

## **Report**

# **CASE STUDIES ADDRESSING THE HUMANITARIAN CHALLENGES OF CLIMATE CHANGE**

## **Regional and National Perspectives**

IASC Task Force on Climate Change

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2009

Endorsed by IASC Principals

# CASE STUDIES



## **Addressing the Humanitarian Challenges of Climate Change** **Regional and National Perspectives**

CASE STUDIES ON CLIMATE CHANGE ADAPTATION

**IASC**

Inter-Agency  
Standing Committee

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Office of the United Nations High Commissioner for Refugees (UNHCR)

Oxfam International

Plan International

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United Nations Environment Programme (UNEP)

United Nations Human Settlements Programme (UN Habitat)

United Nations Joint Programme on HIV and AIDS (UNAIDS)

United Nations Population Fund (UNFPA)

World Health Organisation (WHO)

World Vision International (WVI)

**> For further information on the case studies in this publication and the IASC Taskforce on Climate Change:**

The IASC web site: [www.humanitarianinfo.org/iasc](http://www.humanitarianinfo.org/iasc)

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# 1 Introduction



## 1.1 GATHERING REGIONAL AND NATIONAL PERSPECTIVES AND CASE STUDIES

The IASC Task Force on Climate Change together with the UNISDR have started a regional and national level consultation process among the IASC agencies to reflect upon the humanitarian challenges of climate change, and to discuss approaches and good practices for addressing these. The consultation outcomes are documented in the report *Addressing the Humanitarian Challenges of Climate Change: Regional and National Perspectives – Findings from the IASC Regional and National Consultations, May-June, 2009*.

As part of the consultation process, IASC practitioners have contributed a number of case studies, which showcase good practice in addressing the challenges of climate change. These are documented in this report.

### 1.1.1 An Evolving Document

This report should be seen as a “live” document, which will be updated on a regular basis. It is a mechanism for sharing knowledge and experience between agencies and regions, and will serve to inform future adaptation action.

## 2 Case studies showcased as part of Regional and National Consultations (May-June, 2009)

The 19 case studies showcased in this report primarily focus on firstly expanding and improving activities to prepare for and respond to climate risks; and secondly livelihood strengthening, natural resource management and health related adaptation projects, notably to secure sustainable sources of food and water security and build resilience to climate change. These are listed in *Table 2.1* below.

**TABLE 2.1 SUMMARY OF CASE STUDIES**

IASC agency sharing case study (Country)	Section number	Case study title	Status		Hazard		Sector <sup>1</sup>	Focus			
			Planned	Implemented	Rapid onset	Slow onset		Advocacy	Awareness & training	Preparedness	Adaptation
<b>Central and East Africa</b>											
OCHA	2.1	Climate change and pastoralism		✓	✓	✓	Agriculture (pastoralism)	✓		✓	✓
WFP (Ethiopia)	2.2	Adaptation in food insecure / degraded locations		✓	✓	✓	Natural resource management				✓
Caritas – Trocaire (Kenya)	2.3	Building a framework for action on climate change		✓	✓	✓	Cross sectoral advocacy	✓			
NRC	2.4	Reducing vulnerability through environmental management		✓	✓	✓	Natural resource management		✓		✓
<b>Southern Africa</b>											
WFP	2.5	Community adaptation to climate change		✓	✓	✓	Agriculture (food for asset)		✓	✓	✓
FAO	2.6	Reducing vulnerability to desertification		✓		✓	Agriculture (conservation)		✓		✓
<b>West Africa</b>											
IFRC (regional)	2.7	Implementing early warning, early action in the West African floods 2007-8		✓	✓		Disaster risk reduction		✓	✓	

<sup>1</sup> For categorisation purposes, DRR has been identified as a sector, but in reality it cuts across sectors.

