

How the State Interplays with International Institutions: The Case of Food Security

Sirkku Juhola*

Abstract

In today's world, many developing countries are struggling to provide adequate food supplies to their population. The impact of global environmental change on food security is largely unknown as yet. This increasing uncertainty highlights the need of identifying the governance institutions that underpin food security and the potential of these relevant institutions to adapt to changing circumstances. This is especially important considering the increasing population and the increasing number of under- and malnourished people in the world.

Current understandings of food security have largely been dominated by a research agenda that focuses on the demand and supply side of food. Increasingly, a more holistic conceptualisation of food security is advocated. It is argued that a systemic understanding of food security includes not only the production and consumption of food but also the interaction between and within the environment in which the activities related to food take place. This way of framing food security opens up the possibility to discuss adaptive governance and adaptive institutions in changing environments.

This chapter firstly reviews the current state of the world's food insecurity, highlighting the challenge of an increasing number of food insecure people. This is followed by a brief overview of the way food security is understood and what responses have been developed at the international and national level to counter the insecurity. However, these responses are far from perfect and this is demonstrated by an analysis of a recent food crisis in Niger. The chapter acknowledges four aspects of adaptive governance that are necessary for a social system to be responsive to change. These four aspects are analysed in relation to the crisis in Niger and they clearly show lack of adaptive capacity in the institutions involved. Some early recommendations for strengthening this capacity conclude this analysis.

*PhD Fellow

United Nations University-Institute of Advanced Studies
International Organizations Center, 6F, Pacifico-Yokohama
1-1-1 Minato Mirai, Nishi-ku, Yokohama 220-8502,
Japan
juhola@ias.unu.edu

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Acronyms

AGHRYMET	Agricultural, Hydrological and Meteorological programme
BBC	British Broadcasting Corporation
CILSS	The Permanent Interstate Committee for Drought Control (Sahel)
CERF	Central Emergency Response Fund of the United Nations
DNPGCA	Food Crisis Prevention and Mitigation Mechanism, Niger
EU	The European Union
EWS	Early Warning System
FAO	The Food and Agriculture Organisation of the United Nations
FCPNS	Food Crisis Prevention Network of the Sahel
FEWSNET	Famine Early Warning System Network funded by USAID
GEC	Global Environmental Change
GIEWS	Global Information and Early Warning System
IFPRI	International Food Policy Research Institute
IMF	International Monetary Fund
MA	The Millennium Ecosystem Assessment
MSF	Médecin Sans Frontières
NGO	Non-Governmental Organisation
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WFP	United Nations World Food Programme

1. Introduction

The 1996 World Food Summit held in Rome set as its objective to reduce by half the number of chronically undernourished people by the year 2015. Fourteen years later, the United Nations Millennium Development Goals reiterated this goal. Progress towards these goals has been less than satisfactory. The latest progress report indicates that the number of people going hungry in the worst affected regions of Sub-Saharan Africa and Eastern Asia has been rising despite the limited success in the early 1990s. It is estimated that in 2003, 824 million people were suffering from chronic hunger in the world (United Nations 2006).

The Millennium Ecosystem Assessment (MA), completed in 2005, highlighted the impact of degradation of the ecosystem services to future human wellbeing. More land has been converted to cropland in the last fifty years than in any other comparable time in the history of the humankind (Millennium Ecosystem Assessment 2005). Although this has enabled exponential increases in agricultural productivity, this has had a serious impact on the ability of the ecosystem to support human activities. According to the MA estimate, the demand for food crops is projected to grow by 70–85% by 2050 but it is unclear to what extent the Earth's ecosystem can support this increase (*Ibid.*).

As if the current situation is not challenging enough a consensus seems to be forming on the changes in the global environment. Global Environmental Change (GEC) is set to increase the uncertainty with regards to the ecosystem services that the Earth provides. This increased uncertainty creates a further burden on the current food production and distribution system. Even now, when global food production has increased exponentially, famines and severe food crises are still a common occurrence. This begs the question: Why are our current institutional responses failing? And, how can we build the adaptive capacity of the institutions relevant to food security in order to meet the further challenges arising from GEC?

This chapter explores the possibilities for adaptive governance and institutions with regards to food security. It examines the recent humanitarian crisis in Niger to show how different institutional failures at the international and state level led to a food crisis. To do this, the chapter firstly highlights the general problem of food insecurity in the world. Secondly, the chapter focuses on the definition of food security. The chapter then goes on to illustrate the institutional landscape that has emerged at the international and national level to deal with food insecurity. Thirdly, the case of the recent humanitarian crisis in Niger is analysed to tease out the lessons that can be learned with regards to adapting institutions. The case of Niger clearly highlights the need to build the adaptive capacity of institutions and some early recommendations are reached in the conclusion of this paper.

2. The State of the World's Food Security

As already mentioned, despite the phenomenal increases in food production in the past 50 years, hunger and malnutrition is still persistent and widespread, (see Figure 1 for the Food and Agriculture Organisation of the United Nations (FAO) Hunger Map for the percentages of undernourished people by country basis). Of the 824 million currently suffering from hunger, 10 million die each year of hunger related causes and 24 000 die each day (Belgasmí 2006). Over the last century the mortality figures of famine related deaths has been estimated to be 70 million (Devereux 2000).

