papa Mawade Wade) and an administrator/ logistical support expert (Michael Gutteridge).

1.2 Focus

After initial consultations with DG ECHO in Brussels and the DG ECHO Regional Support Office (RSO) in Dakar, it became clear that there was a need to refocus the Terms of Reference to highlight the specific conditions in West Africa. Experience from the 2004-2005 crisis in Niger clearly showed that malnutrition and food insecurity are not necessarily a direct result of drought. More precisely, drought is one of many factors that increase the vulnerability of certain sections of the population and might contribute to malnutrition and food insecurity. It was therefore decided that the study should focus not only on drought but also on malnutrition and food insecurity, three prominent factors or stressors linked to the high vulnerability rates in Burkina Faso, Chad, Mali, Mauritania and Niger.

[1] Humanitarian Aid Decision 23 02 01 "Improved Drought Management in the Greater Horn of Africa through support to drought preparedness, risk reduction and early warning."

1.3 Methodology

HOW TO BEST ANALYZE MULTIPLE STRESSORS INTERACTING AT MULTIPLE LEVELS?

Vulnerability refers to an individual's or a group's capacity to anticipate, cope with, resist, and recover from the impact of stressors and shocks; i.e. people's inability to meet their basic needs. Vulnerability is a complex concept integrating a number of other composites including resilience, sensitivity and exposure. For instance, adaptive or coping capacities alone are functions of a range of factors such as wealth, technology, education, information, skills, infrastructure, access to resources and management capabilities. All these factors are again complex and often interacting expressions of other dynamic factors. So while there is a general agreement that "vulnerability" is an extremely useful concept to analyze the needs of certain groups, it is also recognized that vulnerability studies inevitably need to be multifaceted. Consequently vulnerability assessments require high quality data and methodologies. However, the development of reliable and usable analytical frameworks has proved challenging. Thus, in spite of an ever-increasing amount of vulnerability assessments prepared throughout the world, the results can best be seen as relative qualifiers based on subjective assessments.

A recent series of reports on integrating nutritional information in Early Warning Systems (EWSs) highlights the need for promoting an analytical framework that allows a holistic analysis of multiple stressors, including their interactions. The reports have been prepared for various Western Sahel countries, including Mauritania, Niger and Chad and are based on joint assessments carried out by the Permanent Interstate Committee for Drought Control in the Sahel (CILSS) and the French Cooperation[2]. A major conclusion of these reports is that much of the information required for early warning systems, such as cereal production and market prices, has been collected regularly for more than 20 years in most of the CILSS countries. However, the information is not analyzed in a holistic way and there is a general lack of confidence in the data.

The methodology for vulnerability assessments has developed as a combination of an outcome methodology with a process approach (see for instance Adger, 2006[3]). Thus an analysis of the structure and function of the studied units[4], such as livelihoods or household economy analyses, is combined with studies of stressors. Stressors are the driving forces that can cause disruptions or perturbations of livelihoods or communities. However,

[2] The studies were prepared in response to a recommendation of a November 2005 meeting of the CILSS/OECD-SWAC network for the prevention of food crises in the Sahel. Preliminary reports have been presented in the autumn of 2006. For more information see www.cilssnet.org

[3] Adger, Neil (2006) "Vulnerability" pp 268 – 281 in Global Environmental Change 16 (2006), Elsivier Ltd.

[4] As applied for instance in many studies based on a livelihood approach or household economy studies.

stressors do not act in isolation; they interact and intersect in various ways and at various times. This insight has led to the recent development of vulnerability studies based on multi-stressor analyses[5]. It should be noted that although this approach is increasingly being applied for areas suffering from drought and food insecurity, there is as yet no generally accepted, coherent model that describes the statistical relationships and the relative weights of the different stressors in the overall "stress exposure" and further methodological development is needed. Nevertheless the framework for multi-stressor vulnerability assessments has been identified as the most appropriate approach for the present study on drought and vulnerability in the Sahel.

The Team recognizes that detailed vulnerability studies in the Sahel would require proper data gathering and statistical analysis, a task that would go far beyond the scope of this assignment, particularly in view of the general lack of systematic data management related to the different stressors. In fact, the most common observation that the Team came across when interviewing key resource persons for the assessment was that no evidence-based conclusions can be drawn regarding the underlying causes of drought disasters, food insecurity and malnutrition. Moreover, the exact nature of the relationships between the three major stressors remains unknown. We believe that by suggesting the framework of multi-stressor vulnerability assessments and by basing our analysis on some of its general principles, we will help to create a foundation for more comprehensive studies that may be conducted in future. It should also be noted that as stressors refer to any factors – environmental, physical, social, political, etc – that threaten the state of a system there is in principle no limitations to the number of stressors. Consequently, the framework for multi-stressor vulnerability assessments is particularly appropriate for analyzing situations where development and humanitarian concerns overlap – the so-called grey area that is characteristic for the Sahel countries with an unlimited number of stressors affecting the livelihoods and vulnerability of most of the population.

COLLECTION OF INFORMATION

The information used for the multi-stressor vulnerability assessment has been obtained from the following sources:

- Review of publicized and grey literature; and

[5] See for instance the experience from the Southern African Vulnerability Initiative (SAVI). SAVI was launched in 2003 to develop a framework and proposal for longer-term research on the vulnerability of households. The background was the deterioration of the welfare of the region's population as a result of wide range of factors including droughts, AIDS, food insecurity, and infectious diseases. More information at www.savi.sa

- Interviews, brainstorming sessions and workshops with actors intervening in the fields of drought management, food insecurity and malnutrition in the Sahel: DG ECHO, DG DEV/AIDCO, Multinational organizations, Bilateral donor agencies, Government structures, national and international NGOs and Research institutions in Brussels, Dakar, Nouakchott, Bamako, Ouagadougou, Niamey, N'Djamena, Nairobi and Paris.

The visit to the five Sahel countries took place during August and September 2006, coinciding with two poignant reminders of the general state of global development: the release of UN data showing that there are now more obese than under-nourished people in the world; and the Water Week in Stockholm which showed that previous predictions regarding people without access to clear water are too optimistic.

1.4 Layout of the Concept Paper

The Paper proceeds as follows. A brief introduction to the Sahel context will be presented with a focus on the complexity of environmental vulnerability, state fragility and forgotten humanitarian crises. The introduction is followed by a review of the major instances of drought, food insecurity and malnutrition within the region. A brief review of other key stressors is included. The multi-stressor review is followed by an introduction to the challenges and opportunities of Early Warning Systems and a discussion of humanitarian and development actors in the five countries. Conclusions from the multi-stressor review are then outlined. Finally, the paper refers to the policy of Linking Relief, Rehabilitation and Development (LRRD), and the challenges and opportunities for addressing the grey area between humanitarian and development activities.

To provide links with the Operational Guidelines the chapters are accompanied by examples of good practices both for response mechanisms and for the implementation of the two major measures of the Sahel Strategy: Early Warning Systems (EWS) and Linking Relief, Rehabilitation and Development (LRRD). Summaries of lessons learned from responses to drought, food insecurity and malnutrition as well as EWS and LRRD are also provided. The good practices and lessons learned are selected particularly to guide the implementation of the Sahel Strategy.

1.5 Appreciation

The Team would like to offer its sincere thanks to the many, many people who have dedicated their valuable time to us and offered their precious opinion, expertise and experience. The high level of interest in the Study clearly shows the need for new ways to

address the humanitarian-development grey area in the Western Sahel. Many people have been involved, as can be observed from the list of people interviewed which is presented in the annexes. We would also like to thank the so-called beneficiaries in the projects we visited. Unfortunately, we did not get the names of those amazing people who likewise dedicated their extremely valuable time to us – our appreciation is not lessened. This Concept Paper and the Operational Guidelines would not have been possible without the input from each and every one. We believe our findings and conclusions reflect the general opinion regarding the major challenges for addressing issues linked to natural disasters, food insecurity, and malnutrition in the Western Sahel. But we would warmly welcome any additional ideas and corrections.

2. THE WESTERN SAHEL – A FRAGILE AGRO-ECOLOGICAL ZONE

The Sahel is the belt crossing Africa from Cape Verde in the West to Sudan in the East where the annual rainfall is between 250 and 450 mm[6]. The Western Sahel[7] consists of relatively densely populated arid and semi-arid areas along the line connecting the capitals of the Western Sahel countries. It is estimated that more than 85% of the population in Burkina Faso, Chad, Mali, Mauritania and Niger live in the Sahel - or around 44 million people with estimated demographic growth of around 3% annually. CILSS, the Permanent Interstate Committee for Drought Control in the Sahel[8], estimates[9] there will be more than 100 million people in the Sahel region by 2020 and 200 million by 2050, of whom 141 million will live in Burkina Faso, Mali, and Niger. This rapid population increase has long been the main cause of environmental degradation through land claims on more and more marginalized land. Oxfam, for instance, reports that the population density in the fragile pastoral regions in the Northern Sahel was already six times higher than the carrying capacity[10] in the late 1980s[11]. Similarly, in the agricultural regions in the South it is estimated that the number of people exceeds the current carrying capacity by a factor of two. However, it should also be noted that the area has great potential for irrigation development along the Senegal and Niger Rivers, a potential that remains largely unexploited[12]. Moreover, the Sahel region is the zone most vulnerable to drought in West Africa mainly as a result of the unsustainable production models based on natural resources.

6 The isohyets vary somewhat for different authors when describing the Sahel region. Some authors for instance suggest that 150 – 300 mm isohyets correspond to Sahel-Sahara zone, 300 – 600 mm to Sahel, and 600 to 900 to Soudano-Sahel. Other authors define Sahel as the band between 12° et 20° North latitude (see for instance "Les Parcours du Sahel" pp 51 – 71 in Sécheresse 2005 ; 16 (3), Éditions John Libbey Eurotext, Montrouge).

7 For convenience the term Sahel will be used in the following to refer to Western Sahel. When referring to the "the five countries, the following countries are considered: Burkina Faso, Chad, Mali, Mauritania, and Niger.

8 CILSS members are Burkina Faso, Cape Verde, Chad, Gambia, Guinea Bissau, Mali, Mauritania, Niger, and Senegal.

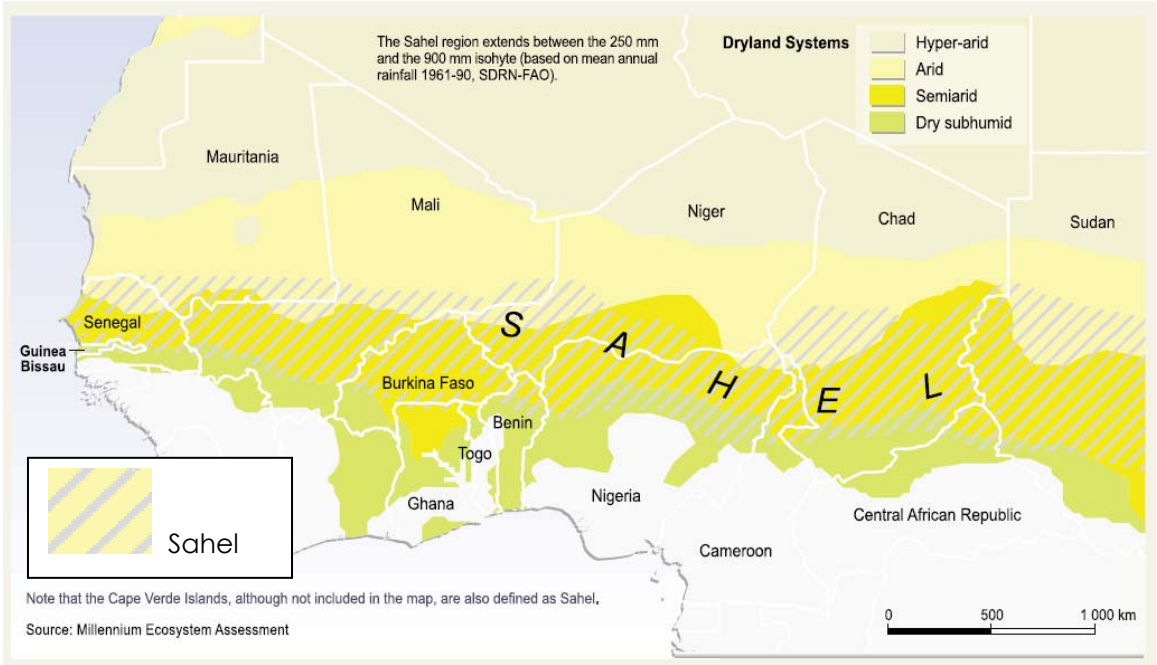
9 Cited in SWAC (2005) "Review of Retrospective and Prospective Studies on West Africa" Sahel and West Africa Club, Paris

10 Carrying capacity is defined as the number of animals per area that will allow sustainability under the practiced production methods.

11 Berton, Helene (2006) "Sécurité Alimentaire au Sahel: Quelles Perspectives ?" Oxfam GB, West Africa Regional Centre, Dakar

12 Irrigated land constitutes less than .05% of the arable land in the region. It should be noted that the transition from rainfed to irrigated culture generally lead to a transition from millet and sorghum to rice and thereby changes in the nutritional levels. As such, millet typically contains more protein and fat than rice but less micronutrients and carbohydrate.

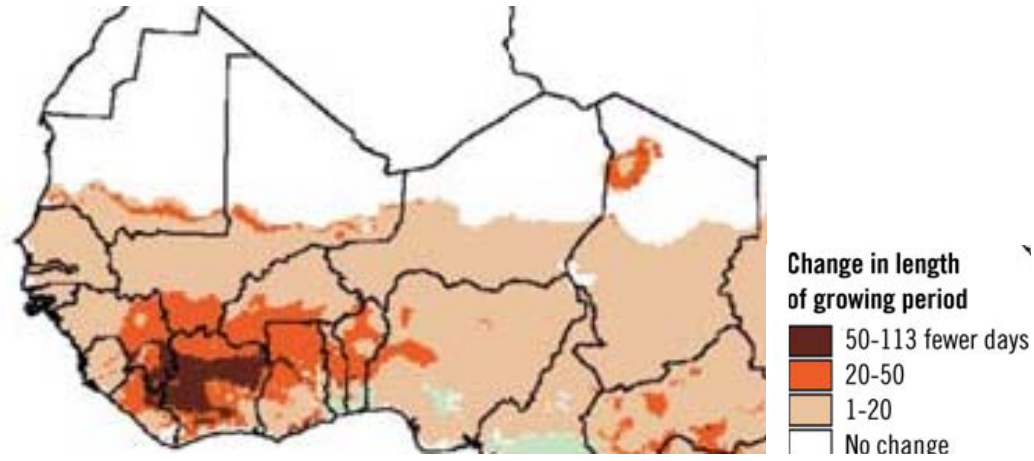
The Western Sahel



Source: Millennium Ecosystem Assessment (2005) "Ecosystems and Human Well-being: Desertification Synthesis" World Resources Institute, Washington DC.

There is general agreement that climate change has resulted in marked reductions in the crop potential over the last few decades. This has happened *inter alia* through reduced and more erratic rainfall leading to shorter cropping seasons and a marked movement of the isohyets toward the south – a pattern that is expected to continue over the coming decades.

Changes in Projected Growing Season in West Africa 2000 – 2050



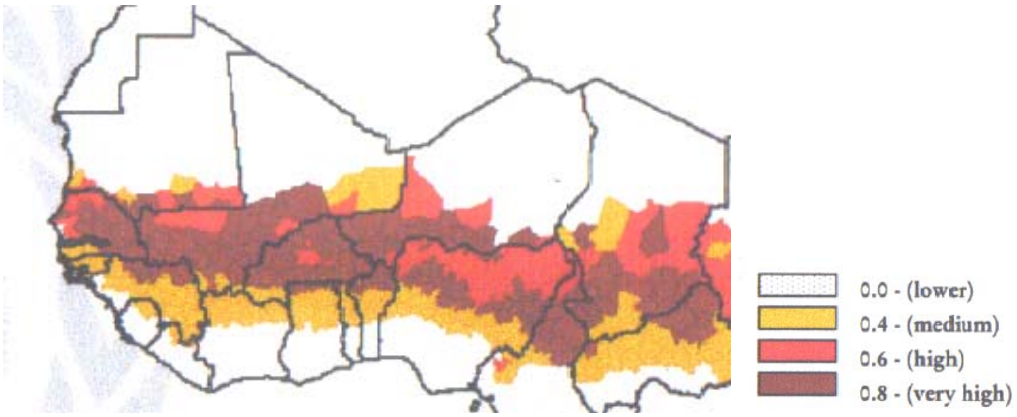
Source: Thornton et al. 2002, Reproduced from WRI (2005) "World Resources 2005: The Wealth of the Poor—Managing Ecosystems to Fight Poverty" World Resources Institute, Washington D.C.

The shorter growing season leads to a number of problems such as an increase in potential conflicts between livestock and crop producers as the seasonal transhumance starts earlier

and earlier, as has been observed over the last decade. Furthermore, the traditional positive symbiosis[13] between farmers and pastoralists, where sedentary groups would welcome the herders by digging wells and facilitate the use of the fields on which they wanted manure, seems to have broken down in many parts of the region as a result of a complex of interacting factors. For example, the use of cow dung as a fertilizer has decreased as it often burns the field when there is a lack of rain and the increased competition for water results in many sedentary groups charging the herders for water[14].

Finally, it should be noted that the special climate and the agro-ecological conditions make the region particularly susceptible to a number of diseases such as malaria and meningitis. In fact, Sahel is referred to as the "belt of the world" for a number of environmental health issues, including the "meningitis belt" and the "Noma[15] belt". Moreover, malaria is widespread throughout the Sahel and considered to be permanent in the South while seasonal in the North.

The Epidemic Meningitis Zone in the Western Sahel



Source: Traore, Abdoulkarim and Rogers, David (2006) "Towards a multi-hazard Early Warning and Response System in West Africa: A multi-hazard approach to forecasting adverse health impacts in Africa" Presentation at the Third International Conference on Early Warning, Bonn, 27 to 29 March, 2006

[13] See for instance Ayantunde, A.A. et al. (2006) "Exploring Farmer-Herder Relations and Conflict Management in Niger", paper presented at the "International Conference on the Future of Transhumance Pastoralism in West and Central Africa", November 20-24 2006 organized by the ECOWAS, Abuja

[14] See for instance Beeler, Sabrina (2006) "Conflicts between Farmers and Herders in north-western Mali", International Institute on Environment and Development, London

[15] Noma is a gangrenous disease (cancrum oris) leading to total disfiguring of particularly young children as the bacteria is destroying the mouth, nose, cheeks, and ears. Noma can be seen as the extreme expression of destitution: poverty, lack of hygiene, and severe malnutrition combined with opportunistic diseases. Although it is estimated that there are 26,000 cases of Noma in the Sahel, there is very little knowledge about the disease among international development and health workers and even doctors. In Burkina Faso for instance, it is estimated that more than 90% of the cases die without any treatment and the affected children are normally hidden until they die due to the social stigma. The Noma incidence in Niger is estimated to 1.2 in 1,000 children aged under five. See for instance information from the NGO Sentinelles working with Noma cases in Burkina Faso and Niger www.sentinelles.org/noma1.htm

It is estimated that each year between 25,000 and 200,000 persons, mainly young children, are infected by meningitis in West Africa[16]. The arrival of strong dry winds (the Harmattan) carrying a lot of sand facilitates the bacteria attacks. The strong correlation between the winds, the aridity and the onset of meningitis means that effective Early Warning Systems and pro-active immunization could significantly reduce the incidence of the disease.

[16] See for instance Sultan, Benjamin (2005) "Afrique de l'Ouest : les épidémies de méningite sous l'influence du vent" pp 130 in Sécheresse 2005 ; 16 (2), Éditions John Libbey Eurotext, Montrouge

3. FRAGILE STATES, FORGOTTEN CRISES, AND VULNERABLE POPULATIONS

The five Western Sahel countries (Burkina Faso, Chad, Mali, Mauritania, and Niger) meet most of the criteria for classifying developing countries as fragile states and forgotten crises:

Fragile States and Forgotten Crises

	Fragile States, World Bank 2006[a]	Weak and Failing States[b] 2006	LIPPS[c] 2003	DFID's Proxy List of Fragile States[d]	Progress on MDGs[e] 2003	ECHO's Forgotten Crisis Index[f] 2006	
						Index	Rank[g]
Burkina Faso	-	X	X	-	TP	6	69
Chad	-	X	X	X	TP	9	15
Mali	-	X	X	X	TP	8	31
Mauritania	-	X	X	-	TP	5	100
Niger	-	X	X	X	TP	6	83

a. The World Bank develops lists of fragile states every year based on different categories of performance and governance. While none of the five Western Sahel countries are on the list for 2006, one notes that Chad was on the list in 2003 and a recent evaluation of the World Bank's support to fragile states shows that many countries are "border countries" or very vulnerable countries which will move into the list even in the case of small disasters, including Chad and Niger which are also highlighted for receiving little support considering the needs and governance indicators.
b. Defined by the existence of gaps for security, service delivery, and legitimate governance – Source: Centre for Global Development and Brookings Institute
c. Low Income Poorly Performing States identified as countries with poor governance, poverty traps, and adverse external circumstances[1]. The LIPPS exclude collapsed or high-conflict states.
d. Based on demographic, health (incl. under-nourishment), and economic factors, including ODA. – Source: Cammack, Diana et al. (2006) "Donors and the 'Fragile States' Agenda: A Survey of Current Thinking and Practice" Overseas Development Institute, London
e. Progress towards the Millennium Development Goals – TP: Top Priority for the donor community.
f. Based on the Global Needs Assessment, net ODA per capita, media coverage, and assessment by DG ECHO's units – highest score is 11 (most forgotten crises).
g. Compared to a total of 105 countries on the list of forgotten crises with lowest numbers indicating most forgotten crises.

Out of a total of 177 countries, the five countries are ranked 175, 173, 174, 152, and 177 respectively in the UN Human Development Index. With an average Human Development Index of 0.35, 60% of the population live below the poverty line (80% in Chad and 40% in Mauritania); overall 25% of the population do not get their daily calorie needs; the maternal mortality rate is around 1,200 per 100,000; public health expenditures are barely above 2% of GDP; under 30% of the female population has received any formal education; etc.

In general, it is recognized that fragile states are likely to generate or not cope adequately with poverty, epidemic diseases, environmental degradation, natural disasters whether slow- or rapid-onset, and demographic issues. The European Consensus of December 2005 recognizes these challenges and EU countries committed to develop a comprehensive

prevention approach to state fragility, conflict, natural disasters and other types of crises. Moreover, according to the Consensus, EU countries will assist partner countries and regional organizations in strengthening early warning systems and institutional capacity building. The EU will therefore improve its own capacity for early detection of state fragility through improved joint analysis, monitoring, and assessments with other donors.

Important Lessons Learned for the Sahel Strategy

Although a country's capacity to cope with natural disasters is key for the level of its fragility, food security frameworks and early warning systems have not yet been integrated in fragile states classification systems.

Recent discussions on the best ways to support fragile states, for instance in the framework of the European Consensus, show the importance of thinking in terms of national integrated holistic programmes and not in terms of projects and local initiatives that would be scaled up.

DEMOGRAPHIC CHALLENGES

On average, 68% of the population in the five Sahel countries live in rural areas. But official data show annual increases in urban population of more than 6% which are among the highest in the world. The urban challenges are therefore expected to increase dramatically over the coming years. In fact, it is estimated that 62% of the population of Mauritania already lives in the urban areas. Moreover, large numbers of people registered as rural actually spend much of the year in urban areas in search of temporary jobs. The importance of this addition to the permanent urban population remains unknown as does its impact in terms of vulnerability and livelihoods. So while some figures suggest that the urban population rose from 10% in 1994 to 20% in 2004 in Burkina Faso, those figures do not include many of the "temporary" migrants.

It is generally recognized that the migrants are extremely vulnerable although little direct development work has been dedicated to this group. But it should also be kept in mind that accurate population figures are not available for the five Sahel countries; e.g. the most recent general population censuses are around 10 years old[17].

[17] Sector censuses are even rarer. Niger for instance has never had a national livestock census and the last agricultural census is almost 30 years old.

	Urban Population as % of Total		
	1975	**2003**	**2015 (est.)**
Burkina Faso	6.3	17.8	23.2
Chad	15.6	25.0	31.1
Mali	16.2	32.3	40.9
Mauritania	20.3	61.7	73.9
Niger	10.6	22.2	29.7

Source: UNDP (2005) "Human Development Report 2005"

Unlike other regions in the world, urbanization in West Africa has not contributed to economies of scale and value added product lines. In fact, while the overall exports contribute around 25% of the GDP it is in the form of primary and un-manufactured products; e.g. 91% in Niger. The lack of crop diversity and the dependency on a limited number of primary export products leave the producers and countries extremely vulnerable to world market prices. For example a major export product, cotton, underwent a price fall of 15% in 2005 with an immediate negative impact on large parts of the population.

Livelihoods in the region depend mainly on natural resources and more than three quarters of the labour force is occupied in agricultural and livestock activities leading to high sensitivity to environmental factors. This is reinforced by the fact that more than 80% of the agricultural production is for subsistence, almost exclusively based on rain fed agriculture and extensive livestock production systems.

	Agricultural Labour Force as % of Total Labour Force				
	1970	**1980**	**1990**	**2000**	**2004**
Burkina Faso	92	92.2	92.4	92.3	92.2
Chad	92.4	87.9	83.2	75.2	71.4
Mali	92.6	89	85.8	81	78.7
Mauritania	84.4	71.5	55.2	52.9	51.8
Niger	92.7	91.3	89.8	87.7	86.8

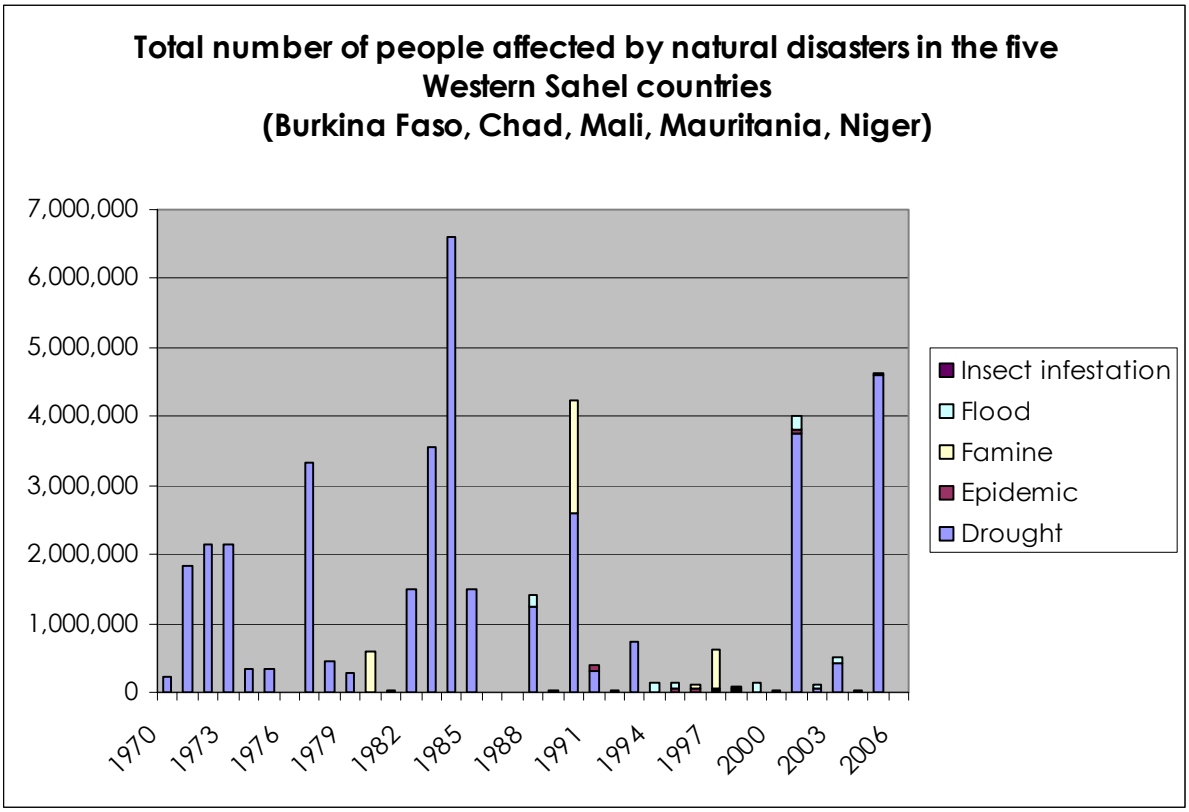
Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org.faostat

NATURAL DISASTERS CHALLENGES

West Africa accounted for 15% of all cumulative disaster events in Africa between 1975 and 2002. However the situation appears to be worsening as the numbers of natural disasters have increased by 94% in the sub-region over the last three decades[18]. Already 154 disasters have occurred during the first five years of this decade, compared to 136 during the past two decades. The disasters causing most human fatalities and debilitation are

[18] ECOWAS (2006) "ECOWAS Disaster Reduction Policy and Mechanism" Economic Community of West African States, Abudja

epidemics which accounted for 40% of disasters in the sub-region from 1975 to 2003, compared to 20% by floods and droughts. The most pervasive disasters in terms of the numbers of people affected and disruption to livelihood support systems are those due to droughts as can be seen in the following chart.