IASC agency sharing case study (Country)	Section number	Case study title	Status		Hazard		Sector <sup>1</sup>	Focus			
			Planned	Implemented	Rapid onset	Slow onset		Advocacy	Awareness & training	Preparedness	Adaptation
<b>Asia</b>											
Oxfam (Nepal)	2.8	Climate change, poverty and adaptation		✓	✓	✓	Agriculture, disaster risk reduction	✓			
FAO (Nepal)	2.9	Piloting risk reduction to strengthen agricultural support services		✓	✓	✓	Agriculture	✓	✓	✓	✓
WHO (Sri Lanka)	2.10	Integrated pest and vector management		✓		✓	Agriculture and health		✓		✓
FAO (Bangladesh)	2.11	Community based adaptation action		✓		✓	Agriculture		✓	✓	✓
<b>Middle East</b>											
FAO (Near East)	2.12	Drought mitigation and preparedness planning		✓		✓	Disaster risk reduction		✓		✓
WFP (Egypt)	2.13	Initiating a national dialogue on climate change and food security	✓			✓	Agriculture (food security)	✓			✓
<b>Pacific</b>											
Red Cross (Tuvalu)	2.14	Climate resilience and preparedness		✓	✓	✓	Disaster risk reduction		✓	✓	
Red Cross (Solomon Islands)	2.15	Climate change and community based health		✓	✓	✓	Disaster risk reduction and health		✓	✓	✓
Red Cross (Samoa)	2.16	Community based Climate Change Adaptation		✓	✓	✓	Disaster risk reduction and health		✓	✓	✓
<b>Latin America and Caribbean</b>											
Oxfam America (Peru)	2.17	From humanitarian response to climate change adaptation		✓		✓	Agriculture, disaster risk reduction		✓	✓	✓
WFP	2.18	Developing an early warning system (SATCA)		✓	✓		Early Warning			✓	
IFRC (Guatemala)	2.19	Raising awareness of climate change		✓	✓	✓	Natural resource management		✓	✓	



## 2.1 Climate Change and Pastoralism in Central and East Africa

IMPLEMENTING AGENCY: OCHA



*“Pastoralism is the finely-honed symbiotic relationship between local ecology, domesticated livestock and people in resource-scarce, climatically marginal and highly variable conditions. It represents a complex form of natural resource management, involving a continuous ecological balance between pastures, livestock and people” (cited in Oxfam, 2008).*

### BACKGROUND

Pastoralism is a way of life centred on raising livestock and provides a critical means of survival for 15 to 20 million people in the Horn of Africa (the largest grouping of pastoralists in the world). Due to a reliance on natural resources, pastoralist communities are particularly vulnerable to natural and human-caused disasters. Even without climate change factored in, reduced land and water availability (linked to desertification), bush encroachment, soil erosion, population growth, and political and economic marginalisation challenge the livelihoods of pastoralist communities. However, pastoralism has been adapted to climate variability for hundreds of years with mobility used as a response to fluctuations alongside other strategies such as increasing herd size and raising a range of livestock breeds.

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Pastoralists are vulnerable to food insecurity and conflict; it is reported that approximately 5,000 pastoralists in the Horn of Africa lose their lives from conflict each year. Climate change is predicted to escalate armed conflicts in pastoralists’ areas and potentially double this number in the next 10-20 years. Strategies that have served drought-affected communities for many decades are becoming inadequate in light of the frequency and intensity of droughts and other extreme weather events, in particular floods and mudslides. Shortages of resources (water and pasture) are leading to increased conflict between agricultural and pastoral groups, as well as between competing pastoralist communities. Years of inappropriate and untargeted interventions and programming in pastoral areas are intensifying the humanitarian challenges in these communities.

### ACTIVITIES

The programme comprises four response strategies:

- > **Facilitating inter-agency partnerships** to engage actors across a variety of sectors and promote partnerships for developing a more suitable mechanism for bringing together existing and new thinking on pastoralism.
- > **Advocacy on the humanitarian impact of climate change on pastoralists** to promote risk reduction and increase the capacity of pastoralist communities to predict, monitor and respond to the impacts of climate change.
- > **Forging regional partnerships on climate change, migration and cross-border conflict** to promote pastoralists’ cross-border mobility needs as a climate change adaptation strategy;



and advocacy for reconciliation of regional cross-border security and pastoralists' livelihood including cross-border access to water and pasture.