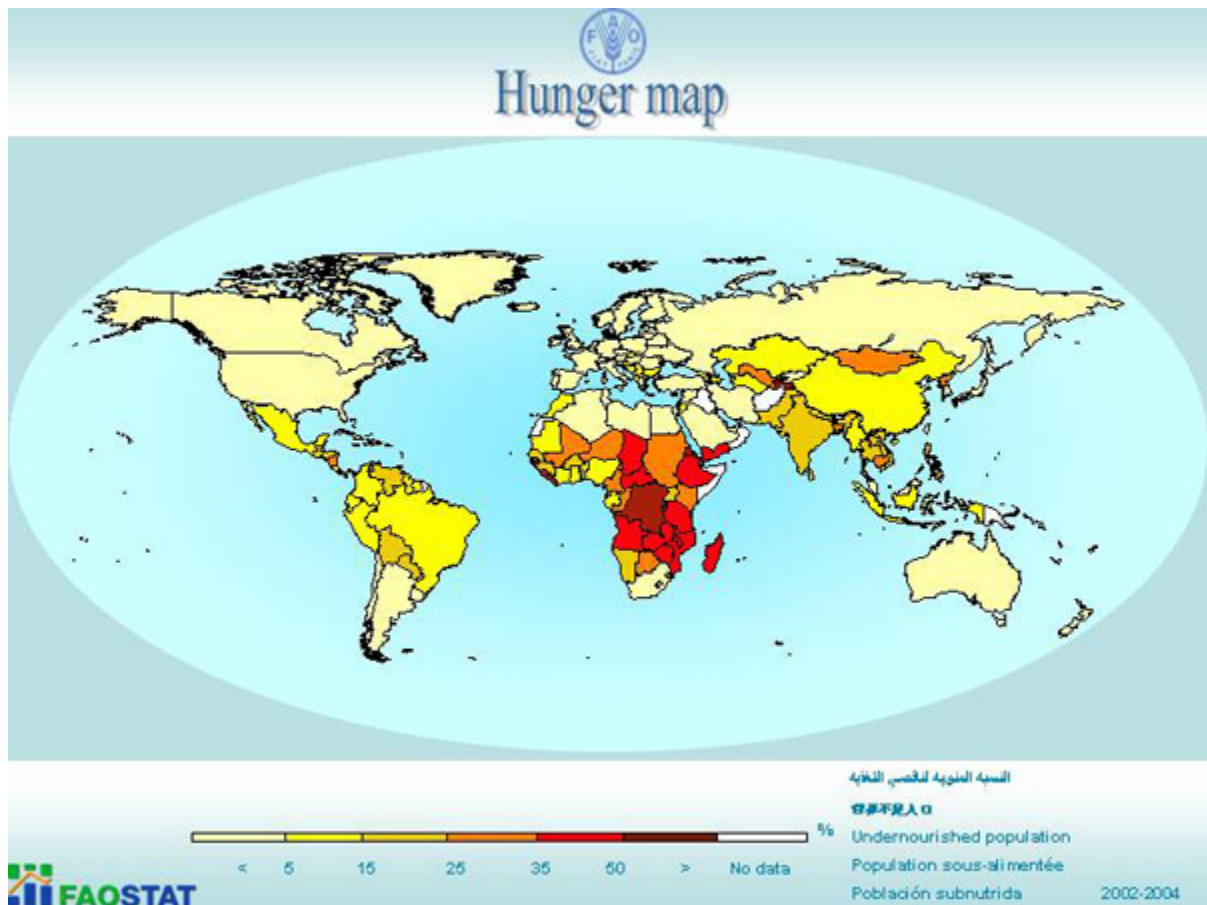


Figure 1 FAO Hunger Map (FAOSTAT 2007).

The progress in reducing hunger has been varied throughout countries and continents. According to 2003 FAO estimates, 820 million of the world's undernourished people live in the developing world (FAO 2006). While China has been one of the few countries able to reduce the number of those who are undernourished, in the rest of the developing world the numbers are not so promising (von Braun 2005). The situation is particularly dire in

Sub-Saharan Africa where the number of hungry people has increased by 20% since the 1990s.

While there is a renewed interest and attention at the international level to eradicating hunger in recent years, the opportunities for doing so are nevertheless slim. The situation in 2015 is set to look even worse, if no significant changes in the current state of affairs takes place (Runge, Senauer et al. 2003). According to these estimates, 600 million people will suffer from hunger and 900 million people will live in absolute poverty. In addition, 128 million pre-school children will be malnourished (von Braun 2005). See Table 1 for FAO projections of food indicators by different geographical region.

Year	Sub-Saharan Africa	Near East and North Africa	South Asia	East Asia	Latin America and Caribbean	Developing Countries
Per capita food consumption (kcal/person/day)						
1964-66	2058	2290	2017	1957	2393	2054
1997-99*	2195	3006	2403	2921	2824	2681
2015	2360	3090	2700	3060	2980	2850
2030	2540	3170	2900	3190	3140	2980
Millions of persons undernourished						
1990-92	168	25	289	275	59	815
1997-99*	194	32	303	193	54	776
2015	205	37	195	135	40	610
2030	183	34	119	82	25	443
Percentage of population undernourished						
1990-92	35	8	26	16	13	20
1997-99*	34	9	24	11	11	17
2015	23	7	12	6	6	11
2030	15	5	6	4	4	6

Table 1. Projections of Food and Hunger Indicators by Region. Source: (Pingali, Stamoulis et al. 2006).