Source: Emergency Events Database (EM-DAT) (2006). (www.em-dat.net). EM-DAT is maintained by the Centre for Research on Epidemiology and Disasters in Louvain, Belgium in collaboration with a number of international institutions such as OFDA/USAID, WHO, UNDP, and IFRC. EM-DAT registers natural disasters with more than 10 fatalities and/or 100 affected and/or a call for international assistance and/or a declaration of a state of emergency.

A year-by-year presentation of the number of natural disasters and the total number of people affected for each of the five countries is provided in the Annexes.

Important Lessons Learned for the Sahel Strategy

The population in the Sahel is increasing rapidly with high dependency on the natural base leading to high vulnerability for the vast majority of the people to a number of economic, environmental and health stressors such as drought, floods, locusts, epidemics and changing market prices.

Limited risk reduction efforts have been invested in the rapidly increasing urban poor and vulnerable population; particularly the temporary migrants.

A number of health stressors are inherent to the Sahel, which increases the overall vulnerability to a number of other stressors. Only limited developments have taken place to reduce preventable diseases (e.g. less than 5% of children under 5 sleep under bed nets).

The Sustainable Livelihoods approach - which focuses on people's assets, their ability to withstand shocks (the vulnerability context), and policies and institutions (the fragile state context) - is being used increasingly by both humanitarian and development agencies. Moreover, applying a livelihood analysis will enable, for instance, a food crisis to be identified as chronic, cyclic or transitory. By combining both the vulnerability and fragile state context the Sustainable Livelihood approach is well-suited for addressing the Grey Area – or the area where development challenges overlap with humanitarian ones. However, the Sustainable Livelihoods Approach does not necessarily lead to a clear identification and understanding of priority stressors and the intersections and interactions which would be required for the design of specific strategies. A combination of sustainable livelihood assessments with multi-stressor analysis has proved useful for this purpose as explained in the Methodology section of this Study.

4. REVIEW OF MAJOR STRESSORS THREATENING THE VULNERABILITY IN THE WESTERN SAHEL

4.1 Drought

According to the Millennium Ecosystem Assessment[19], severe droughts occur in the Sahel every thirty years leading to major food and health crises because of lack of adequate drought risk management. Other sources cite major recent droughts as those in 1968-73, 1978-77 and 1983-84, each of which led to fatalities and severely increased the vulnerability of the majority of the populations in the five countries. The "big drought" from 1968 to 1973, which saw yearly rainfall deficits of 15 to 40% compared to normal years,[20] cost the lives of several hundred thousand people in the Sahel, reduced the number of livestock by 80% and reduced GDP by around 15%. Likewise, the "big drought" in 1983-84 led to a 62% reduction in the national cattle herd in Niger.

Climate change is expected to affect the global hydrological cycle resulting in the intensification of extreme weather events in the Sahel such as floods and droughts, but they will often be localized. Currently, it is generally estimated that the precipitation is inadequate[21] in terms of total amount as well as its temporal and spatial distribution in three out of every five years in the Western Sahel[22]. The impacts are further reinforced by the increasing population pressure in the region leading to inappropriate cultivation patterns and an increased number of land use conflicts.

Because of the high reliance on rain fed agriculture and traditional extensive livestock production systems[23] in the region, drought is a significant stressor to the majority of the livelihoods. It is estimated for instance that extensive livestock production contributes more than 20% of the GDP in countries such as Niger and Mauritania. But the impact of the increasing number of droughts is reinforced by the ongoing reduction in vegetation cover from land use changes, in particular the intensification of agriculture and livestock breeding.

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19 Millennium Ecosystem Assessment (2005) "Ecosystems and Human Well-being: Desertification Synthesis" World Resources Institute, Washington D.C.

20 "Normal" is calculated as the average precipitation over the previous 30 years in principle. The WMO normally uses 1901-1930, 1931-1960, and 1961-1990 as the references and would, therefore, normally use the average of the 30-year period 1961-1990 as the reference for current drought determinations. During a meeting of the Inter-African Committee on Hydraulic Studies (CIEH) organized in Ouagadougou in 1986, it was recommended that 1951-1980 be used as the reference period. However, in general it is still the 1961-1990 period that is used as the official reference point.

21 "Inadequate" is primarily seen in relation to satisfying normal water needs, which mainly means water required for an average level of agricultural production, as agriculture accounts for around 90% of total water withdrawal in the five countries (year 2000, source World Resources Institute, www.wri.org).

22 Water balances of the Niger River Inner Delta show that the on average the annual inflow was 58 billions during the period 1907-95. However, during 1970-1995 where droughts were frequent the annual inflow was only 36 billions m3 or 55% lower than the 60 preceding years (1907 – 1969).as a result of both drought and increased water uses upstream in the delta.

23 The predominant livestock production system in the Sahel is pastoral including transhumance, which depends on large areas of non-improved grazeland and a relatively low intensity of animals per area unit.

Moreover, the reduced access to water as a result of both major and localized droughts further increases vulnerability, for instance by decreasing hygiene standards and increasing the amount of time that can be used on other productive activities.

SLOWING RECOVERY TIMES

Calculations on the recovery time for cattle production systems in Ethiopia show that it takes up to 10 years to re-establish the livelihoods of the pastoralists after droughts leading to a 50% reduction of the herd size[24]. This also means that the recovery time is longer than the frequency of droughts. The 2005 – 06 crisis in Niger led to a loss of 60% of the cattle in the livestock rearing region of Dakoro in Niger and according to NGOs working in the region it could take up to 30 years before the herd would be reconstituted if no outside interventions are implemented. Moreover, the general perception in West Africa is that livelihood systems are experiencing droughts and other stressors such as locust attacks and floods more and more frequently, resulting in longer and longer recovery times for the vulnerable population – in fact, a downward spiral towards ever-increasing vulnerability.

LACK OF CONCLUSIVE DROUGHT INFORMATION AND NATIONAL DROUGHT STRATEGIES

Drought mitigation interventions such as the introduction of drought resistant crops and water harvesting technologies have been introduced through various development programmes over the years. But none of the five countries have strategies for long-term drought risk management and the use of improved official Early Warning Systems is limited. For example, although droughts can now be predicted six to eight weeks earlier than in the 1980s, the majority of the farmers in the region do not receive any official weather forecasts[25]. They continue to rely on their traditional forecast methods, but these are often blurred by the increasingly unstable weather patterns. Moreover as the result of population movements many farmers in the Sahel are relatively new to the area where they live and therefore have limited knowledge of local weather patterns.

There has been a great deal of attention to drought as a severe source of stress to livelihoods in the Sahel, for example a number of new institutions were created at national and regional level in response to the droughts in the 1970s such as UNSO (United Nations Sudano-Sahelian Office, created in 1976) and CILSS (Permanent Interstate Committee for Drought Control in the Sahel, created in 1973). However, very little conclusive information

[24] ICRC (2006) "Regional Livestock Study in the Greater Horn of Africa", International Committee of the Red Cross, Nairobi

[25] Many good disaster risk mitigation activities have existed in the region for a while, typically in relation to development projects, but will normally be discontinued once the projects come to an end because the fragile states cannot undertake the responsibilities required. An example is Chad's well-developed programme of rural radios ("the blue radios") in the 1970s allowing farmers, women responsible for vegetable production , livestock owners, etc. to listen to daily weather and crop forecasts and plan accordingly.

exists on the direct impacts of drought. This is in line with UNDP's conclusion from 2004[26] stating that although African states have the highest drought vulnerability in the world no firm country-specific findings can be presented for this hazard. The lack of conclusive information regarding the importance of drought is closely linked to the lack of drought definitions.

The fact that none of the CILSS countries have official drought definitions[27] makes many discussions of the importance of drought superficial and makes it difficult to use sources that refer to drought but without describing what is meant. The resulting lack of precision can lead to further confusion on the part of policy-makers, a point further reinforced by the absence of national drought strategies.

Several countries refer to CILSS for drought definitions, but CILSS still needs to develop and adapt drought definitions for its member countries. The CILSS network of national Multidisciplinary Working Groups[28] which assesses the food security situation in the Sahel countries during the cropping season applies the following general working definition: "precipitation below 80% of normal[29] is considered as insufficient, while 80 to 110% is considered as regular and above 110% is excessive". However, this definition does not take into account the distribution in time and space, including rainfall intensity and the number of rainfall events which can be crucial for crop survival. For instance, it is normal that 10% of the seasonal precipitation in the Sahel falls in one single heavy rain lasting only a couple of hours. Likewise, the complex nature of drought impacts calls for an integrated definition taking into account aspects such as expected agricultural, pastoral and social impacts[30].

It should also be noted that all the countries have ratified the UN Convention to Combat Desertification and Drought[31]. However, only very general references are given to drought in the National Action Programmes that the countries have developed for the operationalization

26 UNDP (2004) "Reducing Disaster Risk – A Challenge for Development - A Global Report", United Nations Development Programme, New York.

27 Drought definitions are often politically charged as the declaration of a drought might call for financial and other official disaster support. For instance in Mexico, a drought declaration permits access to funds from the national Disaster Fund (FONDEN). It should also be noted that recent discussions in Australia suggest defining natural disasters as rapid onset events which would exclude droughts. Some examples of national legal drought definitions that all use "normal" as the average precipitation of the previous 30 years: Antigua and Barbuda defines drought as 20% below normal – and therefore also have different actual values for the two islands: 30.7 inches for Antigua and 27.8 inches for Barbuda, St. Kits and Nevis' definition is precipitation that is 15% lower than normal, Honduras declares drought when lack of precipitation leads to food crisis and "some other indicators," Surinam declares drought when the "short rain" (December to January) does not occur or is less than a month, and Mexico declares drought when the average precipitation in two consecutive months in May through November in a watershed is below 50% of normal, or at a historical minimal.

28 Groupes de Travail Multidisciplinaires - GTP

29 Normal defined as the average of the previous 30 years.

30 Drought analytical frameworks are often divided into so-called different types of drought to refer to the different impacts. "Agricultural Droughts" for instance refer to the impact on agriculture from lower than normal rainfall.

31 The full title of the Convention is "United Nations Convention to Combat Desertification in Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa" It was ratified by the five Sahel countries and the EU in 1994-1996. www.unccd.int

of the Convention, which may be linked to a general tendency to focus only on its desertification component. Even the European Consensus on Development from 2005 only refers to the treaty as the "UN Convention to Combat Desertification." Likewise, the National Adaptation Programmes of Action (NAPAs)[32] which have recently been developed in Niger (August 2006) and Mauritania (November 2004) only mention drought in relation to a few very specific drought mitigation projects. Those projects mainly suggest the development of fodder crops and genetic improvement of livestock and do not include suggestions for drought risk management as such.

Good Practices – Cloud Seeding

Cloud seeding, the practice of firing salt-based chemicals from light aircraft into pregnant clouds to force them to shed rain, has been practiced by the governments of Mali, Burkina Faso and Senegal since the late 1990s. The programme was launched in 1999 in Burkina Faso under the name SAAGA (rain in the local language Moroé) and with technical and financial support from the Government of Morocco. Cloud seeding is now the primary tool within Burkina Faso's water management strategy. According to the Government of Burkina Faso, agricultural production has been 15% higher compared to neighbouring countries with similar weather patterns but where no rain-induction has taken place. The major challenge to expanding the programme is the need for generators on the ground. However, several technicians consider that a regional cloud seeding programme could be combined with a regional anti-locust programme which also depends on light aircraft.

Good Practices – Observing Farmers

The concept of "Paysan Observateur" (observing farmers) was developed within a project aiming at strengthening meteorological services to the rural population implemented by the National Meteorological Service (DNM) in Mali and launched in 1982 with financial support from Switzerland[33]. The programme offers farmers crucial information about optimal sowing times for different crops in different locations in addition to information regarding potential precipitation during the crop season and potential insect infestations. DNM collects and analyzes information from a number of different sources, including information collected by the farmers themselves through special rain gauges. A local project has been established to produce cheap rain gauges that are sold to the farmers. In fact, the participating farmers are trained in using the rain gauges and collection sheets for immediate use as well as for transmission of the daily measurement through a decentralized system to the DNM in Bamako. Once analyzed the information is communicated to different audiences such as farmers and decision-makers at national and regional level presented in specific communications according to the audiences. Farmers for instance receive daily information on the local rural radio in addition to information provided by the rural extension system. The information is highly appreciated by the farmers and it is considered that output has increased by 15 to 25% for farmers using the daily information and advice provided through the rural radio compared to farmers who do not use the information. It should also be noted that many women appreciate the weather forecasts to programme some of their income generation activities such as dried mangoes and production of vegetables. Moreover, the DNM organizes a number of awareness raising activities for different audiences such as yearly "meteorological days" for the parliamentarians and the various DNM EWS now form part of the national budget. The programme has now been integrated into the national budget after the third phase of the Swiss project came to an end in 2004.

[32] To allow poor countries to adapt to the present threats from climate change, a special programme was established by donor partners to the UN Convention on Climate Change to facilitate the establishment of National Adaptation Programs of Action (NAPAs). For more information see www.unfccc.int.

[33] Renforcement et extension de l'assistance météorologique opérationnelle au monde rural.

Good Practices – Adaptation Strategies

In a study on farmers' adaptation strategies in response to the big droughts in the Sahel in the 1970s and 1980s, Jouve (1991)[34] shows reduced crop diversity combined with an increasing abandonment of the practice of fallows in response to the increased demand for agricultural land. But the study also shows reduced use of fertilizers which is partly explained by a wish to put less stress in areas with marked water scarcity. On the other hand in regions with irrigation potential and shallow ground water farmers' adaptation strategies showed an intensification with increased use of fertilizers. Still, overall the study also shows that the changes in culture patterns are not only a response strategy to the droughts but also a response to deteriorating market possibilities.

Important Lessons learned for the Sahel Strategy

The lack of agreed definitions of drought and the lack of drought mitigation strategies have led to the continuation of droughts evolving into natural disasters leading to short term food insecurity and long term development problems from impacts such as land degradation.

The lack of a clear understanding about the relationship between drought and vulnerability has led to a number of assumptions but very little knowledge about underlying causes and consequently lack of coherent drought preparedness and mitigation activities.

While the current Drought Mitigation Structure in Kenya with funds from the EC among others provides a good practice example for the Western Sahel countries, lessons should also be learned from the Drought Management Committees that were established in 1994 but that mainly disappeared due to lack of outside support. Considering the difficulties in maintaining interest in drought risk management once one drought has come to an end, it will be of particular importance to pay special attention to the institutional sustainability.

4.2 Food Security

Food security is a flexible notion that has evolved from a pronounced focus on food supply in the 1970s, through increased attention to availability in the 1980s, accessibility in the 1990s, and integration of nutrition in the 2000s.

As highlighted by Klennert (2005)[35] more than 200 definitions with more than 450 indicators are used in studies on food security. Klennert also shows that the most widely accepted definition is the one suggested by FAO in 2000 stating that "Food Security is achieved when it is ensured that all people at all times have physical, social, and economic access to sufficient, safe, and nutritious food which meets their dietary needs and food preferences for an active and healthy life". As a proxy index for food insecurity, FAO calculates the "Prevalence of Under-nourishment" based on estimations of supply (production, stocks,

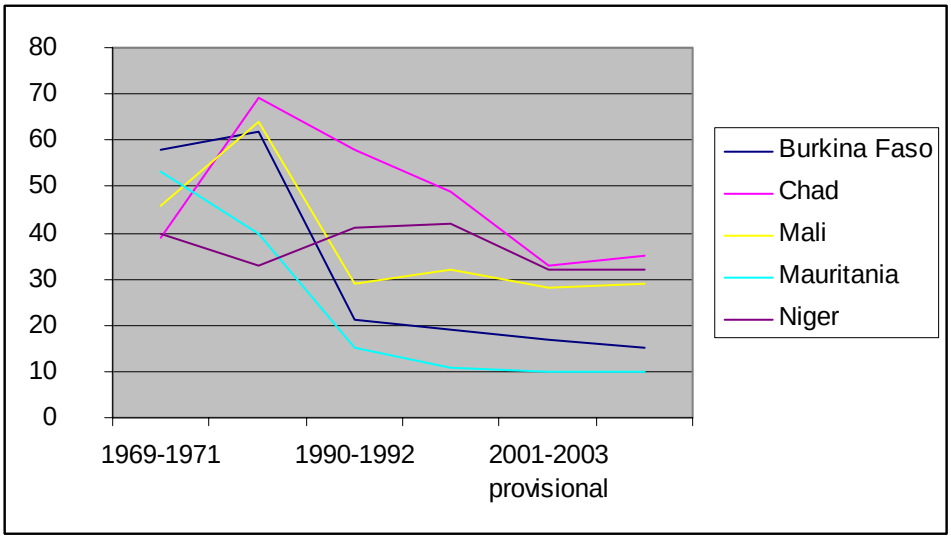
[34] Jouve, Philippe (1991) " Sécheresse au Sahel et Stratégies Paysannes " pp 61 – 69 in Sécheresse 1991 ; 2 (1), Éditions John Libbey Eurotext, Montrouge

[35] Klennert, Klaus (edt.) (2006) "Achieving Food and Nutrition Security Actions to Meet the Global Challenge - A Training Course Reader" Inwent, Internationale Weiterbildung und Entwicklung GmbH, Feldafing

post-harvest losses, commercial imports and exports and food aid[36]), distribution (income distribution, market infrastructure, etc) and minimum per capita energy requirements. It should be noticed that this proxy excludes significant elements of the food security definition, particularly the issue of food preferences which have contributed significantly to the high malnutrition rates observed in the Sahel[37].

The Under-nourishment calculation is used *inter alia* as the internationally agreed upon indicator for achieving the Millennium Development Goal to Reduce by half the proportion of people who suffer from hunger (MDG 1.2). We have therefore chosen to present it here as it is comparable to other datasets both in time and space and is expected to be used as an important indicator in the coming years.

Prevalence of Under-Nourishment in Total Population (%)
Proxy for Food Security



Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org.faostat

In a recent analysis of food insecurity in Sub-Saharan Africa[38], IFPRI (2006)[39] advocates for the use of household expenditure surveys to monitor food insecurity, emphasising that these surveys are policy-relevant and reliable and allow multi-level monitoring and evaluation. But the paper also stresses that the data collection procedure is time consuming and requires a considerable amount of financial and human resource capacity.

36 Recent work on Community Food Security suggests to explicitly exclude emergency food aid from definitions of food security. See for instance McCullum, Christine et al. (2003) "Agenda Setting within a Community-based Food Security Planning Process: The Influence of Power" pp 189 – 199 in Journal of Nutritional Education Behavior, 2003, Issue 35. But it might also be argued that all types of food aid should be excluded from food security definitions.

37 Traditions in many parts of the Sahel dictate for instance that infants do not get special food post-weaning and that very little vegetables are consumed.

38 Based on Household Expenditure Surveys in Burundi, Ethiopia, Ghana, Guinea, Kenya, Malawi, Mozambique, Rwanda, Senegal, Tanzania, Uganda, and Zambia.

39 Smith, Lisa et al. (2006) "Food Insecurity in Sub-Saharan Africa New Estimates from Household Expenditure Surveys" International Food Policy Research Institute, Washington D.C.

The analysis uses four indicators to estimate food insecurity:

1. quantities of food per household member, calculated from either recorded expenditures or recorded quantities of acquired food;
2. percentage of people who are food energy deficient;
3. food diversity calculated according to food acquired from seven food groups;
4. percentage of households with low food diversity.

But while a strong point of the index is that it includes measures of both quantity and quality, it might be argued that a comprehensive food security index should include not only proxies for availability, accessibility and use and utilization but also proxies for stability. Moreover as stressed by the study, the reliance on household indicators might be misleading in describing the real food insecurity problems. Important inter-household variations are common with regard to quantitative and qualitative food intake, for example young and unproductive children are allocated less food as are women.

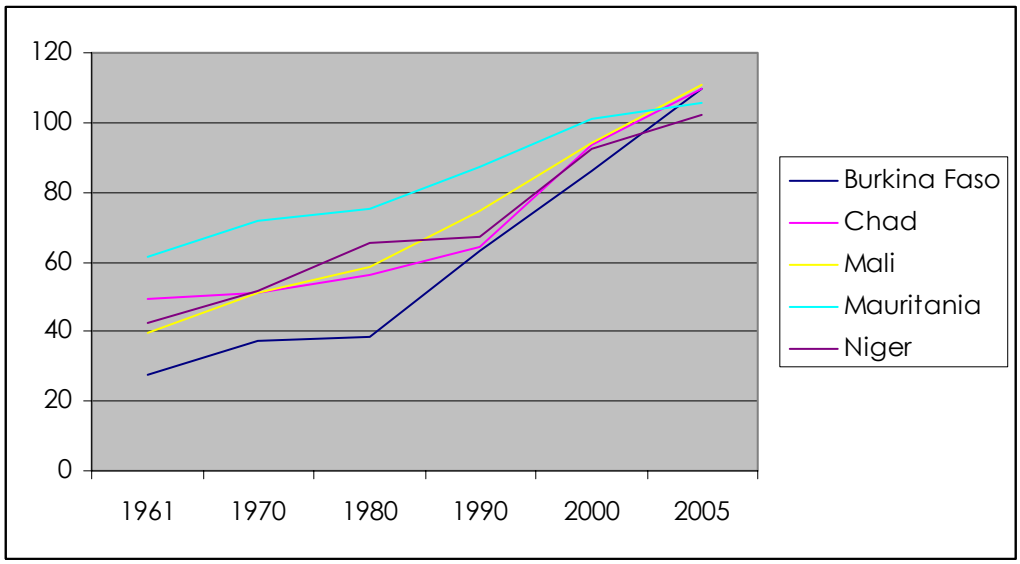
As part of the study, a group of 83 well-known international food security experts were asked to rank the 12 Sub-Saharan African countries according to their food security. The study did not indicate any specific food security definition to the experts before their ranking. Thirty experts accepted the invitation of whom 24 ranked all 12 countries. In no case did all the respondents rank all the countries the same and there was only limited agreement regarding the ranking of Ethiopia as the most food insecure country among the 12 in the sample. The household expense survey method for estimating food energy access seems the most consistent in identifying the countries that on average were ranked as the most food insecure by the experts, while FAO's food supply method for calculating food energy access corresponded best with less food insecure countries.

AVAILABILITY AND USE AND UTILIZATION

As can be seen in the chart on Prevalence of Under-nourishment, since the late 1960s great strides have been made in reducing the proportion of undernourished people. Most likely, this is partly a result of the creation of new institutions in the five countries by the governments and donors (both jointly and separately) in response to the famines of the 1960s and 1970s, including national food security councils and food aid coordination committees.

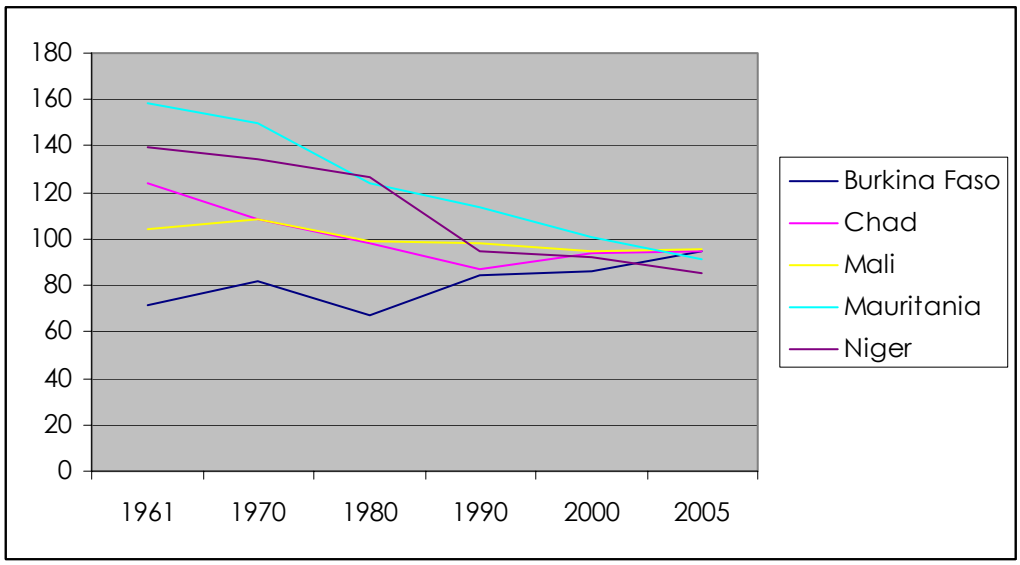
However, the last 10 years have not seen any noticeable development and the proportion of undernourished people seems to have stagnated. While total agricultural production has increased progressively over the last 45 years the per capita production has decreased steadily as a result of the high annual population increases. The exception to this pattern is Burkina Faso where agricultural production per capita has actually increased over the last 45 years, most likely as a result of the agricultural policy that the country has applied since the big droughts in the 1970s. The policy includes land development in the big plains of the Volta River Basin and has led to the construction of a number of small dams and the development of irrigation schemes (of which almost one third are classified as small, often less than one hectare per family). As such, the food production increase per capita is a result of both land reclamation and intensified agricultural production.

Food Production Index (%) - Net Food Production (Deduction for Feed and Seed) - Base Period: 1999-2001



Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org.faostat

Food Production per Capita Index (%) - Net Food Production (Deduction for Feed and Seed) - Base Period: 1999-2001



Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org.faostat

ACCESSIBILITY

After the latest big drought in 1984, important food shortages were reported in the Sahel countries in 1990-91 and again in 1997-98. But the much "mediatised"[40] food shortage in 2004-2005 was actually less severe than the shortages of the 1990s[41]. For instance, production in 2004 was still 35% higher than in 2000[42]. However, according to key resources interviewed for this study the price hike[43] of over 100% from 2000 to 2004 was largely influenced by the aid community's buying of cereals for food distribution combined with an unfavourable exchange rate between the Nigerian Naira and the FCFA used in Niger. At the same time Niger left its borders open to trade and allowed exports while neighbouring Nigeria and Burkina Faso bought up food from Niger but prevented exports.

STABILITY

The importance of food availability and accessibility and the price factor was already recognized by the governments in the 1980s. National cereal boards were established to

[40] The importance of the "mediatization" for triggering an international response to the malnutrition in the Sahel can be seen in the World Press Photo of 2005 which shows the wasted fingers of a one-year old child at an emergency feeding clinic in Tahoua in Niger. The picture was chosen out of 83,000 contestants and highly influenced the international response. The last time the international community reacted massively toward the acute malnutrition in the Sahel was in the 1970s – and in fact in 1974 it was also a severely malnourished child in Niger who was the focus of that year's World Press Photo.