- > **Supporting the African Union Pastoral Policy Framework for Africa**, which will form the basis for the continental commitment to the political, social and economic wellbeing of pastoral communities.

## OUTCOME

The programme has not been running for a sufficiently long period to draw conclusions. However, since January 2009, consultations and assessments have been carried out with: 1) pastoralists from Uganda, Kenya, Ethiopia, Tanzania and Southern Sudan; 2) Members of Parliament from pastoralist constituencies in these countries; and 3) UN agencies. Although, the project has only just started, the work demonstrates how agencies can facilitate community led adaptation.

## CHALLENGES

- > **Increasing humanitarian needs of pastoralists.** It is predicted that climate change and many years of pastoralist marginalisation will create more humanitarian needs in the region.
- > **Lack of coordination in recent interventions and insufficient regional mechanisms to address the regional root causes and impacts.** Interventions on pastoralist issues in this region have suffered from a lack of coordination, synergy and targeting including a failure to link relief to recovery. This has resulted in duplication and cost-inefficient responses.
- > **The exclusion of pastoralists in policymaking and the design of response strategies that affect their lives** and insufficient understanding of pastoralism (and inadequate research into pastoralist needs to inform response) have also fuelled poor design and implementation of interventions and projects in pastoral areas.
- > **The need to scale up successful pilot based community-based adaptation projects** to ensure documentation and rapid replication in addition to improved drought preparedness planning, disaster management structures and risk reduction to support natural adaptation.
- > **Lack of consensus** on whether pastoralism is a development or humanitarian issue. It is possible that the pastoralist issue is both, thus necessitating new ways of working with new partners.

### Lessons Learned

- > **Inherent adaptive capacity of pastoralists should be strengthened** to enhance autonomous adaptation.
- > **Cross agency and cross regional partnerships** are essential to ensure greater coordination of activities to support disaster risk reduction and climate change adaptation for pastoralist communities.
- > **More effort is needed to support governments meet the regional challenges** of pastoralism (given the trans-boundary impacts) and to work with other governments to resolve the challenge.
- > **Involvement of pastoralists in decision-making** is fundamental.

## 2.2 Adaptation to Climate Variability in Food Insecure and Degraded Locations of Ethiopia

IMPLEMENTING AGENCY: **WFP**



### BACKGROUND

Climate change, population pressure and natural resource degradation have increased the vulnerability of poor rural Ethiopians to food insecurity. Currently more than 13 million people are affected by drought and seasonal rains are becoming increasingly sparse and erratic. This situation is expected to dramatically deteriorate as a result of climate change. Managing climate risk is therefore essential to enable millions of Ethiopians to take advantage of the development opportunities being provided through the Government's poverty alleviation programmes.

Through the Managing Environmental Resources to Enable Transitions to More Sustainable Livelihoods (MERET) project, WFP has been supporting the Ethiopian Government's community based sustainable land management activities in food-insecure areas. The MERET project enhances livelihood resilience to weather-related shocks by rehabilitating land and water resources. Presently, MERET operates in 500 communities and benefits more than 300,000 people each year.

### ACTIVITIES

Activities focus on capacity building and adaptation to climate variability in highly food insecure and degraded locations. The programme supports communities in productive land rehabilitation and encourages participatory planning and management of created assets. The programme uses a mix of physical measures for instance land enclosures, terracing, deep trenches to inhibit run-off, and ecological measures such as tree planting, gully rehabilitation with grasses, etc.