3. Understanding Food Security

Understanding famines and food insecurity has been a long-standing effort and still remains a widely debated issue in academic and policy circles. Food security as a concept emerged in 1970s when the emphasis was placed on food availability and relative price stability at the international and national level (FAO 2003). The occurrence of several famines in the 1970s against the technical successes of the Green Revolution led observers to broaden the definition to include issues of access. In the recent decades the definitions have moved away from focus on food availability and access to incorporating issues such as correct nutrition and food preferences. The basic definition of food security is stated as ‘access by all people at all times to the food needed for a healthy life’ (von

Braun, Bouis et al. 1992, p.6). During the 1990s the scope of the definition widened further spanning the global to the individual level. The World Food Summit definition takes a more complex approach to the definition by stating that

‘food security exists when all people at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and satisfy their food preferences and thus conduct a healthy and active live’ (The World Food Summit 1996).

In a review of 20th century famines and writings on famines Devereux examines the evolving discourses and how they are interpreted through different disciplinary lenses (Devereux 2000). Explanations have ranged from environmental triggers, to population growth, to entitlement failures (Sen 1981) and to political failures (de Waal 1997).

In the literature, a distinction is made between the temporal scales. *Chronic* food insecurity is defined as a persistently inadequate diet caused by continuous inability to acquire the necessary amount of food. *Transitory* food insecurity, on the other hand, is a temporary decline in the household’s ability to secure food. The definition between transitory and chronic is crucial as it often determines not only the type but also the timing and targeting of the response to a situation. One of the persistent confusions in the literature arises from the difficulty of distinguishing between the triggering factors of famines and the structures and processes that increase the vulnerability of the populations to famines. Although this difference is acknowledged, most analysts tend to focus only on one or the other. As a result, a magnitude and intensity scales in defining famines has been proposed (Howe and Devereux 2004). This approach attempts to overcome the famine-no famine dichotomy in an effort to improve operational responses to food insecurity.

In the last few years new ways of understanding food security have emerged. These new approaches move beyond a single discipline and build conceptual models that enable food systems to be analysed holistically. Most of the work on this matter has been produced by the Global Environmental Change and Food Systems Project (Ericksen 2006a; Ericksen 2006b) but there are also others (Fraser In press). Three gaps are identified in the understanding of food security (Ericksen 2006b). Firstly, there is an analytical separation between supply and demand sides of food security. Secondly, food security is often discussed at the household level with no reference to the broader context and finally there is a gap between our environmental and social explanations of food security. It is argued that this reconceptualisation is necessary in order to move towards a more responsive and adaptive governance structure. This issue is addressed, with regards to the food crisis in Niger, in more detail later on in this chapter.

Responding to food insecurity

Since the 1970s numerous national and intergovernmental institutions have been set up to act in response to the famines that occurred. In addition to the intergovernmental institutions there has also been an expansion in civil society and other non-governmental

actors in the humanitarian sector. After the Sahel famines in the 1970s, it was agreed at the 1974 World Food Conference by the UN agencies and donors that early warning systems (EWS) were to be developed. These systems would be able to monitor food production at the international and national level. The EWS, which were later established by both the United States Agency for International Development and FAO, were aimed to provide early indication of the need for intervention and to facilitate a response before an onset of a food crisis. These so-called 'food balance sheet' approaches use satellite imagery and national harvest statistics to analyse food availability on a country-by-country basis (Moseley and Logan 2001). As the understanding on the complex causes of food insecurity has evolved, so has the development of EWS and the indicators on the vulnerability to food insecurity. Several indicators, ranging from vegetation cover to food supply, access and health, are now incorporated into famine early warning systems (*Ibid.*). Increasingly, these indicators are analysed over time to determine the changes, either improvement or deterioration, in the food security situation.

The responses to food insecurity take many forms ranging from emergency relief to development aid. Food aid can be characterised as international concessional flows in the form of food or cash to purchase food in support of food assistance programmes (Barrett and Maxwell 2005). Donor governments or international organisations, mainly the World Food Programme (WFP), deliver this form of food aid through food programmes, projects or as emergency relief. Non-governmental organisations (NGOs) also provide emergency relief. The alleviation of chronic food insecurity through longer-term development responses has evolved from technical assistance to a more holistic concept of social protection (Devereux and Sabates-Wheeler 2004). It encompasses both public and private initiatives that aim to protect the vulnerable from livelihoods shocks that can deteriorate the situation.

Overall, the trend in food security analysis has moved away from reductionist approaches that rely on a single academic disciplines, usually agricultural economics, and variables to explain the causes of food insecurity to more holistic approaches. Yet while our understanding of food security of the complexities of food security has become deeper, arguably our responses remain inadequate. A question then arises as to how can our understanding of food security be improved, especially when one considers the increasing uncertainty caused by GEC? Furthermore, how can these advances be translated into more appropriate institutional responses? This chapter answers these questions by looking at one of the most recent cases of food crises in Africa and to see what lessons can be learned from Niger that are of relevance to thinking about adapting institutions in relation to food security.

4. Niger humanitarian crisis 2004-5

One of the most recent food crises in Africa unfolded in Niger in 2004¹. Although figures vary, it is estimated that approximately 3.3 million people were affected by severe food

¹ Some commentators have been hesitant in calling this crisis a famine because there was no large-scale mortality as a result of the shortages. Instead terms such as humanitarian or food crisis are used.

shortages². As the following paragraphs demonstrate, the difficulty in characterising the situation was among the reasons why the response was far from adequate. More importantly, what this case clearly highlights is the need for more adaptive governance structures not only in the assessment of the food security situation but also with regards to the responsiveness of different organisations at the national and international level.