[41] The widespread famine in Malawi in the 2001/2002 was also characterised by an agricultural production season that was above average of the years 1988-98 while lower than the two exceptionally good years of 1999 and 2000. A number of institutional and administrative errors caused the famine including uncontrolled private imports, poor distribution, unreliable and misinterpreted data, different criteria and interpretations by different donors. See Stevens, Christopher et al (2002) "The Malawi Famine of 2002: More Questions than Answers" Institute of Development Studies, Brighton.

[42] Terpend, Noëlle (2006) "An assessment of knowledge about trade and markets related to Food Security in West Africa" World Food Program, Rome. The year 2000 is considered as the last year with a very low agricultural production in this decade.

[43] Price studies are generally biased by the limited network used for collection of prices. As such, most studies are based on prices at major markets while small rural markets are not surveyed.

control the market and ensure price stabilization with support institutions such as national cereal stocks at central and regional levels, food-subsidizing programmes and other safety nets, and import regulations. However, in spite of a relatively heavy bureaucracy with a number of control organizations the cereal markets never functioned as planned by the Boards. A major problem was the extensive borders between the five countries; on average the countries have more than 6,000 km of frontiers - the border between Niger and Nigeria is more than 1,500 km long, for instance. Moreover, important trans-border trade networks have existed in West Africa for decades[44] consisting mainly of large influential urban-based traders with the capital to allow border trade. As a result of the poorly functioning cereal boards most of the government control of the cereal market was reduced to managing safety reserves during the market reforms (Structural Adjustment Programmes) in the 1990s.

However, the liberalization of the grain market has in principle left the private sector with a huge responsibility for the countries' food security, a role the traders can hardly take on as they are only marginally involved in the national food security commissions as highlighted in recent research by the WFP[45] and CILLS and MISTOWA[46]. The limited integration of private traders also means that their intimate knowledge of the food market is not being used.

The Governments still maintain safety reserves as a key instrument of their food security policies, the other major instruments being subsidized grain, targeted food aid and some other safety nets. These instruments are being applied in close collaboration with the international community. WFP for instance holds the keys to many of the national food stocks stressing the importance of food aid in the national food security systems in the Sahel.

Optimal National Security Food Stocks, Tons Cereal Equivalent

	Burkina Faso	**Chad**	**Mali**	**Mauritania**	**Niger**
Official physical food stock operated in cooperation with Donors	35,000	35,000	35,000	6,000	80,000
Food Security Funds[a]	25,000	n/a	25,000	2 M€	30,000
Other national food stock; e.g. directed directly by the President	n/a	n/a	n/a	n/a	40,000

[a] Food Security Funds are monetary reserves kept to buy food to cope with food crises and are therefore expressed as cereal equivalent.
Source: Interviews with relevant partners

[44] See for instance Lavergne, R. (Edt.) (1997) "Regional Integration and Cooperation in West Africa" International Development and Research Centre, Ottawa

[45] WFP (2006) "Afrique de l'Ouest: Bilan des connaissances sur le commerce et les marchés impliqués dans la sécurité alimentaire" World Food Program, Rome

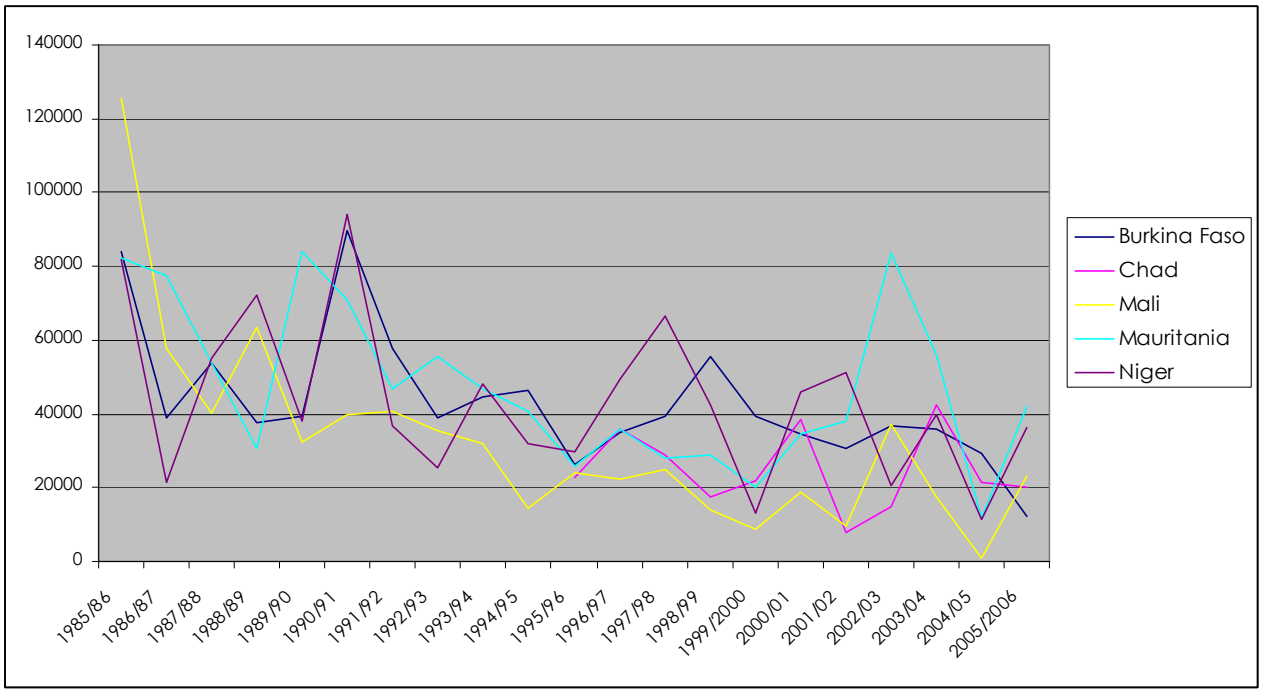
[46] CILSS and MISTOWA (2006) "Conférence Régionale sur la « Situation Agricole et Alimentaire et les Opportunités d'Échanges dans le Sahel et en Afrique de l'Ouest – Bamako Mars 2005 – Rapport Final" Comité Permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel, Ouagadougou and The Regional Market Information Systems and Traders, Accra

The size of the national food stocks varies among the countries and does not seem to reflect the differences in the population sizes. According to the Food Aid Charter adopted by CILSS member countries and donors organized in the Club du Sahel[47] in 1990, all CILSS member countries should have national food security stocks corresponding to two months of food consumption.

FOOD AID

Although food aid from external sources has decreased over the last 45 years, it is important to notice that food aid seems to have become a permanent feature in most of the countries. This underlines the fact that no efficient solutions have been implemented to ensure national food security and address the chronic food insecurity that is a reality for many destitute households in the region. The livelihoods of these households have lost the capacity to recover from the impact of various stressors. Routine reliance on food aid underlines the critical importance of aid delivery mechanisms not only for short-term emergency relief aid but also for longer-term development assistance and seems to indicate the inadequacy of the food aid programmes.

Total Food Aid Received 1985/86 – 2005/2006
Tons Cereal Equivalents



Source: WFP (2006) International Food Aid Information System – INTERFAIS, www.wfp.org/interfais

[47] The Club du Sahel was transformed into the Sahel and West Africa Club (SWAC). The members are Canada, EC, Germany, France, Netherlands, and the US. The Food Aid Charter will most likely be revised in 2007.

The major donors[48] for cereal donations to the five countries include: EC, USAID, France, Japan, Italy and India.

CASH TRANSFER OR FOOD AID TO PROMOTE FOOD SECURITY?

Recent years have seen a growing debate over diminishing the use of food aid and replacing it with various forms of cash transfers. Arguments for using cash transfer include the need for social protection and empowerment while critics state that cash transfers can lead to dependency, might lead to inflation, can create resentment and would require a well-established institutional framework, including managing and logistical capacities. However, cash transfers are often provided to populations that are extremely vulnerable because they lack the ability to work and as such people have no alternative income sources. Moreover, it has been argued that cash transfers might crowd out informal support systems. However, in countries for instance with a high number of HIV/AIDS orphans and old people left with no traditional social support systems, the informal support systems are already non-functioning and as such do not offer any alternative.

A 2005 qualitative analysis of cash transfers applied in 15 countries in eastern and southern Africa[49] provides some interesting information. The transfer mechanisms included both government funded schemes such as non-contributory pensions, funded through relief and development intervention, and cash support from community based organizations. The study shows that the cash is used in many different ways: food, groceries, household items, services, assets, income-generating activities, social costs, savings and in general to support the livelihoods with the potential of reducing vulnerabilities. The study also highlights that there is little empirical evidence of the misuse of cash transfers for instance on alcohol. Although the information is limited the study shows that cash transfers in Zambia and Ethiopia are positively correlated to an increase in dietary diversity and in general improve household food security. Data from Ethiopia also show that young mothers receiving cash transfers increase their caring capacity for their infants and young children.

Based on data from the WFP country programme in Mozambique and the National Institute for Social Action (INAS) which provides food subsidies in the form of monthly cash transfers to vulnerable households, the study also shows[50] that it costs WFP US$ 0.37 to provide one

[48] In 2005/2006 USAID provided 44% of the total food aid to the CILSS countries while the EC provided 3%. Generally, the EC's contribution of total food aid to CILSS countries have decreased over the last 10 years (WFP (2006) "Moniteur de l"Aide Alimentaire" Interfais, World Food Programme, Rome)

[49] Save the Children UK, HelpAge Int. and IDS (2005) "Making cash count: Lessons from cash transfer schemes in east and southern Africa for supporting the most vulnerable children and households" International Development Studies, Brighton

[50] Citing Collier, E. and MacAskill, J., 2005, Country case study report on the 'INAS Food Subsidy Programme' in Mozambique, London: Save the Children/HAI/IDS.

kilogram of corn, while INAS beneficiaries can purchase one kilogram of maize for US$ 0.24 when the price is low and US$ 0.39 when the price is high.

Good Practices – Food Price Insurance

With technical and financial support from DFID and the World Bank, the Malawian Government signed a commodity options contract with the Standard Bank of South Africa in September 2005. The options – a call options – allow the Government to buy cereals at a predetermined price in the future and as such functions as an insurance against price hikes, i.e. a food insecurity risk management tool. In response to market shortages, the Government exercised the options in October and November which was used for targeted food aid and thereby reducing potentially serious impacts from food insecurity among vulnerable populations[51] through timely food distribution at lower costs than if the market prices in October and November had had to be applied.

Good Practices – Cash Transfer

In a recent document Oxfam GB (2006)[52] presents experience from the last five years with various forms of cash transfer mechanisms: direct transfer, cash for work and vouchers (including fairs). Overall the study shows positive experiences with cash transfer mechanisms highlighting that they are considered to be more cost-effective than other food aid mechanisms. Moreover, cash transfers will empower the households and increase their range of choice and dignity and the injection of capital on the local market will be a positive element in the recovery phase. However, the study does not show results from post-project evaluations and the longer-term impacts. Neither does the study offer any empirical comparisons, a general shortcoming in fact of most recent studies advocating cash-transfer mechanisms.

Good Practices – Ask Beneficiaries What they Want

The National Risk and Vulnerability Assessment undertaken in rural areas in Afghanistan[53] in 2003 showed that irrespective of wealth groups[54] Afghans' preference for either cash-for-work or food-for-work depended on the season. As such, there was a clear preference for food-for-work during winter and spring when market access is limited and wheat prices are high. On the other hand cash was preferred during summer when wheat prices are low while there was a preference for a combination of the two during autumn. In all seasons the very poor households tended to have a preference for food-for-work. Comparing nomadic and semi-nomadic communities with settled ones, the survey showed a slight preference among the nomadic communities for cash-for-work although a marked seasonal difference can still be observed among this group too. The survey showed concordance in preferences between male and female members of the same households. Similar experiences exist in Ethiopia, where participants in the Meket Livelihood Development projects prefer a combination of food and cash during periods of seasonal food price hikes[55].

51 Slater R and Dana J (2006) "Tackling vulnerability to hunger in Malawi through market-based options contracts: Implications for humanitarian agencies" pp 13 – 17 in Humanitarian Exchange March 2006, Issue 33, Humanitarian Policy Group, ODI, London

52 Oxfam GB (2006) "Cash-Transfer Programming in Emergencies" Oxfam GB, London

53 WFP/MRRD (2004) "Report on Findings from the 2003 National Risk and Vulnerability Assessment (NRVA) in Rural Afghanistan" The Vulnerability Analysis and Mapping (VAM) Unit of the World Food Programme, Kabul

54 As the study focused on vulnerability, better-off rural households were not included in the survey.

55 Save the Children UK, HelpAge Int. and IDS (2005) "Making cash count: Lessons from cash transfer schemes in east and southern Africa for supporting the most vulnerable children and households" International Development Studies, Brighton

Important Lessons Learned for the Sahel Strategy

A recent IPRI study on Food Insecurity in Sub-Saharan Africa[56] shows higher food energy deficiency at the household level in urban areas than rural ones in a number of countries, including the three West African countries included in the study: Senegal, Guinea, and Ghana. But the study also shows the opposite to be the case in countries such as Burundi and Kenya and states that too many un-researched factors intervene for any firm conclusion to be drawn concerning urban food insecurity.

The focus of the national food security structures is still on grain production despite the conceptual recognition of a wider definition, including elements such as total food availability, regional trade and other accessibility issues, and use and utilization including nutritional value. Cereal balances for instance still constitute a major element in the assessment of food security in the five countries[57] partly due to the lack of reliable information sources for products other than cereals and lack of systematic information on access and use and utilization. Likewise, existing food security monitoring systems – EWS – tend to concentrate on the agricultural areas while little information is available on food security in the pastoral areas or food security vulnerability among the pastoralists. Very little information – if any – exists on food security among the people staying in urban areas. Similarly, the national food security Early Warning Systems (SAPs) in the five countries focus on rural populations[58] and in Burkina Faso and Mali only on populations living in environmentally vulnerable areas. It should also be noted that the focus on production fails to consider the substantial post-harvest loss which typically is above 20% in the Sahel countries.

Food consumption of products other than cereals (millet, sorghum, rice, and corn) and meat is highly seasonal. A CILSS study from 2000[59] shows that vegetables and other products constitute between 10 and 20% of the calorie intake in the five Sahel countries, but are only consumed during a few months (generally December to March).

A good understanding of the linkages between the different natural resource based livelihood systems is important in order to understand the food insecurity for different population groups. The cereal production in Niger for instance in 2004/05 was 35% higher than the 2000/01 production that was not signalled as particularly alarming, while the food deficit in 2004/05 was the largest ever recorded[60] due to a combination of locusts and poor distribution of the rain in time and space. The resulting unfavourable terms of trade between livestock and cereals led to severe food insecurity for the pastoralists.

Different agencies use different methodologies to estimate the level of food security making comparisons difficult and leading to a general suspicion regarding the reliability of the data. Most assessments are based on subjective interpretations of data and general appreciations and even within the same organizations different methodologies are applied in different countries. In 2004/05 for instance, CILSS concluded that there was a food surplus in Mali while the national statistics concluded that there was a deficit.

Several of DG ECHO's traditional implementing partners express concern regarding the food aid approach in the Sahel as the crisis is seen as permanent and should therefore not be addressed with consumption items. Some partners highlight the risk of dependency, citing cases for instance where parents would leave their children without food in order to receive food handouts and stressing that food aid should only be applied when it forms part of an overall strategy.

56 Smith, Lisa et al. (2006) "Food Insecurity in Sub-Saharan Africa New Estimates from Household Expenditure Surveys" International Food Policy Research Institute, Washington D.C.

57 Cereal balances were introduced by CILSS in 1987 to assess food security based on the fact that cereals constitute 50 to 79% of food in the CILSS countries. In collaboration with FAO, FEWS NET, and WFP, CILSS has been working on the development of food balances since 2001. However, needs assessments are complex and highly political as recognized by CILSS (SARL (2004) "Normes de Consommation des Principaux Produits Alimentaires dans les pays du CILSS", Groupe d'Études et de Recherche pour le Développement, Niamey

58 The national food security EWS (SAP) in Niger refers to both urban and rural population but in practice only includes semi-urban villages and rural areas. CILSS (2006) "Cadre Harmonisé d'Analyse Permanente de la Vulnérabilité Courante au Sahel" Document de Référence – CILSS, Ouagadougou

59 Tapsoba, Syvestre (2000) "Étude sur la Faisabilité du Bilan Alimentaire dans les pays du CILSS" Centre Régional Aghrymet, Niamey

60 USAID (2005) "Niger: An Evidence Base for Understanding the Current Crisis" FEWS NET, Washington D.C.

While CILSS-promoted national food security structures have been set up in all five countries, the organizational structures show important differences with a multiplicity of organizational units with no clear lines of command and with the exclusion of some key entities in some of the countries. Likewise, the systems apply different concepts and analytical methodologies. It would be important to analyze the efficiency and effectiveness of the different structures, sub-structures and alternative structures established for instance by donor groups or NGOs.

Applying a food economy approach through sustainable livelihoods assessments to assess food security will allow the consideration of a number of challenges that have been identified when using food balances based on national food security assessments. The challenges include the problems in identifying the considerable regional variations in food security and vulnerability, the ignorance of food insecurity in urban areas[61] and the gender blindness of most sources[62]. However, it should be stressed that urban livelihoods should be included in the livelihood groupings, which is not the case for the time being.

The cited IFPRI study on assessing food security[63] concludes that household expenditure surveys offer useful indicators for diet quality and quantity. However, the study also stresses that household expenditure surveys fail to capture vulnerability and other important elements such as food preferences. The study therefore recommends that data from household expenditure surveys be combined with other data sets. But it should also be noted that the study advocates not only developing new data sets but also maintaining for instance food balance sheets which are not only important in their own right but also offer critical information for the overall understanding of food insecurity. Most important, the study highlights the need for substantial additional research.

It is generally recognized that many vulnerable segments of the Sahel population have limited access to food during a large part of the year; particularly in the pastoral and agro-pastoral zones north of the 400mm isohyets. However, coherent monitoring of food security at household and community levels including the collection and analysis of data is limited mainly due to lack of resources. As such, in August 2005, Niger had still not published data collected in the 2004/05 season.

The national agricultural and food security policies are mainly based on production for own consumption instead of production for income generation, which increases the vulnerability of most producers. However, the lack of agro-industry and market structures severely limit alternatives to production for own consumption.

The limited road network in the Sahel leaving many communities inaccessible during part of the rainy season is a major challenge for food security but is not always accounted for properly in the food security arrangements. In Chad for instance no pre-positioning of food stocks took place during the dry season in 2006.

The 2004 Evaluation of the Food Aid and Food Programme[64] shows that the EC Delegations consider the instruments under the food security budget line, with a combination of food aid and food security interventions, are of special importance to strengthen the LRRD. However these measures can only be effective when good coordination and dialogue with the government is ensured. The weak coordination capacity was seen as a special problem for food aid distributed through DG ECHO.

The EC Delegations have used the Food Security budget line as a flexible instrument and there is some concern that they will be restricted in their operational leeway with the transfer of the food aid part of the old food security budget line to DG ECHO. However, this transfer could also create an opportunity for closer collaboration between the Delegations and DG ECHO.

61 The importance of urban food insecurity was shown for instance in Cape Verde with support from the EC funded initiative "Food Security Information for Action" (GCP/INT/742/EC). It was only after applying a livelihood assessment in Cape Verde that the challenges of urban food insecurity were highlighted. A recent survey (March 2006) in Mauritania estimates that 230,000 urban people are food insecure and malnourished (personal information from the interviews).

62 Anecdotal evidence shows that female headed households are more food insecure than others.

63 Smith, Lisa et al. (2006) "Food Insecurity in Sub-Saharan Africa New Estimates from Household Expenditure Surveys" International Food Policy Research Institute, Washington D.C.

64 EC (2004) "Thematic Evaluation of Food Aid Policy and Food Aid Management and Special Operations in Support of Food Security" European Commission, Brussels

4.3 Malnutrition

Malnutrition may be the direct result of too few calories[65], lack of micronutrients in the food, or inadequate food uptake by the body, for instance during diarrhoeal and respiratory diseases, malaria and epidemics such as meningitis. A number of different indicators have been suggested for monitoring malnutrition levels. For instance, the indicator of hunger (as a proxy for malnutrition) chosen by the international community to monitor the first Millennium Development Goal (MDG 1.2) is Underweight-for-Age (sometimes referred to "general malnutrition"). Likewise, in the yearly Global Needs Assessment, DG ECHO applies the indicator "Underweight" for children under five years of age to express malnutrition[66]. To better understand the different kinds of malnutrition, indicators for Stunting (height-for-age) are used to reflect chronic malnutrition which shows little seasonal variation and develops slowly in the individual. On the other hand Wasting (weight-for-height) is used to reflect acute malnutrition which can develop rapidly and often also shows large seasonal variations. Consequently, acute malnutrition normally describes a recent or current process leading to significant weight loss such as acute starvation. Moreover, acute malnutrition increases morbidity and mortality substantially.

To express the severity of malnutrition rates the indicators are often divided into moderate and severe, calculated according to the extent to which the individual rates are dispersed in relation to the arithmetic mean, the so-called standard deviation (s.d.)[67]. According to international norms moderate malnutrition expresses cases that are between 2 and 3 s.d. below an internationally determined reference mean while severe malnutrition refers to cases that are 3 s.d. below the mean. Global malnutrition rates refer to the combination of severe and moderate rates, whether acute or chronic.

[65] Malnutrition refers to both nutrition deficiency and excess. While there are some signs of increasing obesity in the Sahel countries as can be seen in the tables in this report, the term malnutrition will only be used here for nutrition deficiency. It should be noted though that based on traditional values, an extremely high number of Mauritanian white Moor females are obese, but these perverse feeding practices are not found in the other Sahel countries. It is estimated that around 10% of the young girls are force-fed.

[66] Another indicator used in the Global Needs Assessment is the Mortality Rate for children under five which would reflect acute malnutrition rates as well. For example according to HKI (2006) 51% of the extremely high under 5 child mortality rate in Mali (7th highest in the world) can be attributed to malnutrition; HKI (2006) "Knowledge, Practice, Coverage - Baseline Survey Report - February 2006" Helen Keller International, Bamako

[67] "z-score" is also used to express the relative malnutrition of a child. The z-score then expresses the number of s.d. a child is away from the reference mean.

Prevalence of Under-nutrition in Children Under Five Years of age (%)

	Latest Survey year	Underweight		Stunting -Chronic Malnutrition		Wasting – Acute Malnutrition		Over-weight
		severe< 3 s.d.	global <2 s.d.	severe< 3 s.d.	global <2 s.d.	severe< 3 s.d.	global <2 s.d.	global >2 s.d.
Burkina Faso	2003	13.7	37.7	19.5	38.8	5.1	18.6	2.9
Chad	2000	9.4	28.0	13.4	29.1	1.9	11.2	1.5
Mali	2001	10.7	33.2	19.2	38.2	1.6	10.6	1.5
Mauritania	2000-01	9.8	31.8	16.5	34.5	3.3	12.8	n/a
Niger	2000	13.7	40.1	18.6	39.7	2.3	13.6	0.8

s.d.: standard deviation below/above the average (in a normal distribution, 3 s.d. on either side of the arithmetic mean would contain around 99% of all values).

Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org,faostat based on WHO's Global Database on Child Growth and Malnutrition. The age group is 0 to 59 months.

THRESHOLDS FOR ACUTE MALNUTRITION

According to WHO standards[68] global acute malnutrition (GAM) rates under 5% for children under the age of five years (<5) are considered acceptable. Rates above 10% are classified as risky (and rates between 5 and 9% if combined with aggravating factors such as epidemics or food rations below mean energy requirements) calling for extra attention and special feeding programmes. Rates above 15% are considered serious (and above 10% when combined with aggravating factors) calling for general rations plus supplementary feeding for vulnerable groups and therapeutic feeding for severely malnourished children. Rates above 20% are considered to be of crisis proportions requiring emergency responses. National nutritional protocols in the five Sahel countries generally require planning for emergency interventions when the <5 acute malnutrition rate is above 15%[69]. As can be seen from the table of prevalence of the different under-nutrition[70] rates, acute malnutrition rates are serious enough in all five countries to require immediate attention. However, coherent and reliable nutritional datasets are few and far between and trends are difficult to calculate. For example, no national-scale nutritional surveillance exists in any of the five countries. However, based on anecdotal evidence and specific and local studies, the very

68 WHO (2000) "The Management of Nutrition in Major Emergencies" World Health Organization, Geneva

69 It should be noted that the international reference standard (based on USA data from 1983) is currently under revision. The new WHO Multicentre Growth Reference Study based on data from 1997 – 2003 from Brazil, Ghana, India, Norway, Oman, and USA will form the basis for new international standards that many NGOs and other partners are already using. For a while this will make comparisons and interpretations more difficult. For instance, the malnutrition rates of infants under 12 months in Malawi are almost twice as high when applying the new WHO standards compared to older standards; FANTA (2006) "Out with the Old – In with the New" Food and Nutrition Technical Assistance Project, Washington D.C.

70 Undernutrition is a composite index combining underweight, acute malnutrition and chronic malnutrition and is therefore often used as an overall indicator for nutritional status. There is a tendency for UN agencies and others to increasingly use the term "undernutrition". However, while underweight, acute malnutrition and chronic malnutrition are all interlinked and generally a result of fragile states and high vulnerabilities, it is important to maintain a measure of acute malnutrition as it offers an opportunity for effective curative measures if acted upon rapidly.

high under-nutrition rates in the Sahel seem to have remained at the same levels for the last 15 to 20 years, contrary to other health indictors where some slight improvements can be observed according to the Demographic and Health Surveys[71]. Moreover, even in "normal" years in the Sahel "malnutrition pockets" with acute malnutrition rates >15% always exist throughout the region, which would require public health interventions according to the national protocols. However, in practice few interventions took place in the region until the 2004/05 Sahel food crisis brought renewed international attention. Some development and humanitarian agencies explain the lack of action by the complexity, chronic nature and magnitude of the problem and also by the fact that in other regions - East Africa for instance - acute malnutrition rates are also high without necessarily triggering a public health or humanitarian response.

It should be noted that the above-mentioned threshold rates do not take into consideration sudden increases in malnutrition rates which can be signs of aggravating health and food insecurity which should be addressed before developing into large-scale crises. Similarly, the seasonality of the malnutrition that can be observed in many countries might call for seasonal thresholds. However, WHO recommends using the thresholds as guiding principles that should be adapted to local conditions. This in turn highlights the need for coherent local baseline data.

CAPACITY TO ADDRESS MALNUTRITION

In response to the International Conference on Nutrition organized by FAO and WHO in Rome in 1992, all the five Sahel countries prepared National Action Plans. In Niger for instance a National Nutritional Action Plan was developed in 1994 and reviewed and updated in 2002 during a national workshop. The Plan has nine strategic objectives including household food security and inter-sector coordination. However, the plan has never been officially approved and has only been implemented through some scattered projects aiming for instance at distribution of vitamin A or iodine fortified salt. It should be noted though that some of the CILSS countries have recently approved national nutritional policies, e.g. Mauritania.