Since 2000, MERET has contributed to the rehabilitation of over 300,000 hectares of degraded land, by regenerating vegetative cover to reduce the risk of drought and floods and has supported the community-based rehabilitation of 350 micro-watersheds. Further, 317 million plant seedlings have been produced and 11,705 trees planted. In addition, the construction and maintenance of rural roads (since 1999, approximately 1,800 km of community-based access roads have been renewed) affected by deforestation and severe soil erosion has taken place. This has improved access to markets and basic services and increased community resilience to economic and climate-related shocks and stresses.

## OUTCOME

The MERET Programme has facilitated the development and mainstreaming of a Government-owned community-based approach to adaptation. Through a combination of capacity development activities (both at institutional and community organisation levels), and technology development, MERET has increased the coping capacity of inhabitants and has raised national awareness of environmental and climate-related challenges and their direct impact on food security and livelihoods.

## CHALLENGES

One of the key challenges, and opportunities for Government actors and partners, is the ability to expand and scale up MERET-type programmes and interventions in other vulnerable areas, with a view to increasing the number of beneficiaries and building on best practices. The expected increase in the availability of adaptation funding may make it possible to fast track the execution of such interventions in high-risk areas.

At a local level, one of the main challenges is ensuring community awareness, ownership and buy-in given the high level of collective responsibility and action required to manage and maintain both land and water resources.

### Lessons Learned

- > **Focus on livelihood enhancement measures**, both at community and household level, which support household income generation and diversification.
- > **Participatory watershed development and protection requires the maintenance of assets** created (such as rural access roads, water springs and enclosures) by local communities and national authorities in order to achieve sustainable results and therefore their buy-in is essential.
- > **Sustainable land management and infrastructure projects provide income-generating opportunities** particularly for vulnerable groups such as women (for example, bee-keeping, livestock fattening, horticultural crops, etc).
- > **Alignment of projects/programmes with Government projects is vital.** The MERET experience represents a solid framework in support of the Government's Sustainable Land Management strategy; a pillar of its Rural Economic Development and Food Security Agenda.
- > **The lessons learnt from MERET have been crucial in the design and the implementation of the country's Productive Safety Net Programme (PSNP).** It has been showcased as an example of a social protection scheme that could be replicated elsewhere to address and manage climate risk.

## 2.3 Building a Framework for Action on Climate Change in Kenya

IMPLEMENTING AGENCY: **CARITAS IRELAND – TROCAIRE**



### BACKGROUND

Caritas Ireland – Trocaire has been working with local Non-Governmental Organisations (NGOs) and faith-based agencies in Kenya to implement livelihood and humanitarian interventions using a disaster risk reduction approach. Its aim is to address the root causes of disasters, including drought, flood and conflict, by reducing people's vulnerability to associated risk factors.

Trocaire is currently supporting climate adaptation and mitigation projects at the community level while at the same time engaging in national and international climate change advocacy. Although the community level climate change projects have recorded good performance, the advocacy work has faced numerous challenges.

### ACTIVITIES

Trocaire teamed up with other International NGOs in the region to support local civil society to engage in climate change advocacy through a unified process. This process led to the formation of the Kenya Climate Change Working Group, an alliance of over 40 entities comprising local NGOs, INGOs, government departments, climate change prediction centres, research institutes and local universities. The working group has a two-year programme, with the overall aim of addressing climate change in Kenya and advocacy around the United Nations Framework Convention on Climate Change (UNFCCC) processes. The three objectives are to:

- > formulate a climate change Law for Kenya;
- > formulate a climate change Policy for Kenya; and
- > ensure a strong African position in the post Kyoto protocol.

## OUTCOME

One of the key outcomes of this new approach to climate change work in Kenya is that civil society is now working as a unified front, alongside the Government of Kenya, civil society in other African countries, and internationally with other climate change actors such as UN agencies and bilateral agencies.

The working group has also: drafted and presented a climate change bill to parliament; developed policy to support the law; initiated eight pieces of research on climate sensitive sectors; gathered community level “climate change testimonies”; and held meetings with key agencies to develop a civil society input to the Bali Roadmap.