Niger is a landlocked country bordering the Sahara desert in West Africa with a population of 12 million. The annual demographic growth is 3.6 percent, which is one of the highest in the world. Niger is also one of the poorest countries in the world and is currently ranked last in the UNDP's Human Development Index, see Figure 2. (UNDP 2006). According to the UN Millennium Development Goal statistics approximately 60 percent of the population live below the poverty line (*Ibid*). Life expectancy in Niger stands at 44.6 years and adult literacy rates are under 30 percent. According to the HDI figures, half of the population has no access to improved water sources and 40 percent of under five-year olds are underweight.

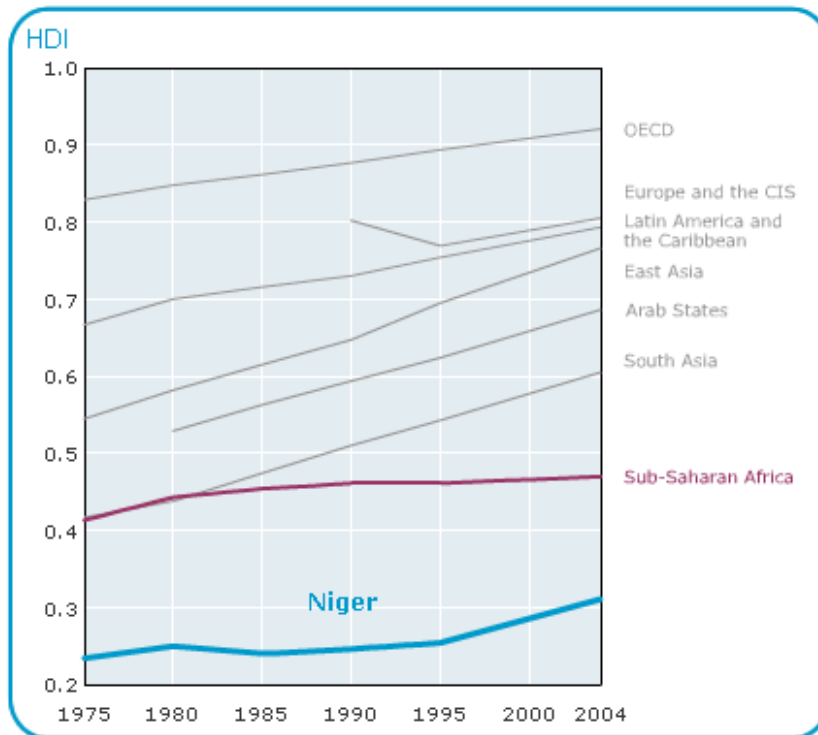


Figure 2. Niger's Human Development Index. Source: (UNDP 2006).

² This analysis of the Niger humanitarian crisis is based on a review on secondary sources. Surprisingly little has been written about the situation in 2004-5 and as of yet, no official mortality figures have been put forward.

Nigeriens rely heavily on subsistence agriculture and livestock rearing. In the years before 2004, the region as a whole has benefited from relatively good rainfall and regional agricultural markets are well integrated. However, even in good years, Niger is a food deficit country and it relies heavily on donors to make up for the shortages.

Assessment of food security situation in Niger

The Global Information and Early Warning System (GIEWS) run by FAO and the Famine Early Warning System Network (FEWSNET) run by USAID both began to signal warnings after the 2004 harvest. See Box 1 for the different institutions and actors that are relevant to this analysis. A joint mission by the FAO/WFP/CILSS visited Niger in October 2004 to estimate the levels of crop production and supply (FAO/GIEWS/WFP 2004). From the information collected, this mission outlined two factors that had had an influence in the 2004 harvest. Firstly, there had been insufficient rainfall during the 2004 planting season which had affected the agri-pastoral and northern areas of the country. Farmers had begun to plant their crops in April when the rains started but then rains suddenly stopped for a period of three to six weeks. In some areas this led to replanting of crops in June but water stress on crops continued in several places with the rains also stopping earlier towards the end of August. Secondly, the joint mission stressed the impact of locust infestations on the crops. Locusts were a region wide problem in West Africa during 2004, and particularly hit hard Niger leading to losses of 20-47 percent of the millet harvest and 12-30 percent of the sorghum harvest.

AGHRYMET

Agricultural, Hydrological and Meteorological programme of CILSS with its regional centre in Niamey that provides training and information to stakeholders in agroecology.

CILSS

The Permanent Interstate Committee for Drought Control in the Sahel for nine countries.

FCPNS

Food Crisis Prevention Network of the Sahel is an annual discussion forum of the CILSS and six OECD donors, Canada, the European Economic Community.

FEWSNET

Famine Early Warning System Network is a programme for Sub-Saharan Africa funded by USAID. Informs USAID on funding issues but also strengthens the abilities of countries and organizations to manage risk of food security through early warning and vulnerability information.

GIEWS

The Global Information and Early Warning System of the FAO monitors food security globally.

SWAC

Sahel and West Africa Club is a discussion forum that links the West African countries and the OECD countries, including the public and the private sector.

Adapted from (Clay 2005).

Box 1 Relevant institutions and early warning systems in the Sahel.

As a response to these shocks the assessment mission found that the following factors were signaling an onset of a food crisis. There was a rapid increase in the price of cereals immediately following the harvest and a drop in the price of livestock. There was an unavailability of local food commodities and human consumption of cereal seeds was taking place. In addition, massive early departure of migrants, especially male labourers, was witnessed from the villages and this coincided with early transhumance of herders which led to increased herder-farmer conflicts.