The lack of national attention to the malnutrition problem is closely linked to the general crisis in the health services in the five countries. These services are generally under-utilized because few people can afford their services combined with the fact that they are staffed by poorly qualified and un-motivated workers and they are inaccessible. For example in Mauritania where 62% of the population is urban, more than 10% of the total population

[71] www.measuredhs.com

must still travel more than 10 km to the nearest health post[72]. Likewise in Burkina Faso where more than one third of the population has good access to health services (measured as the population that is located within 30 minutes of a health facility) only 4% of the population used the health facilities in 2003 according to the PRSP[73]. The units in charge of nutrition within the Ministries of Health have few staff members in the capital and their modest budgets are generally limited to administrative costs. In Chad the public health system has no graduate nutritionist in its employ and the limited number of interventions depends on donor funding. In spite of some project achievements in training community nutritionists, very few trained staff remain in the field once the project has come to an end. In practice this means that generally only NGO-supported nutritional rehabilitation centres are functioning. Niger's national nutritional protocol has been developed by UNICEF and covers issues such as surveillance methodologies and training of primary health staff. While most NGOs working in the field of health and nutrition have signed on to the protocol there are still some NGOs that have not. UNICEF is organizing weekly meetings with NGO and government partners for information exchange and coordination and it is still very much seen as an external activity. Currently, some international NGOs in Niger are debating whether or not to pay financial incentives to the health staff without knowing if the Ministry of Health will authorize such an initiative.

However, the recent renewal of donors' attention to malnutrition has led to several new interventions, often with special focus on ownership and institutional strengthening in order to implement national nutritional policies. Experience from the World Bank funded Nutricom project in Mauritania (1999 – 2005, US$ 10 million) for instance showed that the impact of community-based learning and innovation activities in rural and urban areas was limited. Major problems identified include the country's low implementation capacity, particularly the need for better supervision and coordination of community-based interventions. The World Bank has therefore approved a successor "Health and Nutrition Support Project" (2007 – 2009, US$ 2 million) to support the implementation of the new National Nutrition Development Policy and the National Health and Social Action Policy. The Project supports particularly improved and more equitable access to health services as well as community-based communications for improved nutrition. It will be jointly implemented by the Ministry of Health and Social Affairs and the State Secretariat for the Promotion of Women.

[72] World Bank (2006) "Repositioning Nutrition as Central to Development – a Strategy for Large-Scale Action", World Bank, Washington D.C.

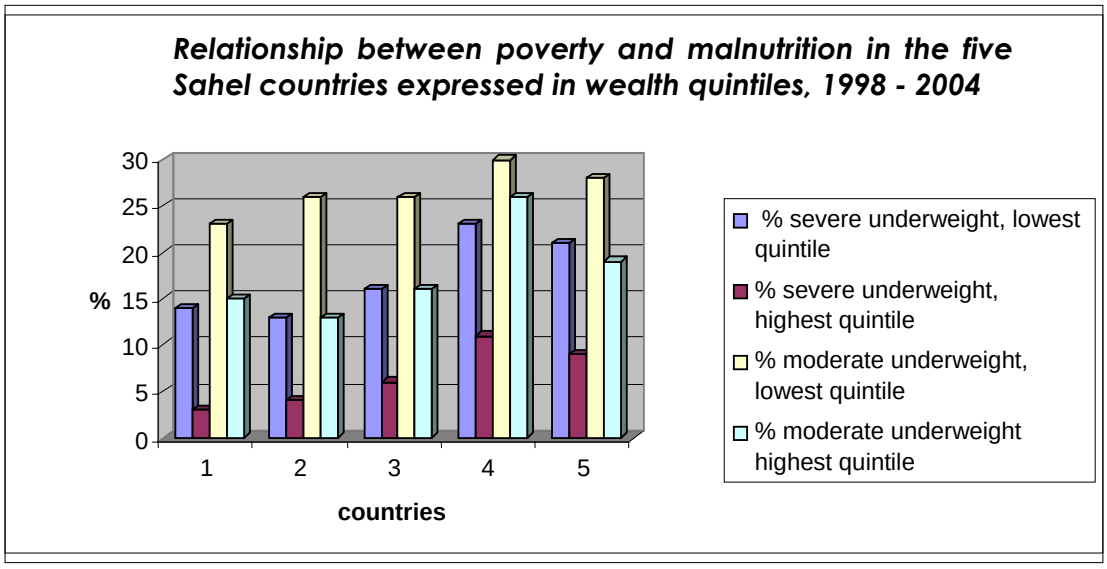
[73] Ministry of Economy and Development (2004) "Poverty Reduction Strategy Paper", Ministry of Economy and Development, Ouagadougou

CAUSES OF MALNUTRITION

Based on anecdotal evidence, most partners including local actors in the Sahel countries believe that high malnutrition rates are closely linked to poverty. This observation is in line with the results from a number of global studies showing correlations among poverty, hunger and malnutrition. However, the income elasticity between incomes and intake of calories is relatively low and GDP accounts for under half of the variation in low birth weight among countries. This led Behrman et al. (2004)[74] to suggest that nutritional objectives such as the MDG of halving the number of underweight children by 2015 cannot be met through income growth alone. Rather, focus should be given to child and reproductive health programmes with emphasis on reducing the incidence of low birth weight, promotion of exclusive breastfeeding and infant and child nutrition, reducing anaemia and deficiencies of vitamin A, iodine, and zinc, and investment in agricultural development.

In collaboration with the Demographic and Health Survey, the World Bank launched a research initiative in the late 1990s to identify differences in health, nutrition and population conditions among poor and better-off countries, including the five Sahel countries[75]. For the five countries a clear relationship can be shown between wealth groups and severe chronic and acute malnutrition for both girls and boys while the moderate malnutrition rates do not seem to be related to the wealth groups[76]. Data from Chad for instance show that 21% of the children belonging to the lowest quintile wealth group are severely underweight against 9% of the children in the highest quintile wealth group. Similarly, there seems to be a strong correlation between time spent on complementary feeding for infants and income levels. For instance, the 2000 data from Mauritania show that 46% of 3 to 9 month-old infants in the lowest quintile wealth group receive complementary feeding compared to 86% in the highest wealth group. Those data are consistent with data from 1996 – 97.

74 Behrman, Jere R et al. (2004) "Hunger and Malnutrition" Copenhagen Consensus – Challenges and Opportunities, Copenhagen
75 www1.worldbank.org/prem/poverty/health/data/index.htm
76 Wealth groups are defined according to five quintiles of total household income.



Countries: 1: Burkina Faso, 2: Chad, 3: Mali, 4: Mauritania, 5: Niger.

Source: World Bank: www1.worldbank.org/prem/poverty/health/data/index.htm

It should also be noted that according to the Demographic and Health Survey data set for the five countries there are no significant differences in the proportions of underweight boys compared to girls. However, this is in contradiction to general observations made during interviews for this study as well as several local studies that showed clear differences between malnutrition rates of boys and girls [77]. Moreover, there seems to be a tendency for slightly higher underweight rates in the urban areas compared to rural areas in some countries.

High acute malnutrition rates are often associated with the number of children per woman and the spacing between the pregnancies. However, it should be noted that the data from the World Bank/Demographic and Health Survey did not show any clear relationship between the number of children and wealth groups, except some tendencies for the highest quintile wealth group to have fewer children in Burkina Faso and Chad.

SEASONALITY

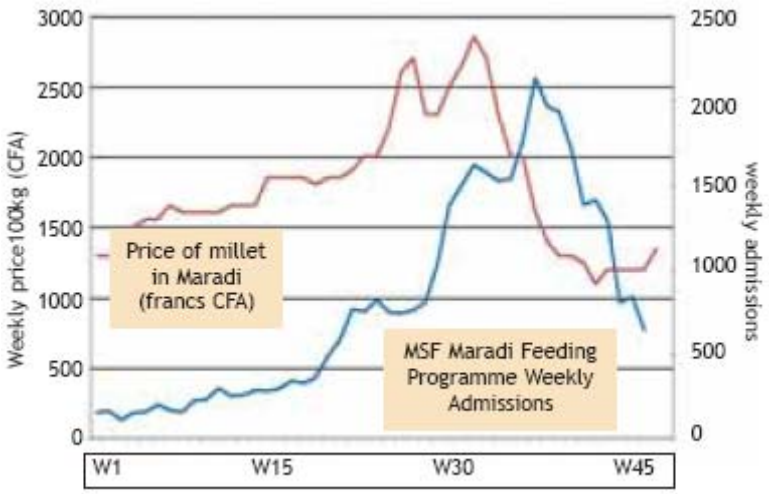
It is generally assumed that there is a link between acute malnutrition and food security and thereby implicitly with drought[78]. However, comparable seasonal nutritional status information is rarely available in the Sahel countries. Data from 22 districts in the arid and

[77] A recent study by HKI in the region of Koulikoro in Mali for instance shows that the malnutrition rates for boys to be 23% compared to 11% for girls ((HKI (2006) "Knowledge, Practice, Coverage - Baseline Survey Report - February 2006" Helen Keller International, Bamako). But the study is not conclusive and urges more investigation on this subject.

[78] SMART (2005) "Interpreting the Findings" Standardized Monitoring and Assessment of Relief and Transitions www. Standardindicators.org

semi-arid parts of Kenya, where acute malnutrition rates have been monitored monthly[79] for children under five over the last three years as part of the Arid Lands Resource Management Project[80], show important differences in Global Acute Malnutrition rates over the year but with no clear indication of seasonality. The number of admissions of severely malnourished children at nutritional rehabilitation centres (outpatient and stabilization) in Maradi, Niger, recorded by MSF, show some seasonality with an apparent increase in the number of severely malnourished children during the lean season (July – September). The seasonality is further explained by Tectonidis (2006) in an analysis of MSF's response to severe acute malnutrition in Niger[81] in 2005 showing the strong correlation between market prices of millet in Maradi and the number of admissions of acute malnourished children into MSF programmes five weeks later. It should be noted though that the lean season is also the period that traditionally has the highest rates of malaria.

Correlation between Price of Millet and Admission of Acute Malnourished Children to MSF Programmes in the Province of Zinder, Niger



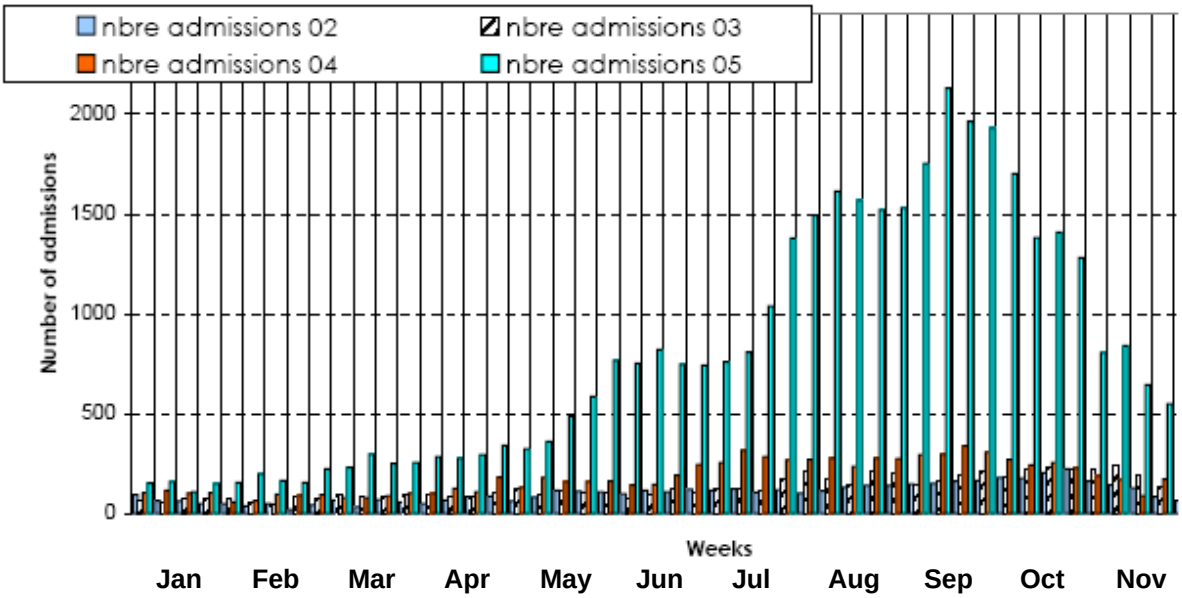
Source: Tectonidis, Milton (2006) "Scaling up the treatment of acute childhood malnutrition in Niger" pp 2 – 4 in Field Exchange July 2006, issue 28, Emergency Nutrition Network, Oxford

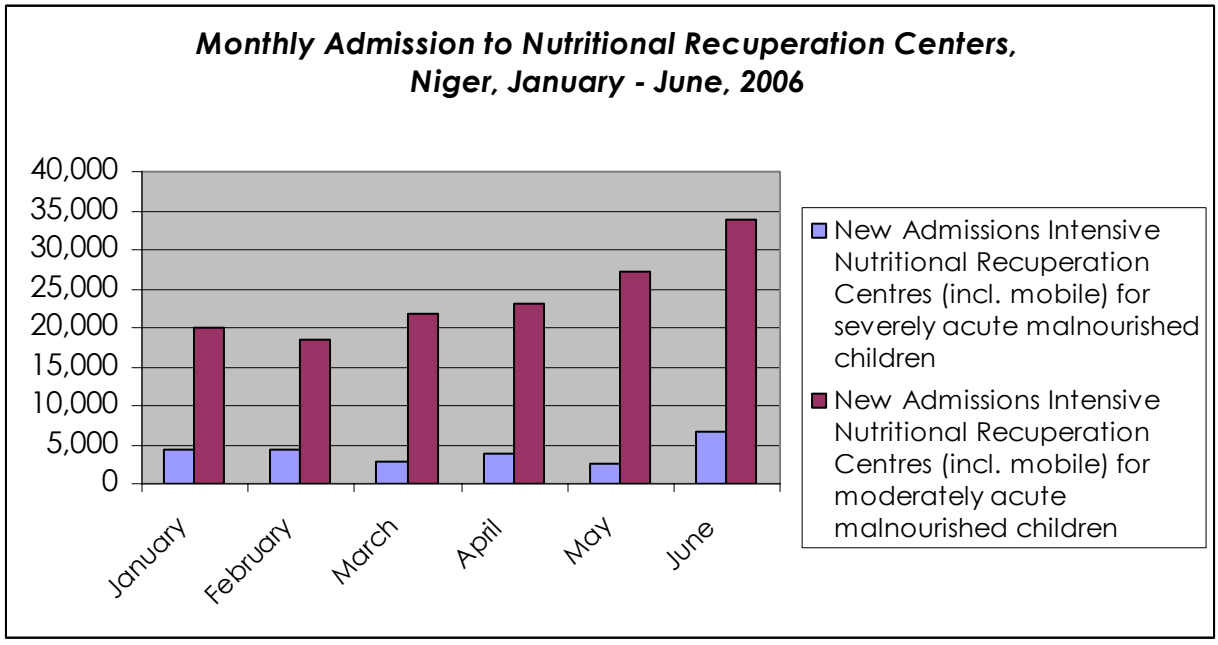
[79] The acute malnutrition rates have been estimated using Mid-Upper Arm Circumference (MUAC). MUAC's sensitivity is often questioned and there are no universally accepted cutoff points. In Niger, the Ministry of Health will change the MUAC measurement in the currant protocol to weight/ height in the forthcoming revision. In Mali, the NGOs ACF and Oxfam compared surveillance measuring height and weight compared with MUAC and found that while MUAC picked up an acute malnutrition rate of 4.3%, with 0.4% severe, weight/height conducted on the same children showed a global rate of 7.6% with 0.6% severe (ACF - Oxfam (2006) "Enquête nutritionnelle et de mortalité commune d' Amderamboukane, région de Gao, cercle de Menaka, Mali" Final Report – Action Contre la Faim, Bamako. However, considering that scales are lacking in most health centers in the five countries, MUAC is often the only practical alternative for estimating malnutrition rates.

[80] www.aridland.go.ke/bulletins.asp

[81] Tectonidis, Milton (2006) "Scaling up the treatment of acute childhood malnutrition in Niger" pp 2 – 4 in Field Exchange July 2006, issue 28, Emergency Nutrition Network, Oxford

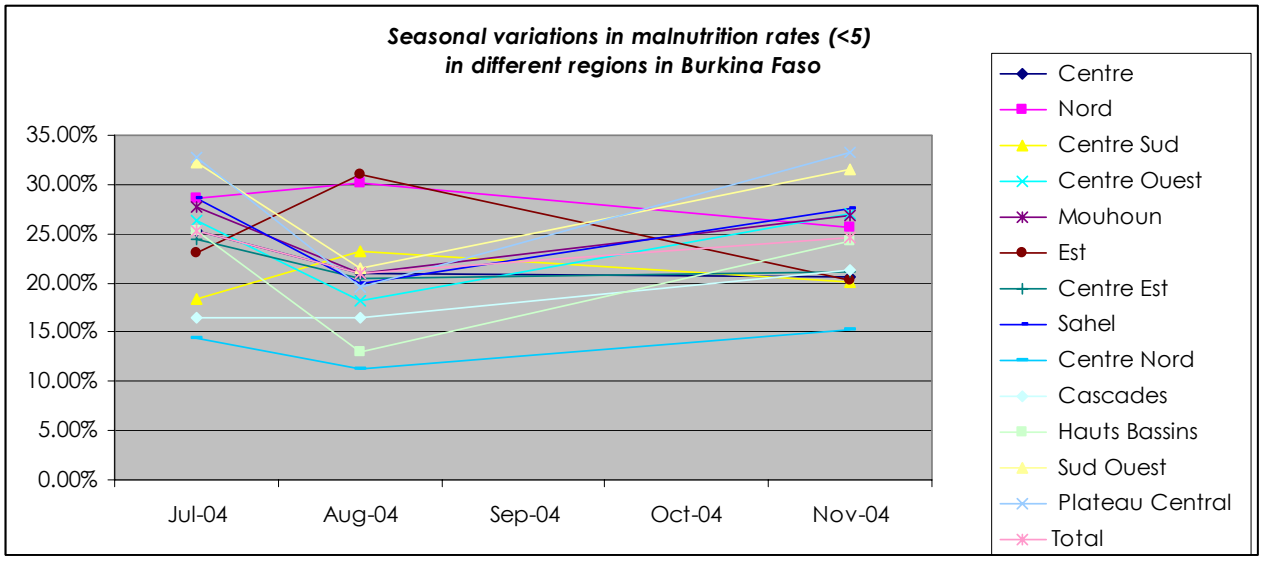
Number of admissions of severely malnourished children at the nutritional rehabilitation center in Maradi, Niger - Medicins Sans Frontieres





Source: UNICEF, Niger (2006) "Bilan Semestriel – Réponse à la Situation Nutritionnelle des Enfants", UNICEF, Niamey

Likewise, data from Burkina Faso indicate relatively important variations in acute malnutrition rates in time and space. Such variations seem characteristic for the whole region and reinforce the argument that the causes of malnutrition are likely to vary substantially across different regions of the same country. But this fact also underlines the need for much more research on causal correlations between acute malnutrition and other stressors.



Source: Ouedraogo, Hermann (2006) "Analyse des données de l'Enquête Sanito-nutritionnelle campagnes 2004-2005 et 2005-2006" Direction des Préventions et d"Alerte Précoce, Ouagadougou

Another possible indicator for causality between drought and acute malnutrition is the close correlation that can be found in the region between lack of access to water and acute malnutrition. UNICEF has noticed for instance that the regions in Mali where most households suffer from lack of access to clean water are Gao, Mopti, and Kayes are also the regions with the highest acute malnutrition rates.

Finally it should be noted that around 20% of the women in Burkina Faso and Chad are underweight; data that are estimated to be representative for Niger and Mali as well, with serious impacts on their children *ceteris paribus.*

Prevalence of Chronic Malnutrition in Adults (%)

	Latest Survey year		Underweight Body Mass Index <18.50			Overweight Body Mass Index 35-30			Obesity Body Mass Index >30		
	Age Range	Area	Total	Male	Female	Total	Male	Female	Total	Male	Female
Burkina Faso	2003	Nat.	n/a	n/a	20.8	n/a	n/a	9.3	n/a	n/a	2.4
	15-49	Rural	n/a	n/a	24.4	n/a	n/a	3.8	n/a	n/a	0.6
		Urban	n/a	n/a	8.8	n/a	n/a	28.4	n/a	n/a	8.7
Chad	2004	Nat.	n/a	n/a	19.2	n/a	n/a	7.1	n/a	n/a	n/a
	15-49	Rural	n/a	n/a	21.5	n/a	n/a	4.9	n/a	n/a	n/a
		Urban	n/a	n/a	15.1	n/a	n/a	20.1	n/a	n/a	n/a
Mali	1995-96	Nat.	n/a	n/a	n/a	n/a	n/a	8.6	n/a	n/a	1.3
	15-49	Rural	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
		Urban	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mauritania	2000-01	Nat.	n/a	n/a	n/a	n/a	n/a	38.4	n/a	n/a	21.9

Source: FAO (2006) "FAOSTAT – Online Statistical Service" www.fao.org.faostat based on WHO's Global Database on Body Mass Index (weight in kilograms divided by the square of the height in meters (kg/m²)). No information is available for Niger.

Good Practices – Local Answers to Malnutrition

Spirulina is a blue-green algae found in most lakes and ponds in West Africa. 55 to 77% of the dry algae consist of all essential amino acids compared to 22% in beef. Moreover, the composition of the amino acids in Spirulina is close to perfect for human needs and it also contains a number of other essential micronutrients such as vitamin B12 (generally only found in animal products), vitamin E and iron among others. Spirulina has been consumed traditionally by local people in Latin America, Africa and Asia and over the last decades it has been used increasingly to stimulate faltered immune systems. It was used for instance to treat children affected by the Chernobyl nuclear disaster. In Chad, the population around Lake Chad collects Spirulina from lakes and ponds and dries it into cakes known as Dihé which are sold in the market and used in traditional meals.

In Burkina Faso, the French NGO CODEGAZ[82] has supported the production of Spirulina in the northern town of Koudougou since 1999 in collaboration with the local association OCADES[83] for use in national Nutrition Education and Rehabilitation Centres (CREN). Some part of the production is sold to ensure self-financing of the production. The production is around 170 kg per month providing work for 20 local women. Typically, CRENs feed severely malnourished children 5 g of Spirulina daily in combination with millets or combined cereals such as Misola (combined food consisting of millet (60%), soya (20%), peanut (10%), sugar (9%) and salt (1%)). Considering the very positive results from Spirulina in treating severe malnutrition cases, the Ministry of Health in Burkina Faso has launched several projects for local production of Spirulina based on the Koudougou experience.

A study of 550 undernourished children in Burkina Faso[84] showing severe marasma (protein energy malnutrition from prolonged starvation, often combined with chronic or recurrent infections) and kwashiorkor (acute protein energy malnutrition) showed positive synergy of treatment with Spirulina and Misola in combination, allowing severe malnutrition to be corrected during eight weeks of treatment. While more research is called for, the results led the authors of the study to recommend Spirulina use in combination of either Misola or traditional meal in order to accelerate nutritional rehabilitation through reintroduction of traditional and local products.

Good Practices – Integrated Child Care

The Integrated Child Care Programme in Honduras is a widely recognized model for integrating health and nutrition in a community-based programme. The programme was launched in response to malnutrition rates of 40% and the approach led to a reduction of 50% over the first three years. The Programme uses volunteers to train mothers and communities to monitor adequate growth in children younger than two years and to provide curative care for malnourished children under 5 years of age, including referrals to health centres. Fiedler estimates that adding the curative component to the preventive programme would increase its cost by only 13%, the total cost being US$ 6.81 per child. The programme tries to retain its trained staff, including volunteers, through a number of incentives such as free health care, bags, annual recognition and support for social events. [85]

82 CODEGAZ was founded by the staff of Gaz-de-France to provide humanitarian needs with a special focus on local job creation and sustainability. www.codegaz.fr

83 Organisation CAtholique pour le DEveloppement et la Solidarité

84 Simpore, Jacques et al. (2006) "Nutrition rehabilitation of undernourished children utilizing Spiruline and Misola" Nutrition Journal, Volume 5:3, www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1386687

85 Fiedler, John L. (2003) "A Cost Analysis of the Honduras Community-Based Integrated Child Care Program (Atención Integral a la Niñez-Comunitaria, AIN-C)" World Bank, Washington D.C.

Good Practices – Accelerated Strategy of Child Survival and Development

In Chad, UNICEF will implement the accelerated strategy of child survival and development, pioneered in Mali and Ghana and also adopted by Mauritania. At one US$/child/year, it includes the promotion of exclusive breastfeeding[86] for six months and of appropriate feeding practices until 24 months; immunization, vitamin A distribution, control of anaemia for pregnant women and young children, de-worming, distribution of impregnated bed nets, promotion of iodized salt and the prevention of low birth weight through ante-natal care.

Important Lessons Learned for the Sahel Strategy

Causes of acute malnutrition consist of a complex of interrelated factors including issues that can only be addressed through long-term development activities such as poverty eradication, mainstreaming of nutrition in macro-economic policies, female education, diminishing women's workload, increased food production and food diversity, improved water supply and sanitation. However, a number of factors leading to acute malnutrition can be addressed through relatively short-term activities aiming at behavioural change for maternal and childcare practices, promotion of exclusive breastfeeding and timely complementary feeding, micronutrient supplements, weight control education, targeted food aid and improving the capacity of health care centres to care for sick children. All these practices have proven high cost-benefit rates according to the World Bank[87].

While there is a general recognition that the causes of malnutrition are multiple there are still few proven causal correlations and most malnutrition interventions still tend to focus on food. In general there are far more assumptions than facts regarding the dynamic of malnutrition in the Sahel. Hence, it will be important to identify the right causes of malnutrition and not just think that food availability is always involved.

Recognizing the severe methodological constraints that are linked to interpreting nutritional studies and making cross-country analysis[88] Smith and Haddad (2000) present some interesting conclusions on causes of malnutrition. Based on data from 63 developing countries[89] the following variables were analyzed: National food availability, Women's Education, Women's Relative Status, Access to Safe Water, Per Capita National Income and Democracy. The conclusion from the study was that women's education was responsible for 43% of total child malnutrition[90] between 1970 and 1995 while food availability contributed with 26% and health and sanitary improvements with 19%. Those same factors as well as women's relative status and per capita income largely explain the stagnation/deterioration in the nutritional status in Sub-Saharan Africa over the same period. Similarly the improvements in child nutrition that can be observed in the Middle East and Northern Africa are mainly attributed to women's improved educational levels.

86 Exclusive breastfeeding contributes to the development of the infants' immune system, prevents diseases caused by ingestion of unsafe water, and stabilizes the blood sugar levels.

87 World Bank World Bank (2006) "Repositioning Nutrition as Central to Development – a Strategy for Large-Scale Action", World Bank, Washington D.C.

88 Lack of a scientifically based theories, no clear indication of why certain factors have been included or excluded, different definitions (e.g. what does "access to healthy water mean) etc.

89 Of which 26 are Sub-Saharan African countries, including Burkina Faso, Mauritania, and Niger.

90 While no clear definition is given for "malnutrition" it seems that the data and conclusion refer to chronic malnutrition; or weight-for -age.

A number of nutritional projects[91] have shown that despite intense awareness-raising campaigns mothers generally find it difficult to limit supplementary feeding rations to their severely malnourished children but distribute it generally among all their children. It should also be noted that acute malnutrition is generally not seen as an illness by the mothers. As highlighted by Delsol and Martin-Prevel (2005)[92] a mother in Niger will not be inclined to consult a local health center because of a wasted child, particularly considering the financial costs of doing so. Moreover, there is often a social stigma linked to malnourished children leading many mothers to hide the children and not seek public help.

Various humanitarian and development partners implementing nutritional programmes have been developing computer-based programmes for calculating the impacts of malnutrition and identifying its main causes. For example the system Profiles developed by the Academy for Educational Development[93] was used in Ghana for the development of programmes to address malnutrition. The application of Profiles showed that 5,500 infants die annually due to inappropriate breastfeeding practices which led to the development of specific awareness-raising programmes for pregnant women on the importance of breastfeeding.

A study on the impact of drought on acute child malnutrition in countries in Southern Africa[94] shows that the 2001/02 drought caused significant increases in acute child malnutrition but with strong correlations to socio-economic status and HIV/AIDS. After some initial signs of decreasing acute malnutrition rates when the drought waned, the study also shows that the improvements were short-lived leading the authors to suggest reduced resilience as a result of other and repeated shocks.