## CHALLENGES

Key challenges have included: unifying African civil society; working within a weak policy and legislative framework; and financial constraints to Working Group activities.

### Lessons Learned

- > **Partnerships with a wide range of stakeholders are an essential success factor** for raising the profile of climate change.
- > **Impact can best be achieved through a united front.**

## 2.4 Reducing Vulnerability to Climate Change: Environmental Management in Refugee Camps in Central and East Africa

IMPLEMENTING AGENCY: **NRC**



### BACKGROUND

The Norwegian Refugee Council (NRC) is an independent, humanitarian non-governmental organisation, which provides assistance, protection and durable solutions to refugees and internally displaced persons worldwide. The NRC is increasingly working with people who have been forced to flee due to climate-related disasters such as floods and droughts. People who have been displaced are often also particularly vulnerable to changes in the environment. Internally Displaced Persons (IDPs), returnees and refugees face a number of challenges in the context of climate change, particularly access to natural resources (food security, water, shelter and healthcare).

In Somalia, 20 years of armed conflict and climate-related droughts have forced millions to flee internally and across borders. Some people, who are returning or coming to settle in safer areas such as Somaliland, arrive in severely drought-affected villages and are forced to move again. Many pastoralists and farmers move to urban areas and yet they do not have the appropriate skills to secure a livelihood. A number of the displaced move across the border to Kenya and arrive in the already congested camps of Dadaab, in an area experiencing increasing environmental degradation.

Areas close to refugee camps are being deforested, which make them even more vulnerable to climate change. In Burundi, there are currently three camps for Congolese refugees. As a result of land scarcity issues, the government and UNHCR decided to use part of a state tree plantation to establish Gasorwe camp, at the top of a hill in the province of Muyinga. Today, few trees remain and scars in some places are 20 meters deep, extending from the camp down the entire hillside as a result of erosion. Both the host community and the refugees are impacted by the changing climate and environment. Resulting challenges include health problems from dust, notably in the dry season and particularly for children and pollution from over-flooding of latrines and sewerage systems during floods. Recent strong winds and flooding have also damaged buildings including the refugee camp school.

## ACTIVITIES

- > **The NRC Food Security and Livelihoods programme** includes an environment component, with activities ranging from environmental awareness and energy saving stoves to tree planting. There are plans to incorporate the NRC Food Security and Livelihoods activities into a climate change adaptation and disaster risk reduction programme. The NRC Food Security and Livelihoods programme is supporting refugees in Uganda and addressing environmental degradation in Dadaab refugee camp in Kenya.
- > **The Youth Education Pack programme** provides livelihood training to young people, including those who have left the pastoralist lifestyle and migrated to the city. Youth are trained in a wide range of professions from plumbing to photography. Environmental management is taught as a cross-cutting issue. This programme is supporting young refugees in Hargeisa (Somalia) and young people from displaced populations and the host community in Dadaab (Kenya). Youth Education Pack centres and warehouses in Dadaab have solar energy panels and house construction involves the use of soil for mud bricks and creating water pans where soil has been excavated.

## OUTCOME

A recent study of NRC's shelter and camp management projects in Burundi helped identify environmental management practices such as more sustainable energy and construction solutions to improve the sustainability of refugee camps. Similarly, to reduce deforestation, NRC only buys timber from certified suppliers, has introduced fuel-efficient stoves for cooking and has initiated fruit tree plantation and anti-erosion measures including horizontal trenches that will slow rainwater. Finally, environmental committees have been established (comprising refugees and the local population) and are responsible for cleaning trenches, planting and protecting trees, managing livestock, and providing advice on waste management and hygiene. Combined, these measures are working to mitigate future rises in greenhouse gas emissions, decrease the environmental footprint of NRC activities *and* protect refugees from present and future climate change impacts.