The joint assessment mission estimated that the net cereal production for 2004-05 stood around 2 651 571 tonnes of millet, sorghum, maize, rice and fonio. Thus, according to this mission, the provisional cereal deficit was estimated at 278 350 tonnes or about 9 percent of the national need. The report further stated that '[A]lthough the deficit does not seem enormous at the national level, this should not obscure the fact that more than 3 million people in some 3 000 villages, located mainly in the agri-pastoral zone in the centre and north of the country, are now extremely vulnerable to food insecurity' (*Ibid.*, p. 1).

What the early conclusion of the EWS signals was that there was not, as yet, a major food crisis but that there was an increase in localised pockets of acute food insecurity. This information was collected and shared by all parties involved, including the Food Crisis Prevention and Mitigation Mechanism (DNP-GCA), which is the national coordinating body for all concerned with food security in Niger. In early 2005 and before the rains begun in May, Médecin Sans Frontières witnessed a dramatic increase in the number of admissions at their therapeutic feeding centres (Médecin Sans Frontières 2005). According to MSF, in the villages they had visited one in five children were at risk of malnutrition. More worryingly, weekly child admissions to the feeding centres had gone up from 170 to nearly 250. MSF stated that their capacity had already been filled three months prior to the beginning of the usual critical period.

Overall, it appears that the EWS and the joint assessment mission highlighted the increased vulnerability of parts of the Nigerien population and recognised it as more than a short-term emergency. Amongst the donor community it was generally agreed that a large-scale famine or mass starvation was not imminent. In March 2005 the Niger Government, UN Agencies and NGOs partners carried out another joint assessment, according to which 3.6 million people in 2 988 villages are vulnerable to food crisis (USAID 2005). Of the 3.6 million 800 000 are children under five years of age, 20 percent of which suffer from moderate wasting and four percent from severe wasting.

National and international response to the crisis

As detailed in previous paragraphs, the impacts of the drought and the locusts on agricultural production were known by international organisations in collaboration with the Government of Niger as early as October 2004, i.e. directly after the harvest of that year. Yet regardless in 2005 over three million people suffered from acute food shortages. This raises the question if the early warning signals, indicating likely food shortages were recognised and acknowledged, why the responses were insufficient, and could they have been better timed and targeted correctly to have predicted the deterioration of the situation.

After the first joint assessment mission that estimated the harvest shortfalls in the 2004 harvest, the Government of Niger with the support of the WFP launched an appeal for 78 000 MT of emergency food (AfricaFocus 2005). This call went unheeded. As the situation progressed, the UN country team in Niger and the Niger's Prime Minister's Cabinet organised a donors' meeting in Niamey in order to raise more funds for the organisations involved in March. The appeal went out for US\$7 million dollars but again hardly any funds were forthcoming. The DNP-GCA began subsidised sales of cereals across the worst affected areas. These sales were carried out in several rounds, totaling approximately US\$ 36 million (OCHA 2005).

Simultaneously, MSF, WFP and United Nations Children's Fund (UNICEF) reinforced their activities and supported the therapeutic feeding centres, and the national health structures. As the situation worsened, in May 2005 the UN agencies again appealed for

more funds. At this point, the Government's resources, as well as resources of WFP and many NGOs were severely stretched. The US\$16 million flash appeal was met by US\$ 320 000 pledged by Luxembourg. Directly after the appeal no other pledges were received. During July 2005 Sweden contributed US\$ 650 000 to FAO for cereal and pulse seeds for the rainy season and animal fodder and vegetable seeds for the dry season (FAO 2005). At this point, the head of UN humanitarian operations, Under-Secretary General Jan Egeland sounded an alert that 500 000 children faced imminent death unless donations increased (Fleshman 2005).

In June 2005, the WFP described the situation in Niger as 'dire' given that only 11 percent of the funding required had been received (WFP 2007). The WFP doubled the number of people it is helping to 1.2 million. In mid July, the British Broadcasting Corporation (BBC) reported on the crisis (Barou 2005). Significantly, as the images spread across the world, the WFP received more pledges in ten days following the broadcast than in ten previous months. The UN officials pointed out that while the initial appeals went out for US\$16 million, the situation has deteriorated and a total of US\$ 30,7 million was actually needed. When the first appeals went out just US\$1 a day per individual could have offset the crisis, but by this time US\$80 per person was required (Gosline 2005).

Emergency operation continued throughout 2005 and good rainfall helped the situation. However, in many places farmers lacked seed for planting because stocks have been used for human consumption (Gosline 2005). An assessment of food security and food supply for the 2005-06 season revealed that the crisis previous year had further increased the long-term vulnerability of livelihoods (FAO/GIEWS 2005). It is estimated that '[G]iven the seriously depleted state of most of the population's income, the 2005 mission anticipates that within three to at most six months, up to one third of Nigerien rural households are at risk of having a major food access problem' (FAO/GIEWS 2005, p. 2). Furthermore, the levels of moderate and severe acute malnutrition remained high and admissions to feeding centres have barely levelled off from the numbers of early 2005. In 2006, persistent pockets of localised food insecurity continue to exist in the country (SWAC 2006).