Referring to a study from Cornell University, the UN Special Rapporteur on The Right to Food emphasised in 2001 that more than two thirds of the children dying from malnutrition are mild to moderately malnourished and not acute, thus stressing the importance of focusing on both moderate and acute malnutrition[95].

Following the International Conference on Nutrition organized by FAO and WHO in 1992, the countries developed national plans of action for nutrition highlighting the following nine priority themes: mainstreaming nutrition in development policies, improving household food security, improving food quality and safety, preventing and managing infectious diseases, promoting breast-feeding, supporting vulnerable populations, controlling micronutrient deficiencies, promoting appropriate diets and lifestyles and monitoring nutrition. Regrettably, little action has been taken based on these plans because of the lack of implementation strategies with corresponding budget lines in the national budgets.

After a long history of neglect of malnutrition as a public health problem, the 2005 crisis has put malnutrition higher on the agenda. Initiatives taken so far, however, are either of a campaign nature or entirely dependent on external actors.

91 See for instance experience from Malawi (C-SAFE (2004) "From the C-SAFE Malawi Working Groups: Nutrition, Chronic Illness, Food for Work, & Commodities" C-SAFE Learning Center) and from Bangladesh and Ethiopia (Save the Children UK (2003) "Thin on the Ground" Save the Children UK, London)

92 Delsol, Hervé and Martin-Prevel, Yves (2005) "L'information nutritionnelle dans un contexte de surveillance et d'alerte précoce: Eléments de Réflexion - Aide Mémoire de Mission " Service de Coopération et d'Action Culturelle, Ambassade de France, Niamey

93 www.aedprofiles.org. The advantages of using systems such as Profiles depend of course of the quality of the data used as highlighted for instance by Save the Children, UK in their analysis of nutrition programmes in Bangladesh, Ethiopia, and Uganda. The analysis concludes that software such as Profiles can be very useful in showing the economic and therefore political advantages of implementing nutritional programmes. However, the baseline data and economic forecasts might lead to overoptimistic outcomes of programmes.

94 UNICEF (2003) "Drought, HIV/AIDS, and Child Malnutrition in Southern Africa" UNICEF Regional Office Eastern and Southern Africa

95 UN (2001) "The Right to Food - Preliminary report of the Special Rapporteur of the Commission on Human Rights" United Nations – A/56/210 – New York

The recent World Bank initiative on Repositioning Nutrition as Central to Development suggests that interventions should focus on pregnant women and the first two years of life of children when the immune system is still under development. It is in this phase that irreparable damage happens when children are not fed an appropriate diet. More specifically the World Bank recommends that priority activities during this window of opportunity should include maternal and childcare practices to change poor behaviours and promote exclusive breastfeeding and timely complementary feeding, micronutrient programmes, integrate improved nutrition in agricultural, rural development and water and sanitation programmes, and integrate nutrition actions in PRSPs, SWAPs and other development initiatives.

Community-Based Therapeutic Care (CTC) was originally developed by Valid International[96] to improve the coverage and impact of selective feeding programmes for the treatment of acute malnutrition. CTC uses decentralized networks of outpatient treatment sites to provide take-home food rations known as Ready-to-Use Therapeutic Food along with routine medicines. CTC has proven particularly effective in bridging curative and preventive approaches. It is being successfully implemented in the Sahel to address the permanently high rates of acute malnutrition by several International NGOs in the Sahel, including Concern and Save the Children[97] often within an LRRD approach focusing on building community level institutional capacity.

CILSS in collaboration with the French Cooperation is currently carrying out a major background study for the integration of nutritional aspects into Early Warning Systems in the Sahel. Preliminary conclusions from the country studies show that nutritional information exists but that the major stumbling block is the lack of analytical capacity as well as the lack of coherent response strategies with clear identification of 'when, by whom, and what' for the different activities.

Poor nutritional habits are often cited as a major cause of the high malnutrition rates in the Sahel and there is often a lack of knowledge of how to improve the nutritional value of the diet. Cowpea production for example is rapidly expanding in Burkina Faso and Niger. While it is a nutritionally very good alternative to millet and sorghum, most farmers consider it a cash crop and there is a need for campaigns to promote the use of cowpeas in the daily diet.

4.4 Other Stressors

The vulnerable populations in the five countries continuously face a number of other stressors, including locusts, floods and epidemics such as malaria, meningitis, and in the case of Burkina Faso an incipient HIV/AIDS epidemic. They are all important parts of the overall vulnerability in the region but as for the other major stressors analyzed in this study, the relative weight and interactions among the various stressors call for further research. The cold weather in January 2005 for instance killed 200,000 cattle in Mauritania overnight and the current floods in the Sahel have led to a number of displaced households. According to WHO[98] severe malnutrition in Niger's rural areas is especially high during the "lean period" (June, July, and August), when grain stocks are at their lowest and the harvest has not yet begun. But as mentioned earlier the lean period also corresponds with the malaria incidence which peaks in August – September.

96 www.validinternational.org

97 The Community-based Therapeutic Feeding model was strongly recommended by the UN Millennium Project Sanchez, Pedro et al. (2005) "Halving Hunger – It can be done" Earthscan, London

98 WHO (2005) "Niger – Communicable Diseases Risk Assessment – July 2005" World Health Organization, Geneva

Locusts

The frequent devastating food crises in the Sahel caused by locust attacks led to the establishment of the Joint Organization for the Fight against Locusts and Birds (OCLALAV) by nine West African Governments[99] in 1965. OCLALAV operated its own anti-locust activities including monitoring teams that could be rapidly mobilized to susceptible areas, and response material such as small aircraft, pesticide stocks and four-wheel drive vehicles based at five regional antennas. OCLALAV was restructured in 1989 and its equipment, including four spraying planes, four-wheel drive vehicles and spraying equipment was divided among the then 10 member states to strengthen a decentralized implementation. The new mandate of OCLALAV was mainly limited to coordination and its funding was consequently limited. The national funding was never successful however and the lack of funding for operational costs left the spraying planes grounded. In the midst of the locust invasion in Mali for instance in September of 2004, eight spraying aircraft remained grounded in Mali due to a lack of fuel and maintenance. OCLALAV was finally suspended in 2004 leaving the region extremely vulnerable to locust infestations as the latest experience clearly shows.

Locusts started invading croplands again in the Sahel at the end of June 2004. In October 2003, FAO had issued an advice notice to boost control efforts including spraying the swarms before they started moving from Northern Africa[100]. As very limited funding materialized (AfDB funded US$ 6 million to the FAO EMPRES programme for activities in the Sahel countries) FAO issued an appeal for US$ 9 million in February 2004 but failed again to obtain adequate responses to prevent a locust invasion in the Sahel. In August 2004, FAO estimated that the costs for containing the locust problem would be more than US$ 100 million. The organization received far less than half of that amount. Major contributions included 23.5 million Euros from the EC in September 2004 for mitigation and preparedness, US$ 7 million from USAID for the locust campaign in Sahel countries and loans of US$ 12.7 million from the World Bank to seven Sahel countries. Northern neighbouring countries also supported the locust campaign in the Sahel through financial contributions and operational support. By June 2005, it was estimated that the livelihoods of more than 9 million people had suffered from the combined impact of the locust upsurge and reduced rainfall[101]. It is particularly the pastoralists who have been hard hit forcing a number

[99] Benin, Burkina Faso, Cameroon, Côte d'Ivoire, The Gambia, Mali, Mauritania, Niger, Senegal, and Chad.

[100] Some important facts to understand the necessary response strategy for locusts: locust swarms typically cover 100 to 200 km a day. The breeding cycle and the gregarious phase of the desert locust means that each infestation period normally last for 2 to 3 years if the cycle is not disrupted early.

[101] SWAC (2005) "Food insecurity in West Africa Why now again? What has been done? What still needs to be done? Sahel and West Africa Club, OECD, Paris

of livestock owners to de-stock resulting in a large price fall. For example, prices in many regions in Niger were 60% lower in 2005 than in 2004. The impact on the livelihoods of the pastoralists was reinforced by the fact that cereal prices almost doubled over the same period. The OECD estimates that 40 to 50% of the crops and pastures in Mauritania were destroyed by locusts in 2003/2004 (OECD, 2004). Moreover, some smaller colonies of adult locusts have been observed in July 2006 in the districts of l'Air and Tamesna in Niger.

Locust invasions are very irregular and many years can pass with no threats, which makes it even more important to ensure that institutional memory and prevention and mitigation capacity is maintained. However, this irregularity of locust invasions means that some donors are reluctant to fund recurrent costs needed to maintain a response structure operational when crises occur less than every five years[102].

BIRD FLU

The recent international and donor attention to Bird Flu has sparked immediate response strategies in countries such as Burkina Faso, Mali, and Niger, further reinforced by the establishment of special regional programmes in Bamako (International Animal Health) and Abuja (ECOWAS). Among the noticeable response activities are effective containment programmes established in villages along the Niger/Nigeria border offering compensation to farmers for culled animals. While more than 40% of the households have poultry, their economic importance is still marginal with poultry revenue constituting 1 to 4% of total expenditures in severely food insecure households and 3 to 9% of total food expenditures[103].

Finally, it should be noted that access to clean water and sanitation are determining factors for the deterioration of other humanitarian and development indicators, including food security and nutrition. NGOs in the five countries report that participatory rural assessments at community level almost always show that access to water and sanitation are among the five top priorities for the local population.

[102] See for instance OECD (2004) "The Desert Locust Upsurge in West and North Africa - Assessment of the situation, meeting conclusions and future perspectives" Organization for Economic Cooperation and Development – Agricultural Development and Transformation in West Africa, Paris

[103] CILSS/FEWS NET/WFP (2006) "The Socio-Economic Impact of Avian Influenza in Niger CILSS/FEWS NET/WFP Mission Report - 1-18 August 2006" Draft, World Food Programme, Niamey

5. EARLY WARNING SYSTEMS (EWS) AND VULNERABILITY IN THE SAHEL

In principle Early Warning Systems (EWS) are any signs that warn about the risks of future hazards[104]. The existence of well-functioning EWSs that provide early warnings to relevant stakeholders, whether producers, consumers, politicians, or donors, are therefore a crucial element of the vulnerability of any individual, household, community or other units.

FAMINE EARLY WARNING SYSTEMS

In 1974 the World Food Conference assembled a number of donors, UN agencies and countries affected by the widespread droughts and famines of the 1960s and 1970s. The participants decided there was an urgent need for monitoring and information systems to allow early indication of a need for food aid interventions. The decision led both FAO and USAID to establish global monitoring systems based on remote sensing combined with national crop statistics used to estimate food requirements for individual countries through cereal-balance-sheets. However, the widespread famine resulting from the drought in the Western Sahel in the mid-1980s clearly showed the inadequacy of the cereal-balance-sheets and the lack of information on accessibility[105]. In response, new initiatives were launched including the USAID[106] funded FEWS[107] in 1986 to anticipate potential famines and advise on response strategies based on food security analysis.

The FEWS was based on a limited number of indicators, including production estimates, food and labour prices, morbidity, mortality and malnutrition. While the system has its flaws it has probably been – and still is - the most used system in West Africa for food security management and is particularly appreciated for the contextual background it provides. One of the major problems for FEWS is its heavy reliance on other data. The system is mainly based on interpretation of satellite information from NASA[108] combined with existing information and the quality[109] and regularity of data collection is often criticized for its lack of field verification. Furthermore, the analysis of the system is to a large degree based on

[104] *Hazard* refers to a potentially damaging event, *Disaster* to a serious disruption of the functioning of a society (household, community, country, region) causing widespread damage and losses (economic, social, environmental, physical) which exceed the coping capacity of the society. *Risk* is the probability that a particular defined hazard actually will occur. For further definitions of natural disaster terminology kindly refer to the UN International Secretariat for Disaster Reduction www.unisdr.org/eng/library/lib-terminology-eng%20home.htm. There are many other definitions of disasters, hazards and risks which should be taken into account when analyzing different studies.

[105] The need for a broader approach to food security was already described by Amartya Sen in his famous 1981 publication "Poverty and Famines: An Essay on Entitlement and Deprivation" showing that famines are not just of matter of lack of food but usually stem from inequalities built into biased distribution systems.

[106] Through the Food for Peace Program. FEWS-NET's global budget is between US$ 12 and 13 (13.2 for the fiscal year 2007).

[107] Famine Early Warning Sytems (www.fews.net).

[108] National Aeronautics and Space Administration, US Government Body.

[109] FEWS – and now FEWS-NET uses various validation methods, including participation in joint field assessments with other agencies such as WFP, FAO, and CILSS.

subjective interpretations, including the weighting of the different indicators. Other critical points that are often raised include concerns about the ownership of the information and the weak national capacity to maintain efficient EWS for food security.

FEWS was transformed into FEWS-NET in 2000 with a mandate to build national and sub-national information networks to reduce food insecurity. Moreover, the current FEWS-NET has included a livelihood approach based on a food economy approach[110] combined with information on hazards[111] and household level response strategies. Livelihood zone maps have been developed for all the five Sahel countries including a general description of the different agro-ecological zones[112]. The maps also include descriptions and assessments of major hazards, vulnerabilities of the households, seasonal calendars, market structures and coping strategies.

A study[113] comparing the EWS of Save-the-Children-UK which is based on a household economy approach with the food economy-based FEWS-NET in a specific region in Zimbabwe (1996/97) shows significant differences in the two assessments in spite of the fact that both systems were mainly based on the same data. The study concludes that the differences can be explained partly by conceptual differences including the different reliability and weighting of the particular variables used, but also by the reliability of the baseline itself.

CILSS and Early Warning Systems

CILSS was created in 1973 to achieve regional food self-sufficiency[114] in the Sahel by the end of the century. It includes two specialized technical organizations: the regional centre AGHRYMET[115] established in 1977 and INSAH[116]. AGHRYMET's activities are particularly focused on support to national and regional EWSs and cover training and capacity building

[110] A food economy approach means a conversion of food and income available at household levels into calorie equivalents which are then compared to estimated calorie needs. Other EWSs based on a food economy or household economy approach but which includes proper baselines include the computer programme Riskmap developed by Save the Children-UK with EC funding primarily to calculate food aid requirements. The system compares the food and income levels of a given year to an established baselines for a given region. So far Riskmap is being applied in the Southern African countries and is receiving positive feedback from its users. But the system still has to be applied in the Sahel countries.

[111] Basic information for the calculation of hazards includes satellite information from NOAA (National Oceanic and Atmospheric Administration, US) and Landsat (NASA satellite that captures high resolution satellite pictures of the Earth) on biomass development which requires intensive field validation before being reliable.

[112] The countries are divided into 7 to 11 agro-ecological zones. While the zoning makes sense on a country level the methodology does not allow for a direct comparison between countries. Moreover, the zoning does not necessarily fit with the administrative divisions within the countries which makes the system less appropriate for most planning purposes and comparison with other statistical information is difficult.

[113] Moseley, W.G. and Logan B.I. (2001) "Conceptualizing hunger dynamics: a critical examination of two famine early warning methodologies in Zimbabwe" in Applied Geography 21 (2001) 223–248, Elsevier Science Ltd.

[114] It should be noted that CILSS' mandate, vision and approach have been modified several times over the years. As such, CILSS do no longer state self-sufficiency as an objective. Rather, it is considered that food production is acceptable when it reaches 75% of the consumption needs.

[115] www.agrhymet.ne

[116] Sahel Institute, www.insah.org – scientific and technical research.

of national institutions, in addition to monitoring a number of agricultural production factors, particularly agro-meteorological and hydrological. AGHRYMET issues national newsletters with information about the growing season based on information generated from advanced techniques including remote sensing and water balance simulation. Important elements of the EWS support provided by AGRHYMET include:

- National Multi-Disciplinary Working Groups (GTPs), functioning as advisory committees to the national Food Security structures. The Groups undertake typically three joint field trips during the cropping season and meet monthly to monitor existing information such as food prices, plant protection, hydrology, and meteorology from AGRHYMET and national sources, which are then exchanged with AGHRYMET. The effectiveness of the groups depends on the individual countries.
- The Regional Food Early Warning Team at AGRHRYMET is composed of specialists from different disciplines and meets every 10 days to monitor national and regional data during the rainy season. The Team is responsible for issuing a monthly newsletter throughout the year for government decision makers in CILSS countries as well as donors. The Team also issues two thematic newsletters when needed and when resources are available.

AGHRYMET and CILSS develop a number of early warning products that are distributed to the member countries, donors and other interested partners such as risk zone identification, donor response evaluation and seasonal climate outlook. These products are developed through various programmes normally initiated as donor-funded projects with the aim of internalization in the national structures. However, the fragility of many of the states in the region and the discontinuation of donor funding often leads to disruption in the effectiveness at national level of many of the early warning services. As such, the DIAPER[117] programme aiming at improving agricultural production and trade statistics in the Sahel countries was considered an effective instrument providing important information both at national and regional level. However, when EC funding came to an end in the late 1990s the project was discontinued in Chad and Mauritania and its activities have faced quality problems in some of the other countries.

[117] Programme Régional "Amélioration des Instruments du Diagnostic Permanent pour la Sécurité Alimentaire Régionale". DIAPER was launched in 1984 with funds from the EC. In spite of the rather ambitious goals with support to development and monitoring of cereal and livestock policies as well as establishment of statistical structures for food security monitoring, the system has focused on harvest estimations through surveys and cereal balances.

NATIONAL EARLY WARNING SYSTEM INITIATIVES

While the five countries have different experiences regarding the functioning of the EWSs, the experience from Chad highlights the common problems in internalizing the systems into national structures. The focus on food aid and the very little attention given to providing farmers and pastoralists with early warnings, and the challenges in integrating nutritional information as part of an EWS are other common EWS problems in the region. The Chad experience also highlights the constant dependency on external funding and constant vulnerability of most of the population because of lack of efficient risk management.

A first food security EWS was established in Chad in 1986 in the wake of the 1984/1985 drought and food crisis and in the framework of the CILSS promoted EWS (SAPs[118]). Funded by the EC, the EWS was implemented by the Belgian NGO AEDES[119] which continued the nutritional work initiated by MSF-Belgium in Chad in 1983-84 which had included a monitoring system of the nutritional status in the rural areas of the Sahel. As such, the new EWS included a number of indicators that are now being promoted in new EWS initiatives throughout the region. These indicators included nutritional surveillance in almost 200 districts undertaken in collaboration with the National Centre for Nutrition and Food Technology[120] as well as indicators from meteorological and crop monitoring, and socio-economic and market surveys. While the system already showed alarmingly high malnutrition rates in the 1980s the nutritional information was not integrated into the analytical software developed by the project, which only included prognostic indicators such as harvest and income estimations. Major products of the EWS included monthly bulletins distributed to all the districts as well as relevant partners at national level with estimations of food needs. In 1999 the EC stopped its funding of the EWS because of a lack of counterparts. Regrettably the activities were discontinued, although the annual costs of operating the EWS were relatively limited and corresponded for instance to the cost of 500 tons of cereals delivered by WFP[121].

In 1998 a new EWS was launched with support from UNDP, FAO, and French Cooperation. But the new EWS faced problems in ensuring the collection of information at the decentralized levels and the monthly bulletins were not considered to provide reliable information. The system has not been operational since external support came to an end in

[118] Food Security EWSs promoted by CILSS are often referred to by their French acronym, SAP (Système d'Alerte Précoce).

[119] Agence Européenne pour le Développement et la Santé, www.aedes.be. AEDES implemented projects for establishment of SAPs in Mali and Chad in the 1980s with funds from the EC.

[120] AEDES (1996) "Système Léger d'Alerte pour la Détection Rapide du Risque Nutritionnel – Rapport Final d'Activités" Association Européenne pour le Développement et la Santé, N'Djamena

[121] AEDES (2002) "Les Outils de Mesure et de Suivi/Évaluation des Politiques de Sécurité Alimentaire et de Lutte contre la Pauvreté" Agence Européenne pour le Développement et la Santé, Brussels

2004. Currently, efforts have been launched within the new National Food Security Programme to re-launch the EWS under the leadership of FAO in collaboration with the Ministries of Agriculture, Livestock, and Environment and Water and with funds from the EC. Actually, it has been recognized that the ambitious new National Food Security Programme can only become operational if a strong EWS is in place. Consequently, 6% of the overall budget for the Programme has been allocated to the EWS establishment over a three-year period[122]. According to the Project document, the new EWS will not only focus on transitory food insecurity but also on chronic and cyclic instances. As such, the aim is to identify more appropriate response strategies. It is still not clear who the end users of the EWS will be, for example if special communications with early warning to farmers and pastoralists will be established. Likewise, it is not clear how the nutritional information to be obtained in collaboration with local health officers will be integrated into the new system. Nor is it clear how the human capacity and sustainability for such systems will be ensured.

EARLY WARNING SYSTEM INITIATIVES WITH HEALTH AND NUTRITIONAL INFORMATION

Throughout the Sahel a number of other agencies carry out regular surveys such as WFP's Global Food Vulnerability Analysis[123] providing information on the health and nutritional status of various groups of the society. WFP plans to undertake the Global Food Vulnerability Analysis every five years in the five countries in addition to regular Vulnerability Assessments and Mapping (VAMs). UNICEF has facilitated Multiple Indicator Cluster Surveys (MICS) in all the Sahel countries. The MICSs are normally repeated every 8 to 10 years at country level providing nutritional and livelihood information. With support from USAID, Demographic and Health Surveys (DHS) are undertaken every five years in the Sahel.

Recently UNICEF and other international agencies have been discussing the strengthening or re-establishment of nutritional surveillance systems in the different countries through sentinels in vulnerable areas identified through the MICSs and VAMs, but robust and reliable surveillance systems are still lacking. While all these surveys provide important information for a baseline they tend to be general, for example the DHSs are based on around 15,000 household interviews and the MICSs often only include 5,000 households in each country. Even though the surveys are based on random samples, they are generally not sensitive enough to pick up the frequently localized expressions of vulnerability to and risk from

[122] FAO (2006) "Relance du Système d'Alerte Précoce (SAP) pour la sécurité alimentaire au Tchad", Project Document, Food and Agricultural Organisation, N'Djamena

[123] The Global Food Vulnerability Analysis are further development of WFP's traditional Vulnerability Assessment Mapping but with more specific information on nutritional status and access to food.

different stressors, including drought and malnutrition[124]. The surveys are therefore not sufficient for proper baselines as their periodicity is not adequate for a proper early warning system.

PARALLEL SYSTEMS

Many of the International NGOs, for instance Caritas and World Vision who are active in the Sahel, carry out regular analysis of data related to food security and nutritional status, often based on secondary data complemented by the agencies' own specific field information. In a recent assessment of EWSs in Niger, CARE Danmark[125] lists 11 government and UN agencies and NGOs in Niger who operate an EWS for early identification of food insecurity and acute malnutrition. Some of the agencies have several parallel systems and the list is by no means complete.

The multitude of surveys and EWSs often lead to contradictory information while not necessarily ensuring a comprehensive coverage of all the regions in the countries. Furthermore, most of the systems suffer from communication problems at many different levels: the transmission of data from the field is often delayed because of obsolete communication structures. For instance, meteorological information in Niger is still transmitted to the central level via the postal service from some of the field observation stations. In addition, there is a lack of coordination and efficient communication structures among the different systems and the communication of the messages is not adapted to the targeted users.

Good Practices – Integrated Early Warning Systems for Multiple Users

The Food Security Assessment Unit (FSAU)[126] implemented by FAO with funding from EC (food security) and USAID (nutrition) was established to provide readily available and relevant information for better Food Security interventions in Somalia. The staff includes seven nutritionists and 22 professional officers in the field in addition to a technical team in Nairobi. The system is based on a livelihood approach and the monitoring includes livelihood analysis, crop development, food security trends, food prices and nutritional surveys and assessments in addition to rapid surveys when there is an indication of unusual changes in some of the indicators. The FSAU issues monthly in-depth reports and special alerts adapted to the specific user groups as well as *adhoc* presentations and documents. The field officers use questionnaires for farmers, livelihood zoning, and they obtain information from focus group discussions and surveys in randomly chosen households.

[124] 2001 data on underweight prevalence for children under five in Mali for instance show prevalence rates of 32% in the region of Kayes near Senegal/Mauritania compared to 41% in Sikasso near Burkina Faso while 2000 data from Niger shows underweight prevalence of 33% in the Tahoua department compared to 51% in Zinder. Sanchez, Pedro et al. (2005) "Halving Hunger – It can be done" Earthscan, London

[125] CARE Danmark (2006) "Analyse et Harmonisation des Outils d'Alerte Précoce – Proposition d'un Outil Harmonisé et Consolidé d'Alerte Précoce, d'Identification des Zones à Risque et de Ciblage des Populations Vulnérables " CARE Danmark, Niamey

[126] More information available at www.fsausomali.org

The FSAU has developed a number of technical manuals such as the Integrated Food Security and Humanitarian Phase Classification (IPC) which classifies the situation in a region according to various stages of food insecurity and humanitarian situations for different livelihood systems. In practical terms, the IPC therefore suggests five phases from generally food secure to humanitarian catastrophe based on a number of factors linked to household vulnerability, stressors, political stability, etc. In developing the IPC, special attention was given to the fact that the last decades major food and malnutrition crises have not developed because of lack of information but rather because of inadequate communication in terms of both form and structure. It is highlighted in the IPC that the communications have to be simple enough to be easily understandable for the different user groups such as farmers and political decision-makers and rigorous enough to meet international standards. The key messages from the IPC in terms of early warning levels are supplemented by key reference characteristics, strategic response frameworks and risk analysis.

The FSAU was presented to regional partners in West Africa at a meeting on the "grey area" between humanitarian and development assistance organized by OCHA/UNDP in April 2006. The response from the different UN, NGO and Government partners who assisted was very positive with a general impression that the basic principles should be adopted and applied in West Africa in order to harmonize and develop an effective EWS in each country complemented by a regional EWS.

Important Lessons Learned for the Sahel Strategy

In order for EWSs to generate effective responses to hazards that are predictable at an early stage long before the impacts will be felt in a given country such as droughts and locusts, the EWS should form integrated structures. As such, they should include preparedness plans and effective multidirectional and differentiated communication systems according to the different stakeholders and targeted end users of the EWS.

ACMAD – the African Centre of Meteorological Application for Development - initiated an innovative approach (RANET) to disseminate weather information to farmers in the Sahel through solar rechargeable FM radios powered by renewable energy (solar or dynamo). While the pilot projects have shown positive impacts, replication and expansion is hampered by the relatively high cost of the radios[127].

With support from WHO, National Health Information Systems have been established in the five countries. While the systems generally supply relatively good updated and reliable data on major epidemics, our interviews indicate that practitioners believe the systems are inadequate for the early detection of malnutrition. However, considering the correlations between malnutrition and epidemics such as malaria and meningitis the National Information Systems could provide useful information in a multi-hazard EWS.

When the food security EWS in Mali was reorganized in the 1990s there were attempts to integrate nutritional aspects. However, it was found that it would be too expensive to maintain a surveillance system with 630 sentinel sites. UNICEF/WFP are now supporting 60 sentinel sites which could provide important information for the EWS but the sustainability of such a system remains a concern.

Traditionally, EWSs have been area-based making interpretations for different groups of the populations more difficult. The application of a livelihood approach for the EWS will allow a shift towards the vulnerability of specific population groups, including pastoralists, landless people and urban populations.

Land degradation which is a key factor in determining potential agricultural production is not taken into account in the EWS although current information and models allow for relatively reliable five to ten years forecasts of land degradation.

[127] See for instance ECOWAS (2006) "ECOWAS Disaster Reduction Policy and Mechanism" Economic Community of West African States, Abuja

Funding for the recurrent costs of the food security structure in Mali has been taken over by the Government, except the costs of the EWS. According to a USAID evaluation in 2002[128] some donors prefer to continue to contribute to the operating budget of the EWS in order to maintain some control.