### Lessons Learned

- > **NRC is more routinely considering** both the environmental impact of its operations and the vulnerability of displaced populations to climate change.
- > **Environmental degradation resulting from the presence of displaced populations can increase the vulnerability** of host populations and refugees to climate change.
- > **Sound environmental management and natural resource management is fundamental** to building community resilience to climate change and variability.



## 2.5 Community Resilience and Adaptation to Climate Change in Southern, Central and Eastern Africa

IMPLEMENTING AGENCY: **WFP**



### BACKGROUND

In Southern, Central and Eastern Africa, WFP is operating on the front-line of complex humanitarian crises, fighting hunger and helping to strengthen the preparedness and response capacities of households, communities, local institutions and national governments. In the last three years, WFP has invested over USD 331 million in targeted food for work/asset programmes, largely as productive safety net programmes to provide households with food assistance during acute periods of food insecurity. The purpose is to provide highly vulnerable households and communities with assets that strengthen their resilience to future climate shocks caused by increasingly erratic weather patterns and higher frequency of extreme climatic events.

### ACTIVITIES

Targeted food for asset schemes implemented through safety nets and recovery programmes in disaster prone areas can be categorised as follows:

- > **Water harvesting and storage** projects include activities such as the construction of charcoal dams for run-off retention in Tanzania, and the rehabilitation of shallow wells, dams and flooding control points along the Shabeele River in Somalia. These are aimed at collecting surface water for consumption by both humans and livestock and for use in agricultural production. Similar activities include the construction or rehabilitation of water pans in the Arid Lands of Kenya and flood protection bunds and micro-dam construction/rehabilitation in Malawi.
- > **Irrigation and drainage ditch** projects focus on rehabilitation of irrigation or the development of new water ditches. In Zambia in the last three years, the WFP and local communities have built or rehabilitated over 200 kilometres of canals and drainage ditches. In Malawi, this includes building both irrigation canals and 'links' to community gardens, which have led to year-round water access to support vegetable production.
- > **Land rehabilitation** projects focus on making land available for agricultural production in Somalia, Rwanda, Ethiopia and Burundi. They aim to reduce erosion and allow land to lie fallow and rejuvenate. For example, in Ethiopia, 'fencing' of community land for up to a decade allows degraded land to recover and restore fertility. In Ethiopia, 26,843 hectares have been enclosed to protect the land from grazing and browsing animals. In Zambia, targeted food for asset programmes encourage farmers to employ land conservation farming practices and maximise household production.
- > **Land reforestation** helps reduce atmospheric carbon dioxide (with trees acting as a carbon sink) and can decrease erosion and loss of soil. In Zambia, WFP provides fruit trees to households to both reforest land and provide households with income from the subsequent sale of fruit. In Uganda, through 'tree planting and school gardens', 1,200 acres of community "woodlots" (these are planted for firewood) and 800 acres of school "woodlots" have been

established in areas inhabited by internally displaced persons. In Burundi, WFP has been working with partners including government, to reforest a total of 600 ha of land and propagate over 16 million seedlings. In Ethiopia, through the Food for Assets and Livelihood Enhancement Operation (MERET) programme, in partnership with the Ethiopian government, 317 million plant seedlings have been produced and planted around homesteads, degraded hillsides, gullies and community closed areas (see Section 2.2).

- > **Both 'progressive' and 'radical' terracing** in Ethiopia has helped reduce the loss of fertile top soil (between 1.5 and 2 billion tonnes a year); approximately 300,000 hectares of land has been terraced in Ethiopia, since 1999. In Somalia over 1,500 ha of soil bunds were constructed for soil conservation while in Burundi, over 14 thousand kilometres of anti-erosion terracing has been completed.
- > **Carbon credits and adaptation** in addition to the targeted food for asset and cash for work activities, the global carbon trade market and carbon finance offers new opportunities for vulnerable and food insecure groups in the Southern, Central and East Africa Region. The WFP note that through its carbon financing and food for asset activities, a greater number of communities and beneficiaries can benefit from food for asset activities which contribute both to improving household and community resilience to shocks due to climate variability and climate change. Currently, via a pilot project, WFP has developed six Project Idea Notes, which will lay the foundation for WFP to place its integrated food-for-work and carbon credit projects on the global carbon credit market for potential funding. Participating countries are: Kenya, Tanzania, Rwanda, Uganda and Ethiopia.