Considering that the over half of the Nigerien population live in chronic poverty it should come as no surprise that the country is highly vulnerable to any kinds of shocks that relate to food security. The timeline of both assessment and responses are detailed in Box 2. The following questions arise from this case. What was particular about the 2004 season that relatively minor shocks caused a crisis? Is the information collected by the EWS sufficient enough to predict this kind of food crisis? Furthermore, is there a need evaluate the response at the national and international level and to what extent they were timely and adequate? This is especially important bearing in mind that information of increased vulnerability to food insecurity in parts of Niger were well known. The following section provides answers to these questions.

August 2004

Rains fall short in the Sahel although this is normally the height of the rainy season and there is an infestation of locusts across West Africa.

October 2004

A joint FAO/CILSS/FEWSNET/WFP mission found that food security situation is of concern in the agro-pastoral zones of Niger.

November 2004

The UN appeals for aid but receives no replies.

December 2004

FEWSNET declares that Niger requires “urgent attention”.

January 2005

The Government of Niger distributes subsidised food but the subsistence farmers say they cannot afford it.

February 2005

The WFP begins an emergency operation for 400,000 people.

March 2005

The UN and Government agencies in Niger appeal for \$7 million at a donor’s conference

May 2005

The UN again appeals for \$16 million and only Luxembourg pledges \$320,000.

June 2005

Some 2,000 people march through streets of Niamey demanding free food and the Government refuses their demands.

July 2005

The UN renews and increases its appeal to \$30 million of which \$10 million is received.

July 2005 onwards

Several agencies scale up their emergency responses. MSF opens new feeding centres, UNICEF and WFP provide therapeutic food, UNDP provides technical and financial support, FAO and the World Bank provide financial support to the Nigerien Government

2006

FAO and GIEWS Global Watch Brief highlights that overall levels of moderate and severe malnutrition remain very high. It is stated that admissions to the therapeutic and feeding centres have not leveled off from the high levels of early 2005.

Box 2. Niger Food Crisis Timeline.

5. Food insecurity as a result of institutional failures

It becomes clear from the analysis above that the Niger crisis was a result of institutional failures. These institutional failures took place during the assessment of the situation as well as during the response to the crisis. These responsive institutions failed to adapt to relatively minor environmental shocks and as a result, 3.3 million people faced acute food shortages. It is thus necessary to evaluate the institutions relevant to food security and to see how their adaptive capacity failed and how this can be improved. Adaptive governance literature explores the social dimension that enables adaptive eco-system based management and responsiveness to uncertainty and change (Dietz, Ostrom et al. 2003; Folke, Hahn et al. 2005). At the centre of adaptive governance is the recognition of the social-ecological system as an integrated, coupled where appropriate governance responses require understanding changes in the conditions of both the social and the ecological across multiple scales.

The question then arises, how does this new way of conceptualising the social-ecological systems help us improve the adaptive capacity of the institutions governing these systems improve food security? As of yet, very little has been written about adaptive governance in food systems and this chapter aims to highlight some issues that focus on the adaptive capacity of institutions in social systems. In one of the key texts in the emerging adaptive governance literature four interactive aspects that contribute to the social responsiveness of the ecosystem dynamics are highlighted (Folke, Hahn et al. 2005). These four aspects knowledge and practice, institutional learning, co-management and social capital are essential parts of a social system capable of responding to ecosystem change (*Ibid.*). These four aspects provide a good entry point to explore adaptive governance in relation to better food security institutions.

Knowledge and practice

According to Folke *et al.* (2005) for the social system to be responsive knowledge is essential. This includes knowledge from both the social and the ecological system, and its interactive dynamics. Furthermore, it is recognised that all sources of knowledge, both local and scientific, need to be taken into account. Knowledge played a key part in the case of Niger. The institutions that gather data and provide an early warning signal were in place and provided a warning. However, some have argued that they failed to capture the severity of the situation because of their reliance on particular types of data. Furthermore, questions need to be asked about the conceptual understanding of food security and to what extent it hampers our ability to design responsive institutions.

The EWS picked up the unusual rainfall pattern and the infestation of locusts affected the whole region, but they focused predominantly on data affecting crop production, focusing almost exclusively on cereals (SWAC 2005). EWS do not take qualitative information into account but relies mainly on quantitative analysis of the aggregate food availability (ALNAP 2005). This was a major shortcoming in the assessment of the overall situation,

due to the inability to distinguish between a chronic or an acute crisis (Kapp 2005). Furthermore, the EWS did not adequately stress the substantial increase in the prices of cereals, which were 75-80 percent above the last five year's average (FEWSNET 2005). Some have further pointed out that the effect of regional markets was not taken into account (FAO/GIEWS 2005).

The rises in prices prevented many farmers from buying food although it was available in parts of the affected areas. This ability to purchase food was negatively affected by the drop in the livestock price, which then negated the most common coping strategy of selling livestock to supplement food. During the early assessments by the international organisations, farmers and other local stakeholders were interviewed. However, most of the early assessments are surprisingly silent on the views of the farmers on the severity of the situation. According to one of the few reports that mention these views, the interviewed farmers stated that the 2004-5 crisis was as serious as the 1973 and 1984 droughts, which had a much larger impact on crop production in the Sahel (FAO/GIEWS 2005).