The third International Conference on Early Warning Systems was held in Bonn in late March 2006, and made calls for more funds and more emphasis on the importance of local communities in preparedness training. Some of the lessons learned presented in the sessions in Bonn include:

- To empower local people to cope with risk, it is necessary to have a functioning disaster risk management system at national level (e.g. People centred EWS in Tajikistan).
- There is a need to intervene simultaneously at local, regional, and national levels with activities including: training and awareness-raising of the local population about early warning indicators (Volcano outbreak EWS in Ecuador), knowledge management between the different levels, and strengthened coordination and more effective communication strategies.
- There is a need for research and the application of studies identifying early warning indicators based on geological, hydro-meteorological and climate change information (Integrated EWS for natural hazards in Iran).
- There is a need for an inclusive partnership between actors such as the media and politicians and for ensuring that community leaders will be direct partners and not seen as represented by NGOs for instance.

[128] ABT (2002) "Mali Agricultural Sector Assessment" United States Agency for International Development Mali Mission, Mali

6. HUMANITARIAN AND DEVELOPMENT ACTORS IN THE WESTERN SAHEL

The international community has provided technical and financial assistance to the five countries for several decades, with special attention to food security and poverty eradication and generally following the "vogue" of the development industry. For instance, over the decades there have been changing attitudes regarding the need for strengthening government structures.

Currently, most development activities are defined by the agenda of the Millennium Development Goals and Poverty Reduction Strategies, and with an increasing amount of assistance provided through Sector Wide Programme Approaches rather than through specific projects. With the movement towards sector wide approaches and budgetary support and less direct project involvement in the field, many donors feel they might lose an important source of information regarding the development of looming crises at the local level.

DONOR FOCUS ON FRAGILE STATES RECOGNIZING THE FORGOTTEN CRISES

Among the agencies consulted for this Review there was a broad consensus that the crisis in the Western Sahel is predominantly an expression of failed development and fragile states. While all agencies agreed that there is an obvious need for long-term development assistance, there is also a general recognition that humanitarian assistance is needed to save lives and reduce human suffering in the short term, particularly with reference to food insecurity and severe malnutrition. However, the distinction between humanitarian assistance and development programmes is rather blurred and it is often ad-hoc and pragmatic decisions that guide the application of humanitarian funding. Some implementing agencies acknowledge that they use humanitarian funds to compensate for the shortage of longer-term funding even though it is recognized that the problems should be addressed in a proactive way.

The UNDAFs[129] of all five countries have food security among their top priorities, with an increasing focus on the nutritional aspect of food security[130]. The UNDAFs also stress the need to streamline the national food security structures both to help prevent food crises while also preparing to deal with them. Niger, for instance, assigns 25% of the UNDAF

[129] UN Development Assistance Framework is the common strategic framework for the operational activities of the UN system at country level. In some cases, such as Niger, the World Bank is part of the UNDAF. In principle, an UNDAF is developed in close collaboration with the government and normally with 5 years timeframe. The current UNDAFs in the Sahel are: Burkina Faso 2005-2010, Chad 2006-2010, Mali 2003-2007, Mauritania 2003-2008, Niger 2004-2008. UNDAFs are available at www.undg.org

[130] E.g. targeted nutritional training, micronutrients, breastfeeding awareness, diversified production.

budget to the implementation to food security. Likewise, the new UNDAF in Chad includes disaster preparedness as a top priority.

ROLE OF THE EC

The EC Delegations play a determining role in all five countries with respect to the development and implementation of food security and nutrition policies, including EWSs. It is expected that the new Country Strategy Papers for the 10th EDF will continue to give priority to rural development and food security as well as good governance, including the decentralization and modernization of the government as well as improved access to rural areas. The transfer of the Food Aid part of the Food Security Budget line to DG ECHO has led to some EC Delegations establishing a strategic relationship with DG ECHO to overcome the loss of what they considered a very flexible funding instrument. The new Food Security Thematic Programme (2007-2013) is particularly directed towards fragile and failed states.

DG ECHO is generally known and appreciated by other actors in the region for its flexibility and relatively fast deployment of funds, although there are different interpretations regarding its role and mandate. Some implementing partners express concerns regarding DG ECHO's procedural requirements such as reporting, but DG ECHO is not alone in this respect.

LINKING HUMANITARIAN AND DEVELOPMENT ACTIVITIES

Several initiatives have been launched over the last few years to strengthen the links between humanitarian and development activities in the Western Sahel. For example, OCHA and UNDP organized several workshops in 2005/2006 leading to the decision to develop a special Sahel Consolidated Appeal Process (CAP). The Sahel CAP has a strong focus on the grey area between humanitarian and development activities and on "predictable" humanitarian crises.

Many NGOs that traditionally implement both humanitarian and development activities are active particularly in Burkina Faso, Mali, and Niger and to a lesser degree in Mauritania and Chad. These "mixed" NGOs pay special attention to the challenges of minimizing potential negative impacts from humanitarian assistance on development programmes, although in practice their activities are often determined as much by funding possibilities as by clear principles. Many actors interviewed for this study have highlighted the problems of the sudden influx of humanitarian assistance to Niger in 2004/05 with direct food handouts for instance, which undermined the authority of the national food crisis commission (CCA)[131]

[131] Other evaluations have shown that food aid distributed through humanitarian programs is generally less well managed than programmatic food aid forming part of long term development cooperation. See for instance Ninno del, Carlo et al. (2005) "Food Aid

and many of the longer-term local capacity development efforts. The perception of potential negative impacts of humanitarian assistance on development processes stems partly from the widely held belief that the total amount of aid is constant and increased funds for humanitarian assistance implicitly means decreased funds for longer-term development. This perception underlines the need for a clearer definition of which activities are appropriate for humanitarian and development actors respectively, and how they can best be coordinated and harmonized under conditions with both humanitarian and development needs.

Some of the humanitarian and development actors have explicit exit strategies for their emergency activities. But these strategies are predominantly defined by time limitations imposed by the funding sources with limited – if any – impact considerations as such and the phasing-over and phasing-out arrangements. However there are some exceptions such as WFP's increasing use of PRROs with four-year plans for phasing over to the Poverty Reduction Strategies.

A more detailed analysis of LRRD principles is presented in the annexes to this Concept Paper.

CHAD AS A SPECIAL CASE IN THE SAHEL HUMANITARIAN/DEVELOPMENT CONTEXT

Chad constitutes a special case with respect to humanitarian and development cooperation. There are relatively few development actors present in the country and while the number of NGOs currently operational in Chad has risen in response to the Darfur crisis, they are still well below the numbers active in the other four countries[132]. Most UN agencies and some international NGOs with programmes to address the refugee crises in Darfur and in the South are aiming to ensure that at least 50% of their humanitarian activities should benefit the local population directly. Nevertheless the majority of those programmes are in areas adjacent to the refugee camps even though some activities with funds from DG ECHO are implemented in N'Djamena, for example.

In addition, the physical location of Chad almost makes it "a country in between" and different agencies administer their programmes from widely separate regional offices. For example, OCHA considers Chad to be part of East Africa and administers it from Nairobi; WFP includes Chad in its Central Africa region and administers it from Yaoundé; the EC

and Food Security in the Short and Long Run: Country Experiences from Asia and Sub-Saharan Africa" World Bank, Washington D.C.

[132] In September 2006, the number of registered and active NGOs in Chad was 69 international and 74 national according the NGO Liaison Committee, while the number of active national NGOs in Niger was 286 in the month of September and the number in Burkina Faso was 290 according to their Governments.

Delegation has more relations with Central Africa than with East and West Africa; and DG ECHO considers Chad part of West Africa and administers it from Dakar.

HUMANITARIAN HARMONIZATION AND RISK MANAGEMENT

Donors and implementing actors participate in various harmonization fora at local, national and regional levels. OCHA for instance is organizing weekly partner meetings in Dakar and the national Food Security Structures that exist in each country organize weekly or monthly meetings with partners for information exchange. While the coordination meetings are highly appreciated by all partners, many agencies find it difficult to dedicate enough human resources for such meetings. Moreover, the Food Security Structure coordination meetings are generally attended by development actors while participation of their humanitarian counterparts is limited. It should also be noted that a number of parallel harmonization initiatives exist in the countries; e.g. donors organizing restricted meetings on food security in addition to the ones organized officially by the government structures.

DISASTER PREPAREDNESS

Several actors, including Member States maintain part of their country programme budget for contingencies with possibilities for release within 24 hours. For example, in Burkina Faso the Danish Cooperation has a contingency budget of US$ 900,000 which was used recently to fund a WHO programme to contain yellow fever. In Niger WFP maintains a 10,000 T contingency stock of grains while the Catholic Relief Services keeps a stock of 500 to 3,000 T of cereals.

DELIVERY MECHANISMS

The delivery mechanisms applied for humanitarian assistance in the Western Sahel are traditional and largely foreseeable such as food hand-outs, food for work, therapeutic and supplementary feeding, and distribution of inputs for primary production. There is an increasing tendency for both UN agencies and NGOs to provide support and technical assistance to government services. For instance, in Niger all NGOs interviewed for this study highlighted the need for strengthening of the local and national government as a priority.

In addition to the limited innovativeness that can be observed in the implementation of emergency activities, little substantial information exists on the comparative advantages of the different delivery mechanisms in terms of efficiency, effectiveness and long-term impact. Some NGOs for instance find that the use of Food or Vouchers for Work is particularly adequate to respond to severe malnutrition based on the assumption that the severe malnutrition rates are chronic and not necessarily linked to the households' lack of capacity

to work. However, other resource persons interviewed for this study concluded that the reason for high malnutrition rates can be due to the heavy workload of the mothers, leaving them with little time to care for their infants.

Good Practices – NGOs Working in Consortium

Since 2000, the Food Security Initiative in Niger funded by USAID has united the special expertise of four NGOs: Africare (monetization and marketing), CARE (studies and surveys), CRS (Food for Work), and HKI (nutrition). The final evaluation[133] of the project showed the effectiveness of working as a consortium with complementary expertise in order to build local communities' capacities to cope with external shocks. As such, the project beneficiaries were optimistic: "We can continue after the project ends; we can do what we learned on our own, we have seen that it is in our own interest." Likewise, project staff found that the consortium approach allowed for more efficient use of resources.

Good Practices – Long Term Vision

The key implementation procedure of the International NGO World Vision is Area Development Projects through which World Vision commits to provide community development assistance for at least 15 years. The activities aim at food security, improved nutrition, health and education and are now being expanded to include disaster prevention and preparedness. The Area Development Projects will receive capacity building for disaster prevention and preparedness from the Emergency Response Teams. But whereas many international NGOs have initiated activities to promote disaster preparedness and prevention as part of the LRRD approach, other NGOs, particularly national, feel they do not have the necessary resources to be proactive or promote LRRD.

Good Practices – Mainstreaming of Disaster Risk Reduction (DRR)

In 2003, seven international NGOs with longstanding experience in providing humanitarian assistance throughout the world[134] came together to discuss major challenges to the efficient delivery of humanitarian assistance with particular focus on the need to strengthen coordination. A capacity assessment was launched which showed needs to strengthen staff capacity and the organizations' accountability towards the affected communities as well as a need to strengthen risk reduction capacity at community level and a need for an improved communication system. The discussions and assessment led to the formulation of the Emergency Capacity Project[135] which was launched in 2005 with funds from the Bill and Melissa Gates Foundation and Microsoft.

[133] USAID (2005) "Final Qualitative Evaluation: Food Security Initiative in Niger" Food for Peace, USAID, Washington D.C.

[134] Care International, Catholic Relief Services, International Rescue Committee, Mercy Corps, Oxfam GB, Save the Children US, and World Vision International.

[135] More information at www.ecbproject.org

The capacity analysis of the 19 NGOs[136] shows that the Kobe Conference on Natural Disasters and the almost simultaneous Tsunami in 2004/2005 were a major push for a number of NGOs to put DRR on their agenda. The explicit integration of DRR in the organizations' strategies and operational programmes though depend on the main orientation of the organization. As such, the humanitarian-oriented NGOs tend to include various DRR components through training of schoolchildren and communities. However, this work is primarily directed towards sudden onset disasters, a fact that is also reflected in the location of most such activities in Latin America and Asia while DRR activities in Africa are more limited. The geographical focus might be influenced though by the funding sources. As such, several NGOs refer to the work undertaken in the context of the DIPECHO. Many development-oriented NGOs on the other hand use a livelihood approach to address vulnerability and consider this as an indirect integration of DRR in the programmes. Still, the mainstreaming of the DRR concept and contents in the organizations' programmes and activities call for a lot of capacity building and advocacy. One NGO states that the DRR is still carried out separately from major activities and compares the internal DRR group to a silo approach. Other NGOs refer to the fact that there is still no clear evidence of what reduces communities' disaster vulnerability and a set of coherent indicators for monitoring DRR activities is still lacking.

Good Practices – Linking Relief, Rehabilitation, and Development

The WFP launched the Protracted Relief and Recovery Operations (PRRO) in the late 1990s to cover more long-term operations in critical food insufficiencies with the overall goal of re-establishing household livelihood and food security. The PRRO supplements WFP's Emergency Operations which normally cannot exceed 24 months while the PRROs are normally planned for 36 months. The 2002 drought in Mauritania was the worst since 1984 and led to a decrease in crop production of almost 50%. Moreover, most pastoralists and many farmers were extremely vulnerable after a severe cold spell in January 2002 leading to the immediate loss of 200,000 cattle. Two Emergency Operations were launched in 2002 and 2003 and supplemented by activities under the Country Programme and a PRRO was launched in 2004. In general it is felt that the frequency of the disasters in Mauritania in the beginning of the 2000s and the PRRO which was already in place allowed for better preparation for the 2004/05 drought and locust crisis than was seen in neighbouring countries. As such, a Disaster Management Team with participation of Government agencies, NGOs, UN agencies and donor agencies was already in place in August with weekly meetings. In Niger on the other hand, a lot of time was lost before a functioning coordination structure was established in 2005. Furthermore, the functioning coordination structure in Mauritania also allowed for a better "media management." It should also be noted that the PRRO is integrated and harmonized with long-term development instruments such as the PRSP and UNDAF.

[136] CRS, Water Aid, Merlin, IIRR, Mercy Corps, IRC, World Vision, CARE Netherlands, Red Cross USA, IFRC, Save the Children USA, Save the Children UK, Oxfam, Practical Action, Plan UK, Christian Aid, British Red Cross, ActionAid, and Tearfund. Questionnaires for the individual organizations can be found at www.ecb.project.org. The majority of these NGOs are also active in the Western Sahel.

Good Practices – NGO Application of LRRD Principles

In response to the food crisis in Southern Africa the Consortium for Southern Africa Food Security Emergency (C-SAFE)[137] has taken a developmental relief approach to their activities in Zambia, Zimbabwe, and Malawi. The three-year developmental relief strategy is based on a livelihood approach with activities focusing on nutritional status, increased productivity and strengthening of communities' resilience through priority investments in hotspot areas instead of food aid interventions. However, C-SAFE encountered funding restrictions for issues such as tools and technical assistance and other activities considered as essential to strengthen community resilience but which could not be funded under the Food for Peace (USAID) for instance. This is in fact consistent with the findings of a study on European NGOs' application of approaches such as LRRD, Developmental Relief and Humanitarian Plus, showing that most NGOs cite donor resistance to funding such approaches (Interaction (2002)[138]. Likewise, the second Good Humanitarian Donorship Conference (Ottawa, 2004)[139] highlighted the fact that recovery and transition items in the CAPs and CHAPs are very unlikely to be funded.

Good Practices – Development Relief Response

In Lesotho, CARE International has been implementing the Livelihoods Recovery through Agriculture Programme (LRAP) from 2002 to 2006 in response to the 2002 food crisis. The programme puts particular emphasis on homestead gardening, including awareness-raising on both nutritional and food security issues. For the donor, DFID, the LRAP was considered an important developmental relief response as it was implemented by a wide range of partners, including central and local governments.

Important Lessons Learned for Sahel Strategy

Recently, the Cluster Group on Early Recovery under the Interagency Standing Committee[140] issued a brief note on implementation of Early Recovery highlighting the need for initiating early recovery measures simultaneously with life-saving measures in the immediate aftermath of a disaster. As such, the Group suggests that Early Recovery should be guided by development principles to generate self-sustaining, nationally owned and resilient processes and is the responsibility of both humanitarian and development agencies. In practical terms, this should be done through integrating Early Recovery in other clusters such as Nutrition, Health, and Food Security. The Group plans to develop a number of tools including Integrated Food Security and Humanitarian Phase Classification (FAO).

The 2001 Communication from the European Commission to the European Council and Parliament (23 April, 2001) highlights that the LRRD can support governments and civil society to establish crisis prevention institutions, for instance for drought risk management.

The decision-making processes of particularly the development actors are increasingly decentralised, including the funding decisions of the EC Delegations, while DG ECHO and other humanitarian decisions remain largely centralized which can complicate the integration and harmonization of humanitarian and development planning and implementation.

[137] The consortium has three core NGO members - CARE, Catholic Relief Services (CRS), and World Vision (WV) – all working in each of the three countries. There is one additional member in Zambia (ADRA) and six additional members in the Malawi consortium - Africare, Emmanuel International, Malawi Red Cross, Salvation Army, Save the Children UK, and Save the Children US. The regional programme unit (RPU) of the consortium is located in Johannesburg, South Africa.. www.sarpn.org.za

[138] Interaction (2002) "Developmental Relief: The European Perspective" American Council for Voluntary International Action, Washington D.C.

[139] www.goodhumanitariandonorship.org

[140] IASC (2006) "Implementing Early Recovery" Inter-Agency Standing Committee, United Nations, Geneva

As part of the overall evaluation of the Tsunami response, SIDA commissioned a study on the application of LRRD[141]. Several important lessons can be learned from the different studies:

- The "contiguum"[142] model of LRRD needs to be rethought to allow recovery and 'development' efforts (however defined) to start almost at the same time as relief. This also supports the idea that recovery needs to be coordinated from the earliest possible stage. In fact, several agencies claimed that they finished the relief efforts too early to start rehabilitation and development efforts, indicating that a "continuum model" was followed rather than a "contiguum".

- The overall LRRD concept has obvious merits and was especially relevant for a fast-onset natural disaster like the Tsunami in which for many survivors relief needs were relatively short-lived, and the recovery process began very soon after the Tsunami was over. But overall the study finds the concept of LRRD tends to raise more questions than it answers about the role of different actors in the recovery process, and whose definition of 'recovery' or 'development' is followed. There is a clear need for developing training modules to improve the effectiveness of LRRD.

- In general, agencies' commitment to LRRD depends on their development involvement in the specific country. Likewise, it is typically NGOs committed to a rights-based approach that were also committed to the LRRD concept. However among these NGOs there was a lack of lateral accountability which refers to both government structures and the wider humanitarian and development sector.

- The LRRD approach must be based on coherent impact analysis focusing on the ongoing development processes including political, economic and social factors that enable and/or constrain local development of sustainable livelihoods among local populations.

- The impact analysis and programme should be based on participatory assessments. So far, literature on the LRRD approach is only seen from the humanitarian/development practitioner's point of view and hardly anything is known about the local populations' appreciation of the approach.

[141] www.tsunami-evaluation.org

[142] The Swedish scientist E. Swedenborg proposed the "Contiguum Concept" in 1734 to describe the complexity and interrelatedness of living things; how no parts of the body can be acted upon without all parts being affected in some way; and how all parts are needed.

7. CONCLUSIONS REGARDING DROUGHT AND VULNERABILITY IN THE WESTERN SAHEL

FRAGILE STATES AND FORGOTTEN CRISES

The Western Sahel region is characterized by slow-onset and almost predictable crises in the form of drought, malnutrition and food insecurity. The fragility of the states is reflected in the failure of basic instruments and institutions to provide the necessary predictive capacity, the necessary preparation and the necessary mitigation activities. The alarmingly high malnutrition rates exceed DG ECHO's proposed entry points[143] and daily calorie availability is below 2,000 per person particularly during the lean season. The results are an ever-increasing number of destitute households depending on safety nets because of food insecurity. As the frequency of the disasters is increasing, more and more households never fully recover from one disaster before the next one occurs.

MULTI-STRESSOR VULNERABILITY

A multi-stressor assessment of the vulnerability in the Sahel shows that stressors such as drought, food insecurity, chronic and acute malnutrition, insect infestations and floods are all mutually reinforcing. However while many correlations can be shown, there is a lack of basic research to show the causal links and the relative weights of each stressor on the overall impact on households. For instance, most agree that the high malnutrition rates are the result of cumulative effects including food insecurity, droughts, epidemics, poor feeding habits, lack of appropriate health services and lack of hygiene and access to clean water. But causal associations between what could be seen as "simple" factors such as breastfeeding practices and child mortality and child mortality and nutrition are difficult to prove as too many factors intervene and too little basic knowledge is available.

BIASED FOCUS

While extreme vulnerability can be found among pastoralists, agro-pastoralists, agriculturalists and urban dwellers there is a tendency to focus most of the response strategies toward the agro-pastoralists and agriculturalists, who also face problems from insecure land tenure systems and over-population. But while the Sahel countries experience some of the highest urbanization rates in the world, extremely little information exists regarding the food security and impact of water scarcity on many of the urban dwellers.

[143] ECHO (2003) "ECHO entry strategy (revised version May 2003)" ECHO Working Paper, ECHO 4/PB D(2002), Brussels

APPROPRIATENESS OF THE GLOBAL NEED ASSESSMENT AND FORGOTTEN CRISES ANALYSIS

For technical reasons, in 2006 DG ECHO's Global Need Assessment and Forgotten Crises analysis did not rank the five countries among the highest priorities for forgotten crises. Burkina Faso and Mauritania do not receive any scores, Niger and Mali were given one out of the three possible scores while Chad received two in the DG ECHO assessment. There is no obvious logic to the scoring system; other countries scoring two, for instance, include Mongolia, Kenya, Sudan, and Yemen. It is therefore questionable if the framework for Forgotten Crises is the most appropriate for identifying humanitarian needs in conditions like the Sahel.

The 2006 ECHO funded programmes included a 12 M€ response to malnutrition and food insecurity in Niger. 15 M€ was allocated to response strategies in Chad, mostly focused on refugees fleeing the Darfur crisis.

EWSS FOCUSING ON INFORMATION TO DONORS

Early Warning Systems exist in a number of different forms but rarely with an efficient communication structure to reach the people who need the early warning in an understandable form: farmers, pastoralists, ordinary people and local and national decision-makers. This is true in spite of the existence of relatively sophisticated data collection and information systems offered for instance by the regional AGHRYMET centre. As the crises are clearly cyclical, lessons-learned would be of particular importance, including participatory evaluations. Likewise, the slow-onset nature of the crises leave plenty of time for adopting participatory approaches when designing responses as well as time for undertaking baselines with special focus on stressors such as drought, malnutrition and food insecurity. Finally, it is important to undertake systematic baseline vulnerability surveys at the community level in the Sahel countries with special focus on local capacities and needs.

KNOWLEDGE MANAGEMENT

Knowledge management related to drought and vulnerability in the Sahel is still uncoordinated and marked by the general lack of a systematic approach to the responses to the obvious humanitarian needs. While recent initiatives have led to a strengthening of national baselines, particularly the Vulnerability Analysis and Mapping (VAM) exercises of WFP[144], applied research on causal correlations for stressors such as malnutrition, drought and food security is still limited and information on good practices is either nonexistent or not

[144] VAMs were prepared in Burkina Faso in 2004, Niger 2005, Chad 2005, and Mali and Mauritania in 2006. WFP plans to update the VAMs every five years while food security monitoring is planned for every three years.

used for the development of new programmes. A Humanitarian Information Centre[145] was set up in Niger by OCHA with support from DG ECHO in October 2005 and was appreciated by many partners. However, the planned transfer of its functions to UNDP and the Government of Niger has still not been carried out. In other countries such as Afghanistan[146], the Humanitarian Information Centres have played a major role in LRRD in building knowledge management capacity within the government at national and regional levels. In addition, HICs provide humanitarian and development actors with a common information framework and the provision of a large number of services, including thematic and analytical maps.

HUMANITARIAN AND DEVELOPMENT ACTORS

A number of development and humanitarian actors intervene in the five countries but with no clear coordination. Most humanitarian activities are being launched without being explicitly linked to development processes.

There is a wide range of actors in the Sahel addressing the issues of vulnerability and coping capacities at local and national level, including national and regional government agencies, bilateral and multilateral donor agencies, and national and international NGOs. Approaches vary greatly among the different agencies and whether the issue is addressed as a short-term emergency or through long-term development programmes is to a large extent defined by the funding sources. The different actors are starting to work increasingly in consortiums constituted by agencies with complementary specialties. This development is being promoted successfully by many of the larger funding agencies in the region.

LINKING RELIEF, REHABILITATION, AND DEVELOPMENT

There is a general agreement among the different actors in the region that in spite of relatively solid past development initiatives, situations requiring quickly deployable aid will continue to occur over the coming decades. The flexibility of institutions such as DG ECHO in terms of quick reaction and recruitment modalities is therefore recognized as a necessary complement to more traditional development institutions. Most actors agree though that what is expressed as humanitarian needs such as acute malnutrition is often a result of failed development. Disconnected short-term responses are ineffective at best and often undermine effective development if not planned and implemented in close coordination and harmonization with the longer-term development processes and with a view to moving

[145] Humanitarian Information Centers have been established in major humanitarian crises throughout the world under the coordination of OCHA to support decision-making based on a common framework for integrated knowledge management. For more information see www.humanitarianinfo.org

[146] www.aims.org.af

towards self-sufficient states. As such, there are examples in the region of disengagement of the authorities in providing basic services when NGOs intervene and local populations become dependent on hand-outs.

To respond to this non-traditional humanitarian context, with indicators such as acute malnutrition, child mortality rates and food insecurity all calling for humanitarian response in a context where development process are ongoing, there is a need for developing and implementing a Sahel strategy that gives due attention to both humanitarian and development issues. The Strategy should capitalize on the comparative advantages of both humanitarian (e.g. speediness and flexibility) and development programmes (e.g. long-term impact and local ownership).

Considering the special context in the Sahel with long-standing humanitarian challenges it will be particularly important to prepare coherent baselines for all regions and all population segments in the five countries based on livelihood analysis. The baselines should be updated regularly.

OTHER CONSIDERATIONS

While a strong case can be made for a humanitarian response within a LRRD approach in the five Sahel countries it should be noted that the same needs calling for humanitarian responses in the five countries can also be found in other Sahel countries. For instance, food insecurity and high malnutrition rates similar to those found in Burkina Faso, Chad, Mali, Mauritania and Niger are also representative for Guinea Bissau and Guinea, two other fragile states and forgotten crises.

Furthermore, the regional integration in West Africa implies that the Sahel countries are highly dependent on and vulnerable to changes in neighbouring countries. The looming crisis in Cote d'Ivoire and Guinea could easily spill over into an influx of a large number of refugees and returnees. Likewise, the regional integration implies that the effectiveness of food security strategies depend on a regional approach taking into account neighbouring and particularly coastal countries such as Nigeria, Togo and Benin. There are increasing concerns about reports of very high malnutrition rates in Northern Togo and Benin and in northern Nigeria.

A change in the exchange rate of the Naira to the FCFA for instance has immediate impacts on the food security situation in Niger. Similarly, it is estimated that 70% of the meat consumed in the sub-region comes from the Sahel.

The tradition for social organization varies greatly among the five countries. Farmers in Burkina Faso for instance have a long tradition for community organizations while farmers in Chad often work in isolated ways. Furthermore, different socio-economic groups within the countries have different traditions for social organization. Pastoralists are particularly difficult to reach with general emergency and development programmes because of their lack of organization. As such, in Mali pastoralism contributes 28% of the GNP but only 9% of investments are in the livestock sector. It is therefore crucial to take social organization into account when preparing humanitarian responses.