## OUTCOME

Through the provision of food assistance in exchange for asset building activities (during periods of food insecurity), thousands of communities and tens of thousands of households have received support to prevent their livelihoods from degrading further. The investment in water harvesting and storage, irrigation and drainage ditches, terracing, land rehabilitation for agricultural production or reforestation has developed livelihood assets for many communities and further strengthened household and community resilience to future shocks caused by climate change induced variability.

## CHALLENGES

Adaptation projects require investment at many levels. Firstly, households and communities contribute labour to construct the assets. Secondly, technical expertise is necessary to ensure that projects have no negative environmental impacts and are structurally sound. Thirdly, financial resources are essential, not only to cover the food and non-food assistance to the communities, but to invest in developing the technical skills of government and community organisations to ensure the sustainable management of the constructed livelihood assets.

Finally, the benefits from investments in livelihood assets (which in turn contribute to climate change adaptation), are not immediate. For example, the development of water catchments and water harvesting assets can take between 3-5 years for ground water tables to rise; while land that is reforested or rehabilitated can take between 5 and 10 years to recover.

### Lessons Learned

- > **Experience highlights the importance of context specific and tailored interventions** to address the unique challenges and opportunities that may arise.
- > **Interventions that aim at strengthening community resilience and livelihoods can have multiple and multiplying effects** and benefits across sectors (environment, economic and social development).
- > **Ownership and participation at community-level, and use of local knowledge and expertise**, are crucial for enhancing project sustainability.

## 2.6 Reducing Vulnerability to Desertification Exacerbated by Climate Change in Southern Africa

IMPLEMENTING AGENCY: **FAO**



### BACKGROUND

In Southern Africa, land and soil degradation are compounded by increasing desertification associated with climate change. As a result, vulnerable farming dependent households are reportedly experiencing declining disposable income; and have limited coping strategies.

Conservation Agriculture (CA) is being increasingly used to reduce the negative environmental impacts associated with conventional food production methods and as such diversifying and strengthening livelihoods to better withstand climate induced slow onset changes. CA reduces soil disturbance from farming and promotes the build up of soil structure, soil organic matter, soil fertility and biodiversity. Further, this farming intervention promotes crop diversification through cereal-legume rotations and other types of crop associations.

The objective of the programme is to document, analyse and disseminate past and on-going CA practices and experiences in Southern Africa, and also scale up CA practices.

### ACTIVITIES

Activities include mobilising stakeholders (in particular implementing partners); sensitising stakeholders to CA principles and techniques; supporting the establishment of CA demonstration plots at strategic sites; documenting, synthesising and disseminating information, knowledge and experience on CA at national and regional levels; and training on CA including monitoring and evaluation.

### OUTCOME

The programme has resulted in improved decision-making processes for CA by various players at different levels of implementation; and increased CA practice by stakeholders and farmers for increased yields and food production thereby reducing vulnerability to climate change.

### Lessons Learned

- > **CA together with other good agronomic** practices (e.g. early planting and effective weed control) can increase crop yields.
- > **Households practising CA can harvest some crops during drought** while those farmers practising conventional farming may experience crop failure.
- > **The experiences and success from past and ongoing work need to be synthesised** and shared more systematically and more widely across the region.
- > **Mainstreaming of gender, and HIV and AIDS, is essential** given that a significant proportion of the households in the region are female headed and/or are directly affected by HIV and AIDS.
- > **Policy support is imperative** for the successful adoption of CA.