Furthermore, on a more conceptual level, it is argued that the failure of the EWS to capture the situation is a result of their narrow conceptualisation of food security as a concept. These systems rely on data from food demand and supply and take a snapshot view of the situation after the harvest. Similarly, the links between GEC, climate change in particular, and food security have largely been unexplored in relation to food productivity and impacts on crop production, and there is a recognition to move beyond that (Gregory, Ingram et al. 2005) and to acknowledge the problem of scale (Cash, Adger et al. 2006). New ways of conceptualising food security take a more systemic view of the food systems (Ericksen 2006b). In addition to these new ways of defining food security new concepts such as vulnerability, adaptation and resilience in relation to food systems have emerged, for example vulnerability to food insecurity in the Sahel (Tschakert In press.). This new avenue of research offers the best starting place for the study and design of adaptive governance of food security.

Institutional learning

An integral part of adaptive systems is the utilisation of different kinds of knowledges and incorporating them into institutional responses. Adaptive institutions should be able to establish practices that enhance continuous monitoring and evaluation of responses to ecosystem changes. Management practices then change and adapt as a result of these re-evaluations to make the system more resilient. In this particular case study, the lack of adaptive capacity was hindered by the lack of institutional learning. Although the signals of an emerging crisis were picked up by the EWS and continuous monitoring was in place, the response was characterised by lack of integration of different sources of knowledge.

Some commentators have argued that defining it a chronic and transitory crisis was paralysing action (ALNAP 2005). The failure to accept that the high malnutrition levels

were exceptional led to excess deaths because no emergency appeal was made. It was unclear whether the situation was unexceptional or whether it was simply receiving more attention than in the previous years and that these levels of malnutrition were a relatively normal for Niger. In fact, FEWSNET pointed out that there was no baseline against which the current levels of malnutrition could be compared to determine whether the situation warrants an emergency response. In July 2005, FEWSNET reported that frequent mis-information and mis-interpretation was impeding the appropriate emergency assistance (FEWSNET 2005).

Another point has been raised about the ability and preparedness of the Government of Niger, to respond to the escalating situation. Some have argued that the Government continuously played down the scale of crisis because of political reasons and failed to take note of the reports that were increasingly alarming (BBC 2005). Some have also drawn attention to the type of response taken by the Government (ALNAP 2005). Criticism has been expressed at the Nigerien Government's decision to respond to the crisis with subsidised sales of cereals in a situation where many subsistence farmers were unable to purchase food in the first place. Subsidised sales of food are an appropriate response in an emergency where the population affected can afford to purchase subsidised food but in this case the most common coping strategy (i.e. sale of livestock) did not provide enough funds.

The unpreparedness of the Nigerien Government to respond is hardly surprising considering it is one of the poorest countries in the world and the capacity to deal with food shocks has been eroded over the years. The Government did launch the first appeal immediately after the harvest in 2004. As the situation worsened in the spring 2005 the ability of the Government and WFP to respond was being hampered by the lack of funds. Consequently, questions have been asked about why the Government of Niger and the UN Agencies working in Niger failed to convince the donors and the international community over a 10-month period that funds for the worsening situation were needed. This raises further questions about the accountability of political institutions in relation to food insecurity not only at the national but at the international level (Devereux 2005; Le Vallée 2006)

Co-management

The third aspect that Folke *et al.* (2005) consider crucial in achieving responsive social systems is co-management. In co-management structures, management power and responsibility is shared between a wide variety of institutional actors. These actors operate on different levels of social organisation. Flexibility is a key variable in these institutional systems. In Niger a variety actors were involved. Central co-ordination was provided by the DNP-GCA as a co-ordinating agency in which the Government and major donors participate in. Weekly meetings with the donor agencies and NGOs started at the end of June 2005 (Niger 2005). However, prior to this and earlier in the crisis, it has been pointed out that donors did not necessarily have partners on the ground that they could effectively channel resources through (ALNAP 2005). Furthermore, there are differences

in the way that donor countries work. The EU supports the existing channels within the governmental structures whereas the US favours international and non-governmental organisations in providing relief. This led to a fragmented and uncoordinated response (Mosseuau and Mittal 2006).

The question of the timeliness of the response is directly related to the assessment of the situation and as already has been discussed there was no agreement among humanitarian actors nor between development actors over whether there was a need for intervention or not (Clay 2005). Once the need for emergency response is recognised, the international relief effort is not as rapid and flexible as one would hope. For example, USAID food aid takes approximately 4-5 months to be shipped from the United States and the European Union (EU) is constrained by its decision-making and tendering (*Ibid.*). Bilateral donors are more flexible but in the case of Niger bilateral donors have been few. NGOs already operating were scaling up their efforts in Niger (Médecin Sans Frontières 2005) as they are somewhat more flexible to respond and can do so before donor funding is available. However, NGOs are also constrained by funding in their ability to take action. In fact, MSF funded its large response in Niger with funds reallocated from the Indian Ocean tsunami.

This apparent inflexibility of the international system has led many to call for a reform of the humanitarian emergency system. These initiatives include not only the donors but the operational system as well, including the Independent Review commissioned by the Under-Secretary General Jan Egeland in response to the situation in Darfour (Adinolfi, Bassiouni et al. 2005). The calls for an emergency reserve fund that would enable agencies to react to situations in a timelier manner were met in December 2005 with the establishment of the Central Emergency Response Fund (CERF). The case of Niger was quoted as an example of a crisis that would have benefited from such a fund and ensured a more timely response (Humanitarian Policy Group 2005). Furthermore, the Secretary-General's High-level Panel on UN System-wide Coherence in the Areas of Development, Humanitarian Assistance and the Environment has been working on reforming the humanitarian response system since 2006 (Coherence Panel 2006a; Coherence Panel 2006b)

Social capital

Social capital, the final aspect to be considered here, is crucial in preparing to deal with external shocks. This can be built up by investing in social relationships through building leadership and networks that involve the variety of stakeholders. These networks can either be horizontal or vertical in nature. Trust is a crucial element in adapting institutions. In this case, the issue of trust became central in the 'deafening silence' (Egeland 2005) with which the appeals for funding were met at the international level. Some commentators argued that the Nigerien Government and the UN country teams failed to convince the international community, which then led to delays in response. This has led some to question whether the international community was skeptical about the strategy being proposed or the ability of the actors to deliver the response (ALNAP 2005).