ANNEX 1: LITERATURE REFERENCED IN THE CONCEPT PAPER

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ANNEX 2: RECOMMENDED RESOURCES

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
SAVI – Southern African Vulnerability Initiative	Network/Website	www.savi.sa	Global Environmental Change and Human Security/International Human Dimensions Programme		Southern Africa	New documents issued regularly	Multi-stressor vulnerability analysis with special focus on food security and natural hazards	Methodological development	When designing integrated assessments	
OCHA RO West Africa – Office for the Coordination of Humanitarian Aid – Regional Office	Website	http://ochaonline2.un.org/Default.aspx?alias=ochaonline2.un.org/rowa	OCHA	OCHA/UN	West Africa	New documents issued regularly	Humanitarian needs – Consolidated appeals,, background analysis - LRRD	General information	Background information	
A review of current analysis of the causes of the 2004 / 05 Niger food security crisis and policy implications.	Report	Oxfam West Africa Regional Center, Dakar	Oxfam GB	Oxfam GB	Niger	Assessment finished end 2005	Nutrition assessments	Data and analysis credibility of various agencies who assessed the 2004/05 crisis in Niger	When designing integrated EWS	Provides a good overview of the difficulties in interpreting nutritional status
Development of Food Security and Vulnerability Information Systems In Southern Africa	Report	www.savethechildren.org.uk	Save the Children, UK	Save the Children, UK	Southern Africa	Assessment finished in 2004	Vulnerability in general with a focus on assessment methodologies and EWS, particularly Household Economy Approach	Challenges in establishing regional EWS, pros and cons of different vulnerability assessment methodologies	When designing integrated EWS	Provides a historical review of different vulnerability assessment methods used over the last 15 years

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
Making cash count: Lessons from cash transfer schemes in east and southern Africa for supporting the most vulnerable children and households	Report	www.ids.ac.uk	International Development Studies/Help Age/Save the Children, UK	UNICEF	Eastern and Southern Africa	Evaluation finished in 2005	Cash Transfers and the impact on food security, nutritional diversity, and household vulnerability	Pros and cons for applying cash transfer to vulnerable households	When designing delivery mechanisms	The study recognizes that it is only based on qualitative assessments and that further studies are needed
SENAC – Project to Strengthen Emergency Needs Assessment Capacity	Project – series of reports	ww.wfp.org/operations/Emergency_needs/#senac	WFP	ECHO, DFID, GTZ	Developing countries	New documents issued regularly	Food security, nutrition, vulnerability, market assessments, methodological assessments	Vulnerability assessments, methodological development	Country assessments and development of new programs	
Normes de Consommation des Principaux Produits Alimentaires dans les Pays du CilSS	Report	www.cills	CILSS		CILSS countries (country by country analysis)	Document is part of CILSS's continuous work on methodological development for food security assessment	Food security assessment through analysis of estimated energy consumption compared to food diversity of consumed food	Historical data (e.g. 1958 assessment in Mali). Urban – Rural comparisons	Trends and country differences	An overall observation is the general lack of sufficient data
Planning for the Future: An Assessment of Food Security Early Warning Systems in Sub-Saharan Africa	Report	EuropeAid	FAO	EU and AU	Sub-Saharan Africa	Evaluation finished in 2006	Food Security EWS	General Overview of Food Security EWS – institutional settings, funding mechanisms, sustainability	Trends and major challenges in designing EWSs	

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
Review and Perspectives of the EuropeAid/ UN Strategic Partnership on Food Security Needs Assessments (CFSAMs)	Report	EuropeAid	EuropeAid	EU	Global	Assessment finished in 2006	Food Security	Review of strengths and weaknesses of WFP/FAO joint food security assessments	Determining reliability of existing food security assessments	The report questions the reliability of existing food security assessments and recommends EU's stronger involvement in future assessments
Halving Hunger – It can be done	Publication	Earthscan, London	UNDP	UN – UN Millennium Project	Global	None – Publication year: 2005	Integrated approach to food security and nutrition	Addressing urgent food security and nutrition needs in a long term and sustainable perspective	Good Practices from different parts of the world – some suggestions for indicators that can be used both by development and humanitarian actors	Important reference to ensure links to MDGs
Achieving Food and Nutrition Security	Publication	www.invent.org	Invent – Capacity Building International	GTZ	Global	None – publication year: 2005	Integrated Food Security and Nutrition approaches	Readers on food security and nutrition, analytical frameworks, and assessment of commonly used models and methods	General reference guide	
Methodfinder	Webbased search tool	www.methodfinder.de	MethodFinder (a semi-private consulting organization)	Client funded but with free services	Global	Regular updates for new methods	Community development	Advantages and limits of different community development methods	General reference guide	Easy reference for general observations on different community development methods that are often used by humanitarian actors

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
SMART – Standardized Monitoring and Assessment of Relief and Transitions	Web site	www.smartindicators.org	Consortium of NGOs and UN agencies – hosted by the Payson Center for International Development and Technology Transfer	USAID and CIDA	Global	Regular updates	Food Security and Malnutrition	Standardized, simple epidemiological methodology to enable comparison of need among emergencies,	Could provide the framework for future ECHO indicators for the Sahel program	Work in progress; coordinated with the FSAU initiative
Disasters and Emergency Committee	Web site	/www.dec.org.uk	Consortium of 13 UK NGOs	Member Funded	Global, Special Group on Niger Food Crisis	Real Time	General information on Major Disasters	Include special group on the Niger Food Crisis	Good source on what member NGOs are doing in the Sahel (within the Niger appeals)	
Repositioning Nutrition as Central to Development - A Strategy for Large-Scale Action	Publication	www.worldbank.org	World Bank	World Bank	Global Malnutrition	2006 Publication	Status and analysis of the importance of Malnutrition in development activities and ways forward	Suggestions for what is still required to understand malnutrition, Suggestions for most effective short term and long term activities to address malnutrition	Good Reference – include analysis of nutrition activities of UN agencies,, International NGOs, Research Institutions, and donor agencies	No reference to EC – maybe a reflection of EC's lack of attention to nutrition
Cash-Transfer Programming in Emergencies	Publication	www..oxfam.org.uk	Oxfam GB	Oxfam	Global	2006 Publication	Review of experiences with various cash-transfer mechanisms in emergency situations	Guidelines for implementing – checklists and suggestions for monitoring and evaluation indicators	Programming and preparation of impact evaluations	Unfortunately, no empirical comparisons to other delivery mechanisms such as food for work or other forms of food aid

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
The sustainability of Community-based Therapeutic Care (CTC) in non-acute emergency contexts.	Report	www.who.int/child-adolescent-health/New_Publications/NUTRITION/CBSM/tbp_5.pdf	Concern WHO UNICEF		Global	Published 2005	malnutrition	Community Based Therapeutic Care in ‚non-humanitarian' context	Technical background information	Authors: Gatchell V. Forsythe V, Thomas P-R
Repositioning Nutrition as Central to Development. A strategy for large-scale action	Report	http://publications.worldbank.org/ecommerce/catalog/product?item_id=5117188	World Bank		Global	Published 2006	malnutrition	Report sets out a global strategy for stepped-up action in nutrition	Background information	
Niger. Providing all Nigeriens with food, education and health care. A demographic perspective.	Report	www.worldbank.org	World Bank, Human Development Unit		Niger	Published 2005	Demography	Importance of demographc perspective	Background information	
Wasting time for wasted children: severe child undernutrition must be resolved in non-emergency settings. Lancet 367 (9517): 1209-1211	Article	http://www.thelancet.com/journals/lancet/article/PIIS0140673606685097/fulltext (restricted access)	Lancet		Global	Published 2006	Malnutrition	Importance of malnutritoin in 'non-humanitarian' context	Background information	Authors: Gross R, Webb

Title	Type (brief, report, etc)	Where to find (web address)	Responsible Agency	Funding Agencies	Geographical focus area	Frequency of updates	Focus area (drought, food security, malnutrition, vulnerability in general)	Key elements that can be found in the resource	When to use for ECHO staff	Observations
The Devil in the Demographics, How Youth Bulges Influences the Risk of Domestic Armed Conflict, 1950-2000.	Article	www.isanet.org/noarchive/urdal.html	International Studies Association 43rd Annual Convention-New Orleans, LA, 24-27 March 2002		Global	Published 2002	Demography	Causes and Consequences of Domestic Conflict	Background information	Author: Urdal H
Emergency Capacity Project	Website:	www.ecbproject.org	Consortium of seven NGOs: Care International, Catholic Relief Services, International Rescue Committee, Mercy Corps, Oxfam GB, Save the Children US, and World Vision International.	Bill and Melinda Gates Foundation and Microsoft	Worldwide	Project is planned to run for two years (March 2005 – March 2007)	Delivery efficiency of humanitarian agencies with special focus on staff capacity, IT, accountability and community risk management capacity	Capacity assessments of a number NGOs for DRR, tools for humanitarian practicioners	General resource site with guidelines and methodological suggestions for emergency responses as well as information on NGO capacities	A good initiative that should be promoted further (i.e. prolonged). As most of the NGOs are also are engaged in both Humanitarian and Development Activities the Project could be extended to further focus on the “Grey area”.

ANNEX 3: LINKING RELIEF, REHABILITATION AND DEVELOPMENT – LRRD

It might be argued that the humanitarian crisis in the Western Sahel is a result of failed development and a key strategic question remains: Can humanitarian assistance be justified on the grounds that development assistance is not flexible and rapid enough to respond to the problems that are in fact recognized as long-term challenges requiring a development answer such as the crisis in the Western Sahel?

Humanitarian and development partners have implemented different approaches to promote the links between humanitarian and development assistance, furthered by the Good Humanitarian Donorship principles that call specifically for humanitarian assistance to be supportive of recovery and long-term development. The Swedish Guidelines for humanitarian assistance through NGOs (2000) for instance call for planning of humanitarian assistance to promote development. Denmark introduced the concept of "development-oriented emergency relief" in 2000. GTZ is implementing "Development-oriented Emergency Aid" (DEA) to reduce household vulnerability and the Netherlands established in 2004 the Dutch Stability Fund to fund the interface between peace, security and development but is not particularly linked to natural disasters.

The shortcomings of "traditional humanitarian assistance" are that it only deals with the symptoms and not with the causes of the problems, it does not ensure the restoration of livelihoods and it is often not well coordinated with development assistance. The recognition of these shortcomings has led to the conceptual development of:

- LRRD, Linking Relief, Rehabilitation, and Development (further developed below).
- Development Relief used by the Red Cross[147], SIDA and ODI to promote involvement of local populations in the planning of relief and rehabilitation efforts to ensure a longer-term vision.
- Humanitarian Aid Plus used by the Netherlands and the EC[148] to integrate aid, politics and diplomacy.

[147] IFRC (1996) "World Disasters Report 1996" International Federation of the Red Cross, Geneva

[148] A so-called Humanitarian Plus approach has been applied for instance in the Sudan, Angola, and Burundi where EDF money has been used for humanitarian activities implemented by NGOs an UN agencies – Mowjee, Tasneem (2004) "European Union Policy Approaches in Protracted Crises" Humanitarian Policy Group, ODI, London

LRRD CHALLENGES AND OPPORTUNITIES

Actually, the LRRD concept was developed in the 1980s in response to the food crises in Sub-Saharan Africa when it became clear that the food crisis were not a temporary disruption to the normal development process but rather a symptom of bad governance according to Goyder et al.[149].

Goyder et al. suggest that conceptually LRRD approaches can be used to identify and address causes of vulnerability, build on local capacities, and respond to social, political and economic needs. However, LRRD remains a "relatively 'woolly' concept" and in practice it is often difficult to distinguish between rehabilitation and development. In fact, Christoplos (2006)[150] states that the experience with applying LRRD in response to the Tsunami disaster has left the LRRD as a conundrum rather than a gilded path. As a broad conceptual framework LRRD can therefore also easily be adapted to different circumstances.

EC LRRD POLICY

The EC's policy regarding LRRD is laid down in two major communications from 1996[151] and 2001[152] calling for relief to be implemented alongside or followed by rehabilitation and reconstruction to ensure a smooth transition to long-term development processes. The 1996 Communication recommends close collaboration between the humanitarian and development actors as well as development of policy frameworks defining the linkages between relief, rehabilitation and development in each country and region, including disaster preparedness programmes. Moreover, the Communication highlights the need for solid long-term impact analysis of relief operations especially in cases of chronic crises and in general calls for the application of principles used in development cooperation programmes including participatory approaches, gender equality and transparency. Finally, the communication states that from an EC point of view special attention should be given to food security and health when applying LRRD approaches stressing the need for coordination.

The 2001 Communication was mainly developed based on a general evaluation in 1999 of EC's LRRD activities and the recognition of a need to streamline EC's cooperation activities and strengthen the links between humanitarian and development activities. The 2001

[149] Goyder, Hugh (2006) "Linking Relief, Recovery, and Development (LRRD) – Policy Study" Tsunami Evaluation Coalition, London

[150] Christoplos, C (2006) "Links between relief, rehabilitation, and development in the Tsunami response" Tsunami Evaluation Coalition, London

[151] Communication from the Commission to the Council and the European Parliament on Linking Relief, Rehabilitation and Development COM (95)/423

[152] Communication from the Commission to the Council and the European Parliament - Linking Relief, Rehabilitation, and Development – An Assessment COM (2001)/0153

Communication states that the LRRD rationale outlined in 1996 remained valid and that there is a need for humanitarian programmes to increasingly incorporate where possible long-term development issues and vice versa. Furthermore development programmes should increasingly integrate disaster preparedness and the development of coping strategies where possible. However, the 2001 Communication also stresses that the development departments of the Commission should be responsible for LRRD development and implementation in close collaboration with the humanitarian department.

The 2001 Communication emphasises that responses to natural disasters can relatively easily be linked in a linear fashion. However, while this might be true for some rapid onset disasters such as earthquakes in relatively stable and non-fragile development contexts, the character of the multi-crises context in the Sahel is different as already mentioned, where shocks from natural hazards develop into disasters because of the fragility of the states. The Communication therefore stresses the need for EWS and disaster preparedness in disaster prone countries with special focus on reducing overall vulnerability. Furthermore, the fact that the EC is a major donor of both humanitarian and development assistance also means that the EC could take a proactive and leading role in coordinating different humanitarian and development activities. Finally, the 2001 Communication outlines the three major challenges to be addressed in order to develop effective LRRD based programmes:

- Slow decision-making procedures, which can be particularly problematic when national ownership has to be promoted and different departments of the EC are involved,

- Choice of implementing partners when many partners are specialized in either humanitarian or development assistance. However, it should be noted that many of the NGOs and UN agencies funded by EC in the five Sahel countries are characterized by working with both short-term and long-term responses. Moreover, as described elsewhere in the paper a number of NGOs have developed special experience in LRRD, and

- Ability to mobilize resources through appropriate instruments which often implies use of funding instruments with different conditions.

The Country Strategy Papers should play an important role in LRRD and build on instruments such as environmental profiles to highlight natural disaster risks as well as institutional strengthening of civil society in countries with weak governments. Furthermore, an Addendum to the CSPs should be established when DG ECHO engages in new

humanitarian activities in the country and include an outline of a simplified decision-making structure.

DG ECHO AND LRRD

According to DG ECHO's 2005 Strategy, LRRD has become a standard feature in DG ECHO's work since 2001. However, the Strategy also concludes that LRRD activities call for continuous investment from DG ECHO's side to ensure sustainability. In fact, according to the 2004 Strategy LRRD is considered as crucial to ensure sustainability of many emergency programmes.

DG ECHO's 2006 Strategy outlines the use of an LRRD approach as part of an exit strategy but also highlights the need for linking relief activities with rehabilitation and development activities of other partners, including relevant government structures in the country of intervention. While DG ECHO should develop its relief activities within an overall long-term development framework to the extent possible and plan for the application of LRRD approaches, the overall responsibility for the coordination of LRRD policy lies with the EuropeAid Co-operation Office, DG AIDCO. According to DG AIDCO's Work Programme for 2006, the scope of the bridging function of LRRD between humanitarian and development instruments can include structural food security programmes undertaken by NGOs in fragile states.

Like LRRD, Disaster Prevention and Preparedness (DPP) is a standard feature of DG ECHO's approach and the 2005 Strategy states that 5% of the overall budget will be allocated to DPP activities. The 2006 Strategy includes provisions for preparedness and prevention activities to address the nutritional crises.

ANNEX 4: PEOPLE INTERVIEWED FOR STUDY

EC BRUSSELS			
Gilles Fontaine	AIDCO C	Principal administrator	
Simeon Moutaftchieff	AIDCO/E6	Operational Quality Support Natural Resources Food Security Advisor	
Laura Garagnani	DEV/B2	Responsible for the Food Security Thematic Budget	
Claire Gaudot	DEV/B2	Policy Officer Sustainable Management of Natural Resources	
Johannes Luchner	ECHO 0/1	Head of Unit	
Martine Vanackere	ECHO 0/1	Assistant to Peter Cavendish	
Beatrice Miege	ECHO A/3 DIPECHO	Desk Officer for South East Asia	
Brian O'Neill	ECHO A/1	Head of Sector for West Africa and Desk Officer for Burkina Faso, Mali, Mauritania, Niger, Cape Verde	
Cees Wittebrood	ECHO A/1	Head of Unit	
Guiseppe Angelini	ECHO A/1	Principal Administrator	
Sophie Vanhaeverbeke	ECHO A/1	Desk officer, Gambia, Ghana, Guinea-Bissau, Liberia, Togo, Sierra Leone, Benin, Nigeria, Senegal	
Zudella Pimley-Smith	ECHO A/1	Desk Officer for GHA, Kenya and Uganda	
Pierre-Christophe Chatzisavas	ECHO A/1	Desk Officer, Guinea Conakry and Chad with special focus on refugee crisis	

DG ECHO RSO – DAKAR			
Amparo Laiseca Garcia	ECHO-RSO, Dakar	Regional Medical Co-ordinator	
Gilles Collard (telephone interview)	ECHO-RSO, Dakar	Sahel Co-ordinator	
Jean-Marie Korporaal	ECHO-RSO, Dakar	Regional Food Security Expert	
Stéphane Quinton	ECHO-RSO, Dakar	Head of Office	
Francisco Gonzalez	ECHO – RSO – Dakar	Regional Water and Sanitation Expert	
Amadou Cisse	ECHO – RSO – Dakar	Senior Programme Assistant - Health	
REGIONAL ORGANIZATIONS – DAKAR			
Amadou Moctar Dieye	CSE	GIS Expert	
Jaques-André Ndione	CSE	Meteorologist	
Kerstin Jonsson Cissé	Embassy of Sweden / Sida – Dakar	Regional Advisor – Humanitarian Assistance – West Africa	
Alioune B. Camara	IDRC – Regional Office	Senior Programme Specialist	
Ernest Dabire	IDRC – Regional Office	Senior Programme Specialist	
Daniel Sayi	IFRC – Regional	Regional Programme Coordinator	
Mamadou Saliou Diallo	IFRC, Regional Delegation for West and Central Africa	Regional Food Security Delegate	
Mouhamadou Guelaye Sall	Institute for Population, Development, and Reproductive Health	Director	
Marcel Mikala	OCHA – Dakar	Regional Disaster Response Advisor	
Nick Ireland	Oxfam GB West Africa Regional Centre	Regional Humanitarian Coordinator	
Greg Ramm	Save the Children, UK	Regional Director for West and Central Africa	
Sibili Yelibi	UNFPA	Regional Advisor – STD/HIV/AIDS	
Victor M. Aguayo	UNICEF, West and Central Africa Regional Office	Regional Nutrition Advisor	

Tanya Chapuisat	UNICEF, West and Central Africa Regional Office	Regional Emergency Advisor	
Fancois Ducharme	UNICEF, West and Central Africa Regional Office	Emergency Officer	
Ancel Kats	UN-OCHA	Associate Humanitarian Affairs Officer	
Ibrahima Barry	UN-OCHA	Humanitarian Affairs Officer	
Regina Davis	USAID – OFDA	Principal Regional Advisor West and North Africa	
Geert Beekhuis	WFP, West Africa Regional Bureau	Economist, Market Analyst	
Francois Batalingaya	World Vision	Regional Relief Coordinator	
MAURITANIA			
Baba Fall Ould Yedaly	Au Secours – Association Humanitaire pour l'Environnement	Executive Director	
Amadou Kolidoy Sy	Au Secours – Association Humanitaire pour l'Environnement	Financial Secretary	
Med Elbechir Seyid	Bien Faisance Sans Frontieres	General Secretary	
Mohammed Fadel el Ahmedon	CSA – Brakna	CSA regional representative	
Karen Boyle	Dulos Community	Nutritionist	
Wolfgang Schlaeger	EC Delegation, Mauritania	Head of Rural Development and Food Security section	
Lamine Diallo	EC Delegation, Mauritania	Programme Officer, Economy and Institutional support	
Maloun Dine Ould Maouloung	Environmental Secretariat	Deputy Director of Environmental Secretariat	
Mohameden Ould Zein	Observatory for Food Security – Commissariat for Food Security	Director of Food Security Observatory	
Mohamed Cheikh Baha	Observatory for Food Security – Commissariat for Food Security	Head of Data Analysis Unit	

Joelle Fichter	OCHA – Mauritania	Humanitarian Affairs Officer	
Habib Thiam	Oxfam GB – Brakna	Food Security Monitoring	
Oumar Diaghy	SAPAS, Solidarité au service des activités productive et à l'action sociale	President	
Claudio Finizio	UNDP – Mauritania	Strategic Partnership Advisor	
Maouloud NDiaye	UNDP – Mauritania	Thematic Team leader Environment and Emergency	
Claudine Van Renoortere	UNICEF - Mauritania		
Gueladio A. Thiam	UNICEF – Mauritania	ProgrammeOfficer – Local Development and Community Participation	
Mohammed Ould el Hasen Hasseny	WFP - Brakna	Coordinator	
Nicole Jacquet	WFP – Mauritania	Deputy Director	
Denis Brown	World Vision – Mauritania	Commodities Manager	
Léopold V Ndiouki	World Vision – Mauritania	Commodities Manager	
MALI			
Moctar Hanne	OCHA - Mali	National Officer	
Franco Tranquilli	Delegation of the European Commission – Mali	Head of Cooperation	
Alain Houyoux	Delegation of the European Commission – Mali	Head of Section - Food Security and Rural Development	
Attaher Hauzéye Toure	WHO – Mali	Public Health Coordinator	

Maiga Fatoumation Soliona	WHO - Mali	Health and Environment Programme Coordinator	
Guido Borghese	UNICEF – Mali	Principal Programme Coordinator	
Mouctar Coulibaly	UNICEF – Mali	Consultant, Nutrition	
Yaya Tamboura	CSA	Deputy	
Mary Diallo,	CSA – SAP – Mali	Coordinator	
Mohamed Haidara	Afrique Verte Mali	Coordinator – Operations	
Yacouba Ballo	Afrique Verte Mali	Head of Training	
Yacouba Kone	Christian Aid	Representative	
Michael Quinn	Christian Aid	Programme Officer – Emergency in the Sahel	
Mamadou Coulibaly	Christian Aid	Programme Officer – Emergency in the Sahel	
Alice Daihirou	WFP – Mali	Representative	
Pablo Recalde	WFP – Mali	Representative (outgoing)	
Kalfa Sanogo	UNDP – Mali	Programme Officer – Assistant Resident Representative	
Djeidi Sylla	UNDP – Mali	Policy and Strategy Advisor	
Daouda Zan Diarra	National Direction for Meteorology	Head of Division – Agrometeorology	
Siaka Mallet	IOM – Mali	Representative	
Lina Mahy	Helen Keller International – Mali	Director	
Daniel Meijevug	Agro-Action – Mali	Project Leader	
BURKINA FASO			
Mohamed Aly Ag Mamana	Bllital Maroobe – Network of livestock and pastoralists in Sahel	Regional Coordinator	

Kalifa Traore	Cereal Action Plan – Plan d'Actions sur les Céréales (Mil, Sorgho, Mais)	Head of Unit	
Issa Martin Bikienga	CILSS – Burkina Faso	Deputy Executive Secretary	
Keffing Sissoko	CILSS – Burkina Faso	Agro-economist	
Amadou Mactar Konate	CILSS – Burkina Faso	Food Security Expert	
Marianne Kress	Danish Embassy DANIDA	Head of Cooperation	
Sari Soumalainen	EC Delegation – Burkina Faso	Head of Delegation	
Nadia Lamhandaz	EC Delegation – Burkina Faso	Programme Officer, Food Security	
Sophie Pelletier	EC Delegation – Burkina Faso	Programme Officer, Environment	
Baddo	EC Delegation – Burkina Faso	Water and Sanitation	
Mamoudou Sy	FEWSNET – Burkina Faso	National Representative	
Laouali Mahamadou Ibrahim	FEWSNET – Sahel	Regional Representative	
Petra Wager	German Cooperation - GTZ	Director	
Adama Neya	INERA – Environment and Agricultural Research Institute – Burkina Faso	Phyto- pathologist	
Omer Kabore	Intermón/Oxfam – Burkina Faso	Country Director	
Alphonse Bonou	Ministry of Agriculture	Advisor to the Minister	
Delphine Ouedraogo	National Council for Environmental Management	Director – Coordination of Combating Desertification	
André Anatole Yameogo	National Council for Food Security – CNSA – Burkina Faso	Executive Secretary	

Félix Alexandre Sanfo	OCHA – Burkina Faso	Coordination Analyst – Humanitarian Affairs Officer	
Mah Tangueri	Public Hospital, Ouagadougou	Paediatric Nurse – Recuperation of extreme malnourished children	
Habibou Sawadogo	Sentinel – NGO	Nurse	
Sandrine Bauille	Sentinel – NGO	Programme Coordinator	
Edith Naba	Sentinel – NGO	Social Organizer	
Cecilia Gjerdrum	Swedish Embassy – Development and Cooperation Section – Burkina Faso	Advisor – Head of Office	
Pierre Yves Guedez	UNDP – Burkina Faso	Programme Officer – Environment and Energy	
NIGER			
Abdallah Samba	Agrhymet-CILSS	Agro-meteorologist	
Mathieu Badolo	Agrhymet-CILSS	Coordinator – Adaptation Capacity of Sahel to Climate Change	
Adamou Hinsa	Agrhymet-CILSS	Agro-economist	
Jacques Gourdin	Belgian Embassy – Niger	Head of Cooperation	
Baoua Issoufou	CARE – APCAN Project	Chief of Project	
Adamou Hamadou	CRS-Niger	Head of Monitoring and Evaluation	
Latifa Mai Moussa	DANIDA - Niger	Head of Office	
Latifa Mai Moussa	Danish Cooperation – Niger Office	Head of Cooperation	
Hamani Harouna	Early Warning System – SAP	Coordinator	
Paul Vossen	EC Delegation – Níger	Head of Rural Development and Food Security Section	
Olivier Lefay	EC Delegation – Níger	Programme Officer – Food Security	
Maria Helena Nobre de Morais Querido Semedo	FAO - Niger	Representative	
Moustapha Niasse	FAO – Niger	Coordinator – Agricultural Emergency Programme	

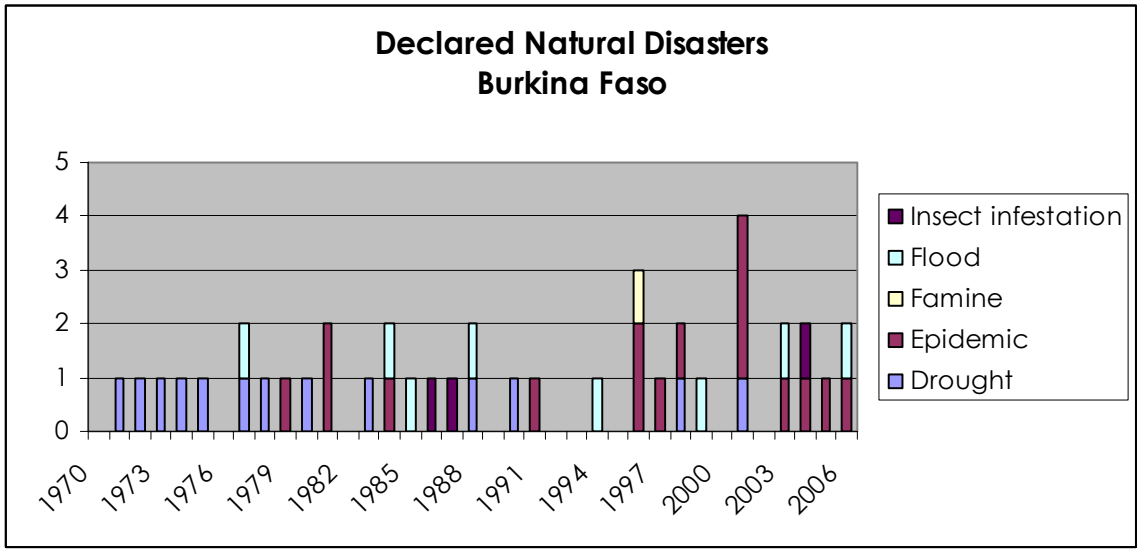
Macky Hourou Tall	FAO – Niger	Assistant – Agricultural Emergency Programme	
Seydou Bakari	Food Crisis Unit – CCA	Coordinator	
Franck Humbert	French Embassy – Niger	Cooperation and Cultural Advisor	
Harouna Haman	Helen Keller International		
Alpha Boubacar Diallo	OCHA-Niger	Head of Office	
Natalie Hogg	Save the Children, UK - Niger	Programme Director	
Mahamedoune Yattara	Save the Children, UK - Niger	Nutrition – Medical Coordinator	
Karine Coudert	UNICEF – Niger	Programme Officer – Nutrition	
Hamadou Boureima	UNICEF – Niger	Programme Assistant – Nutrition	
David Hercot	UNICEF – Niger	Assistant Programme Officer, Health	
Sory Ibrahim Ouane	WFP-Niger	Representative	
Sarah Gordon-Gibson	WFP-Niger	Deputy Country Director	
CHAD			
Issa Konda	Africare – Chad	Project Coordinator	
Djasnan Ngon Nguembo,	Africare – Chad	Programme Coordinator	
Nicolas Palanque	CARE Int. – Chad	Country Director	
Philippe Thomas	EC Delegation – Chad	Head of Section – Rural Development	
Hissein Hadji Tchéré	EC Delegation – Chad	Programme Officer – Rural Development	
Frédéric Bonamy	ECHO – Chad	Field Technical Assistant	
Mamoudou Diallo	FAO – Chad	Representative	
Hassane Mahamab	FAO – Chad	Assistant Representative	
Abdelwahid M. Yacoub	FEWS NET – Chad	National Representative	

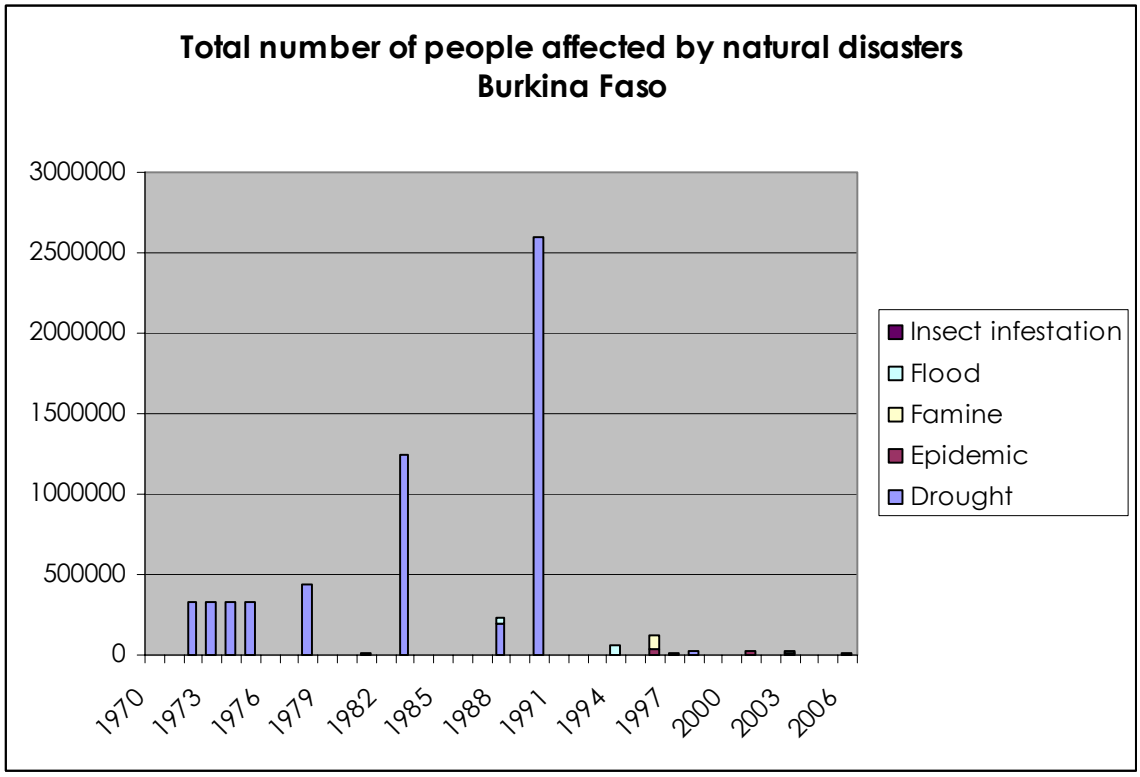
Duccio Staderini	MSF Luxembourg – Chad	Head of Mission	
Issa Mardo	NGO Liaison - Ministry of Social Affairs	National Director	
Patrice Fillon	OCHA – Chad	Information Management Officer	
Koumo Gopina Andréas	Red Cross – Chad	General Secretary	
Bongor Zam Barminas	Red Cross – Chad	Emergency and Research Officer	
Patrick Portes	SCAC – French Embassy Chad	1st Secretary – Cooperation	
Caroline Tessandier	SCAC – French Embassy Chad	Food Security Secretary	
Elie Yanyara Djimadoumadji	SECADEV – Chad	Director	
Mamadou Togba	SECADEV – Chad	Sociologist – Assistant to Director	
Maibé Komanaje	UNCCD Focal Point – Chad	Coordinator	
Dimitri Papathanassiou	UNICEF – Chad	Programme Coordinator – SPO	
Muhamady Kandey	UNS – Chad	Special Assistant to UN Resident Coordinator	
Felix Bamezon	WFP – Chad	Representative	
Patrice Kalissa	WFP – Chad	Program Officer	
Etienne Kississou	WFP – Chad	Assistant – VAM	
DG ECHO NAIROBI			
Aadrian Sullivan	ECHO – Nairobi	Technical Advisor	
Lammert Zwaagstraa	ECHO – Kampala	Project Coordinator	
Nancy Balfour	ECHO – Nairobi	Water and Sanitation Policy Adviser	
NAIROBI REGIONAL ORGANIZATIONS			
Piers Simpkin	ICRC – Nairobi	Livestock Management Consultant	
Cindy Holleman	FSAU – Food Security Analysis Unit	Technical Manager	
Helen Bushell	Oxfam GB	Drought Cycle Management Coordinator	

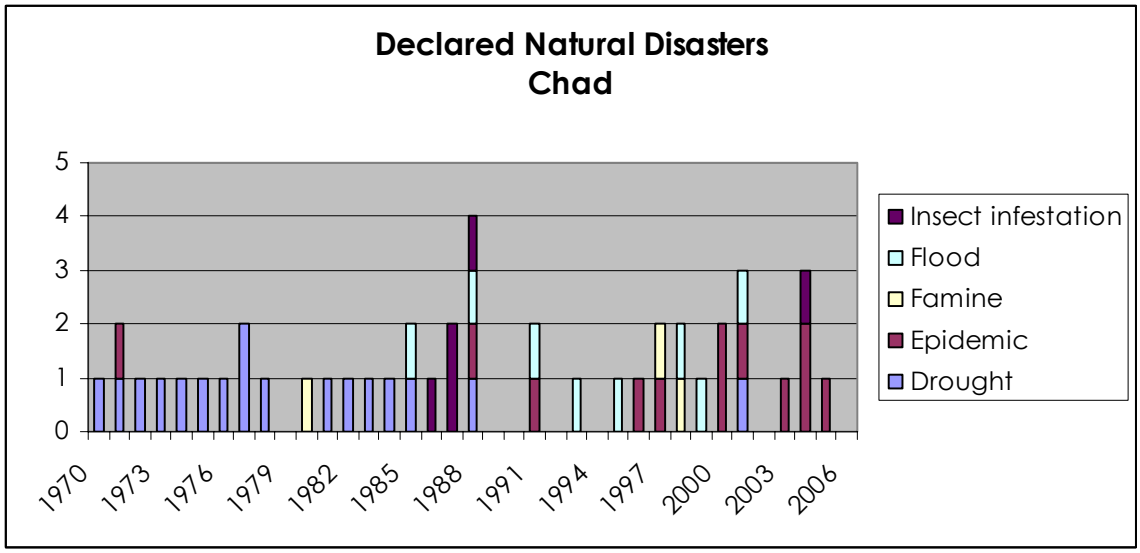
Marcus Lee	UNEP – Nairobi	Programme Officer – Early Warning and Assessment	
PARIS			
Marie-Cécile Thirion	French Cooperation, Paris	Head of Office – Nutrition and Food Security	
Léonidas Hitimana	SWAC - OECD	Agro-economist	
Christophe Perret	SWAC – OECD	Macro-economist	
Jean Sibiri Zoundi	SWAC – OECD	Head of Unit	
Massaer Diallo	SWAC – OECD	Head of Unit	

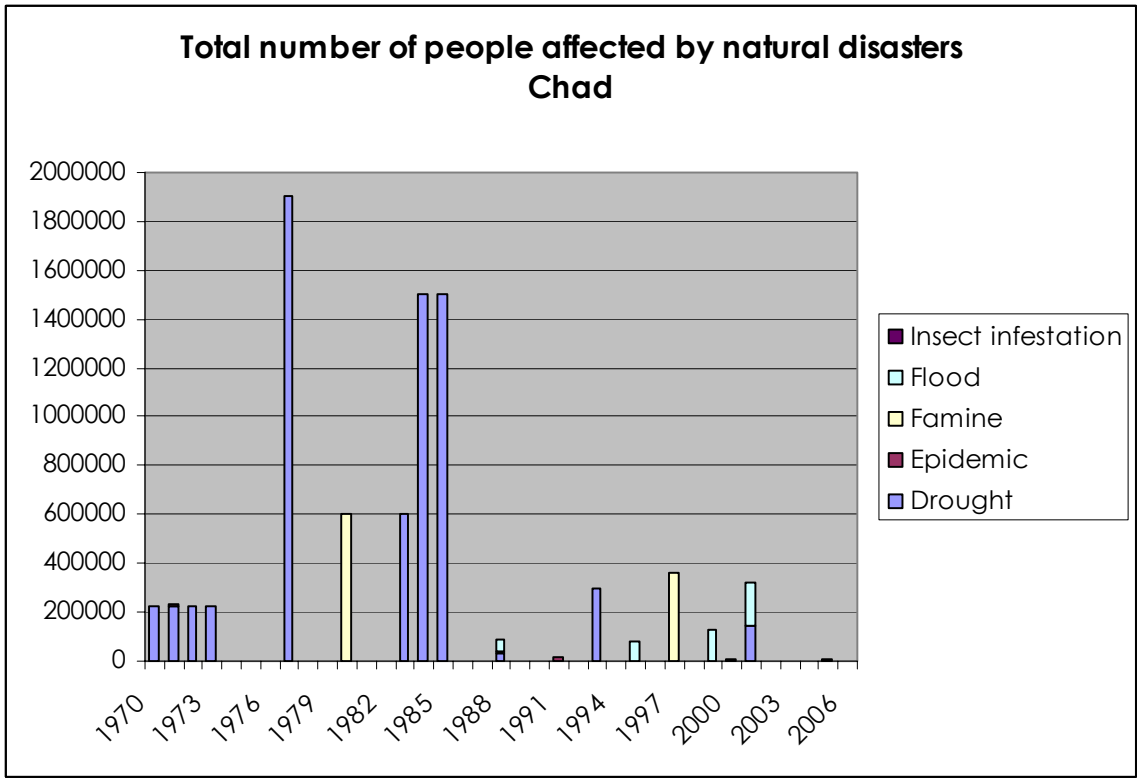
ANNEX 5: POPULATION AFFECTED BY NATURAL DISASTERS IN THE FIVE COUNTRIES

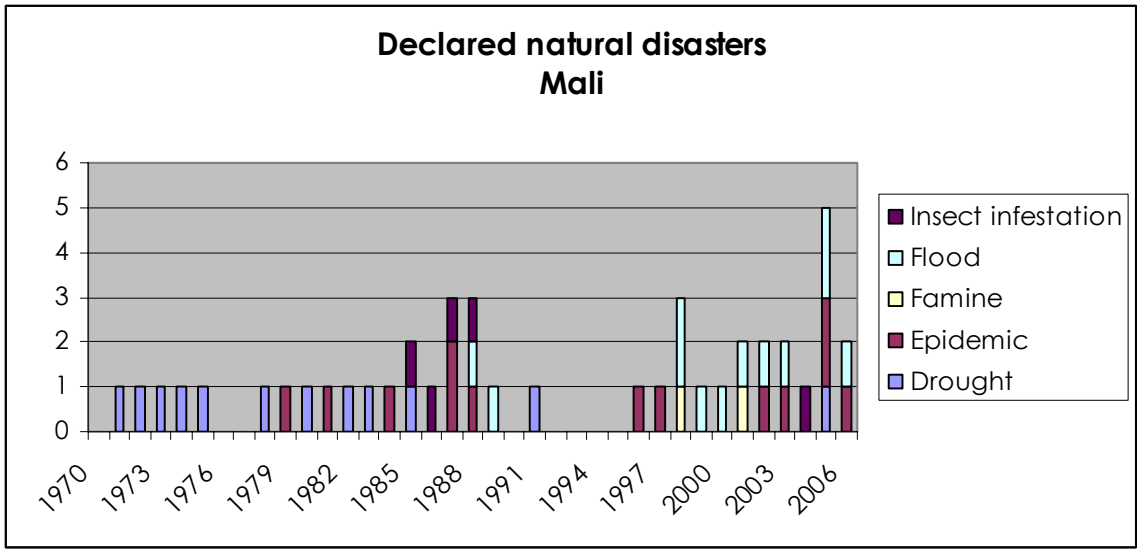
The following charts are based on information from the Emergency Events Database (EM-DAT) which is maintained by the Centre for Research on Epidemiology and Disasters in Louvain, Belgium (www.em-dat.net) in collaboration with a number of international institutions such as OFDA/USAID, WHO, UNDP and IFRC. EM-DAT registers natural disasters with more than 10 fatalities and/or 100 affected and/or a call for international assistance and/or declaration of a state of emergency.

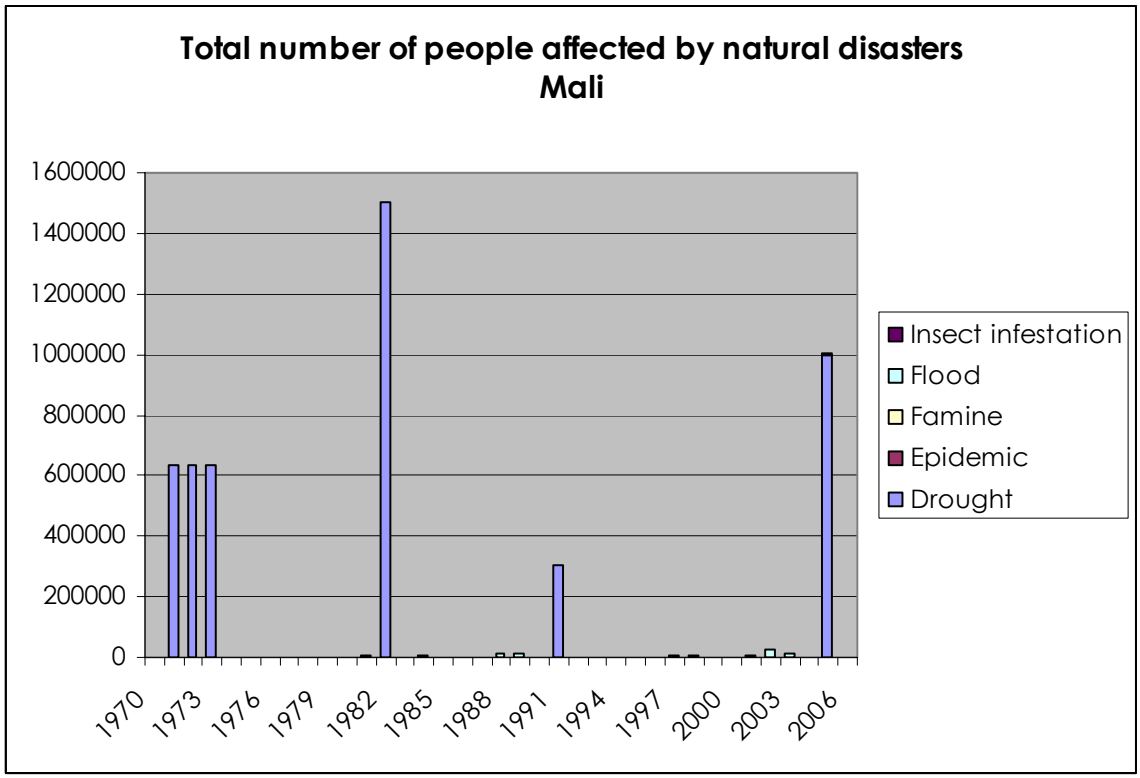


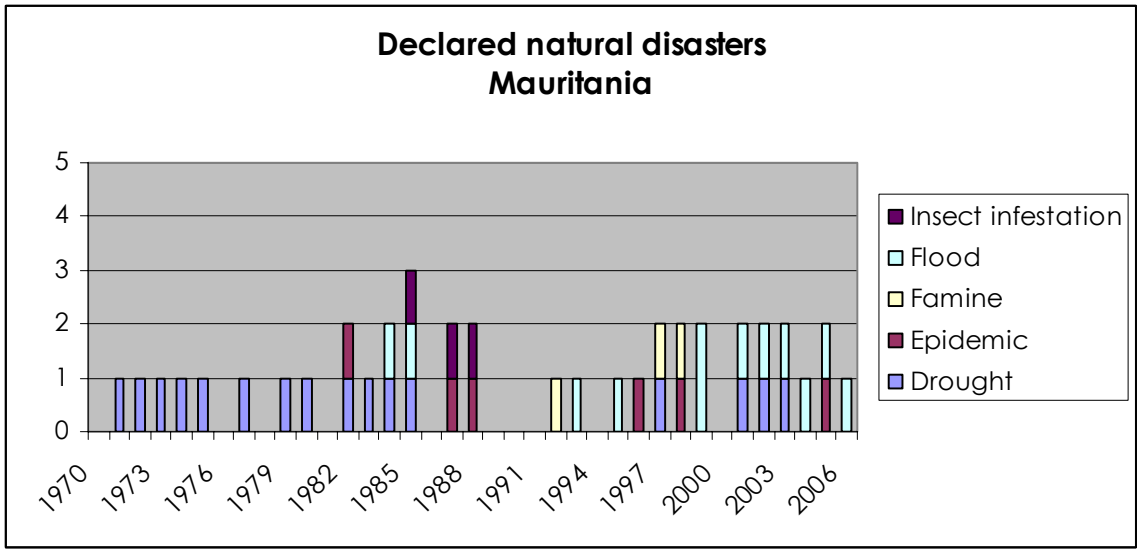


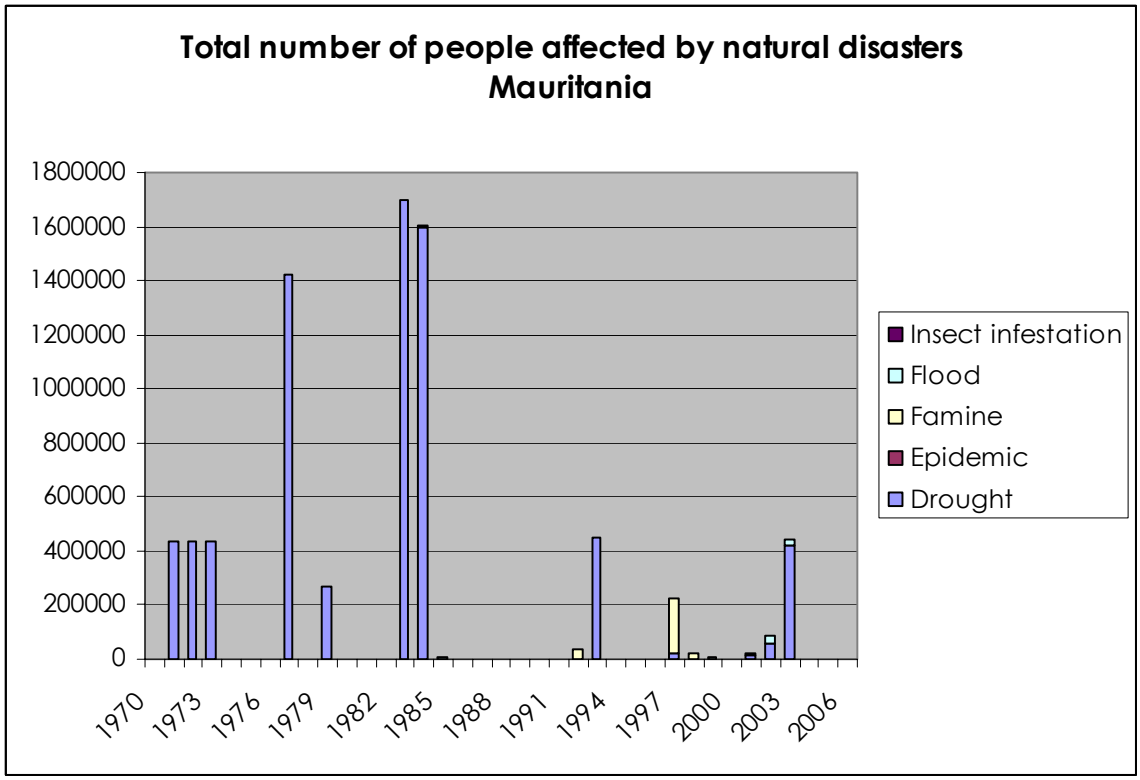

Declared Natural Disasters
Chad
5
4
3
2
1
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought

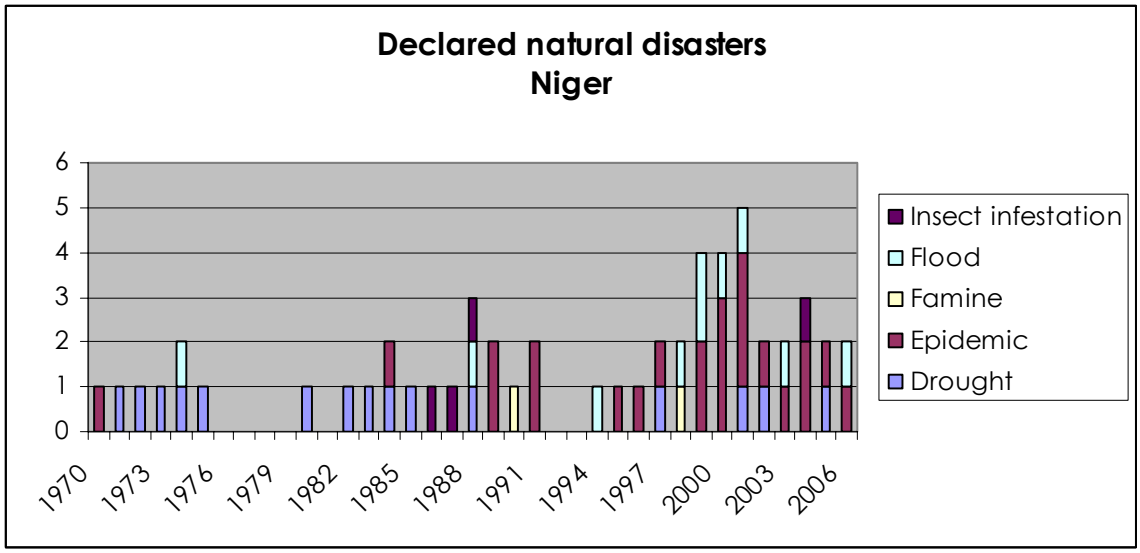

Total number of people affected by natural disasters
Chad
2000000
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought

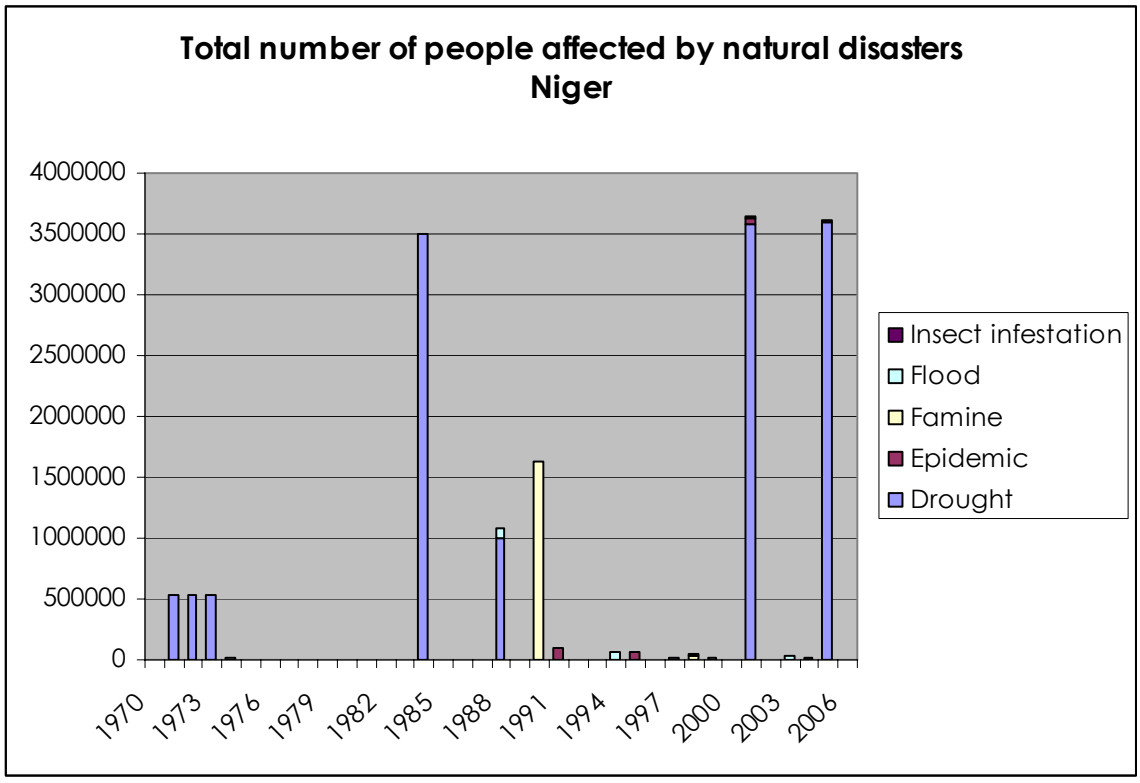

Declared natural disasters
Mali
6
5
4
3
2
1
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought


Total number of people affected by natural disasters
Mali
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought


Declared natural disasters
Mauritania
5
4
3
2
1
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought


Total number of people affected by natural disasters
Mauritania
1800000
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought


Declared natural disasters
Niger
6
5
4
3
2
1
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought


Total number of people affected by natural disasters
Niger
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
1970
1973
1976
1979
1982
1985
1988
1991
1994
1997
2000
2003
2006
Insect infestation
Flood
Famine
Epidemic
Drought