As already mentioned in the previous section, the inability of the Nigerien Government to deal with the crisis was apparent. Yet its appeals were not met by the international system until a response was triggered by the BBC. This has led some to blame the failure not so much on the Nigerien Government but on the global humanitarian industry (Devereux 2005). Niger is heavily depended on international donors with almost half of the annual budget derived from these sources. Faced with a slightly minor shock on food production the Government was unable to respond. The international community is highly interventionist in countries like Niger but there is no accountability or responsibility to respond in times of shocks (Banton 2005). In fact, the Special Rapporteur on Right to Food of the UN, Jean Ziegler, placed the blame of increased vulnerability on the market oriented policies of the World Bank and the International Monetary Fund (IMF) (Ziegler 2005). It is pointed out that the policies in Niger have exposed the most vulnerable to further food insecurity and yet Niger receives very little international aid and calls for emergency relief went unheeded for over ten months. In addition to reviewing the policies, the Rapporteur calls for the recognition of the right to food of all Nigeriens to be guaranteed by not only the Government of Niger but by the international community.

The food crisis of 2004-5 has further increased the vulnerability of the Nigerien population (FAO 2005). With over half the population living in chronic poverty short-term responses are inadequate. The focus should be on developing safety nets that are locally appropriate and help to improve and sustain local livelihoods. However, the design and building of relevant safety nets is more difficult than providing emergency food aid and the complexities in the transition have been recognised, for example the FAO Twin Track approach (Pingali, Alinovi et al. 2005). Many NGOs are reliant on US food aid, and European governments who mostly provide cash funds are reluctant to get involved because of longer term budgetary commitments (Clay 2005). Unfortunately, safety nets and social protection are most likely going to be the only way to improve the food security situation in Niger in the long term.

The four aspects analysed above are crucial in preparing a social-ecological system for adaptive governance. In the case of Niger, the lack of adaptive capacity of these seemed to be a contributing factor to the food crisis, see Table 2 for adaptive governance principles and recommendations in relation to Niger. As a result of the analysis in this chapter, some early recommendations can be drawn. It is suggested here that a reconceptualisation and a move towards food systems rather than just food security is a necessary step as already recognised by some (Ericksen 2006b). Although this will result in a more complex 'reality' and will make it more difficult to design EWS, it simply is necessary. This reconceptualisation will possibly help to overcome the chronic-transitory dichotomy that paralysed the response in the case of Niger as more weight is placed on to the temporal scales. This also helps in the design and development of appropriate safety nets and social protection measures at the local level. Some of these issues have already been picked up by analysts and there have been calls for the reform of the international humanitarian system. In addition to the reform of international system, more accountability is needed in order to ensure that appeals for help are no longer met with deafening silence.

	Adaptive Governance Principles	Niger 2004 Crisis	Recommendations
Knowledge and Practice	Building of different kinds of knowledge bases from various different sources	<ul style="list-style-type: none"> • Over reliance on food production indicators • Farmer knowledge not incorporated 	<p>Understanding food systems holistically</p> <p>Utilisation of all sources of knowledge</p>
Institutional learning	Feeding of the knowledge back into the system and continuous evaluation of responses	<ul style="list-style-type: none"> • Definitional difficulties paralysed the ability to respond • Failure to convince the donors and the international community • GON's refusal to distribute free food 	<p>Understanding food systems holistically</p> <p>Accountability of institutions at the national and international level</p> <p>Continuous evaluation of responses</p>
Co-management	Management responsibility and power are shared amongst various stakeholders	<ul style="list-style-type: none"> • No agreement on the severity of the crisis amongst stakeholders • Inflexibility of international donors 	<p>Need for collectively based scenarios</p> <p>Reform of the UN humanitarian system</p>
Social capital	Social networks and leadership are essential in preparing the system for uncertainty and shock	<ul style="list-style-type: none"> • Lack of response from the international community • No investment in social capital 	<p>Engagement with future appeals for funding</p> <p>Need to invest in safety nets and social protection</p>

Table 2. Adaptive governance principles and recommendations.

6. Conclusion

Despite the fact that since 1960s the world has produced enough food to feed the whole population, famines still occur and millions live in chronic food insecurity. Increasing uncertainty due to GEC coupled with increasing world population is making this even more of a challenge. This is especially important if one considers the fact that our current assessments and responses seem inadequate, inappropriate and/or ill-timed. This chapter discusses ideas of adaptive governance and adapting institutions in relation to food security. The case of Niger clearly demonstrates different institutional failures that led to a food crisis. Very little has been written about the Niger food crisis as yet but some early conclusions can be drawn by using four key tenets that are necessary for responsive social systems and finds these aspects were missing or weakened in Niger. Early recommendations in making food systems governance more adaptive include improving the knowledge of food systems and food systems dynamics and reforming the international humanitarian systems. In order to meet the challenges of the future, more research in this area is necessary.

The author would like to thank Claudia ten Have for discussions and comments on this paper.

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