## 2.7 “Early Warning, Early Action” in the West African Floods, 2007-2008

IMPLEMENTING AGENCY: **IFRC**



### BACKGROUND

*“Floods have killed thousands of people in West and Central Africa over the past few years, and in 2007 the region suffered its worst flood disaster for decades... The floods caught humanitarian agencies off guard, but meteorological organisations and climate scientists were less surprised. Above-normal precipitation in the seasonal monsoon had been well flagged. Climate change, and the increased variability in rainfall it brings, is now making regular weather forecasts and longer-term seasonal forecasts more valuable. It’s difficult to overstate how important this is to Red Cross/ Red Crescent programmes. Indeed, in 2008, another heavy flood season, we did act differently. Here is the story of how in one region in one year, we learnt some of the lessons” (Alasan Senghore, Head of West and Central Africa Zone, IFRC).*

### ACTIVITIES

As a result of the severe flooding in 2007, Red Cross Societies in the region adopted a number of Early Warning Early Action (EWEA) practices. For instance, in Togo, they established a contingency plan and held a “training of trainers” during which 38 volunteers were tutored in disaster management – nearly 30 per cent more than the year before. Furthermore, a communications system was established that allowed information to pass to and from national headquarters and focal points in the regions and communities. The National Society in Togo also implemented a pilot project in five communities that uses colour-coded poles along riverbeds: green for safe, yellow for danger, red for evacuate. Rather than dictating response strategies to local communities, this pilot project has broken new ground by building trust and developing capacity among affected populations. Local volunteers manage the system and participate in decision-making processes, to ensure that warning and response mechanisms fit the community’s needs and context.

Katim Nget, programme manager for the Gambia Red Cross Society, had heard the coming 2008 rainy season would be above normal in emails from the Dakar Zone office and at a meeting on flood preparedness. Nget says he was shown how to access online forecasts and checked the weather weekly, especially six-day precipitation forecasts: *“the training opened my eyes,”* he says.

But the real “paradigm shift” for the Red Cross/Red Crescent centred on the International Federation’s Zone office in Dakar, where the first pre-emptive appeal in the organisation’s history, based solely on a seasonal forecast, was inspired and drafted.

That shift represents a significant change in the Red Cross/Red Crescent approach to disaster management from one that was reactive to one that is largely proactive, argues Lisette Braman, who conducted an in-depth study of the responses to the 2007–8 floods: *“the zone’s new partnerships with meteorological institutions and climate scientists helped close a historical gap by using forecast information to benefit people’s lives and facilitate adaptation to climate change.”*



### The 2008 timeline

In response to predictions for “above-normal” rainfall over West Africa, the staff from the Zone Office held a flood preparedness meeting in Dakar mid-May to explore disaster preparedness, including early warning systems, and the need for adaptation to the increasing risk of disasters due to climate change. A major outcome of this was a new blueprint, based on lessons learnt from the 2007 floods, to develop contingency plans, risk maps for individual countries, an early-warning system, additional partnerships, and better coordination for preparedness and disaster mitigation. At the end of June, the staff from the Zone Office helped train National Society disaster managers from around the region and enhance coordination and management skills including the ability to: 1) conduct rapid assessments; 2) design contingency plans for flood emergencies; 3) appeal for money from the International Federation’s Disaster Relief Emergency Fund (DREF); and 4) mobilise human resources and 5) manage logistical, financial and administrative procedures. On July 11th, the zone issued its historic appeal to fund preparedness activities throughout the region. Such pre-emptive appeals were, and still are, a new concept for donors, who need time to adjust; and funds did not arrive until late August, **after** the disaster was underway. The Zone had to rely on DREF money to pre-position emergency stocks.

## OUTCOME

The IFRC has successfully:

- > employed “no-regrets” strategies to prepare for probable (but not certain) events;
- > monitored forecasts on various time-scales to reduce uncertainty;
- > cross-referenced several sources of forecast information for greater accuracy;
- > combined seasonal forecasts of rainfall with hydrology to map flood risk;
- > pre-positioned relief stocks in three strategic locations;
- > helped develop contingency plans in nine flood-prone countries;
- > developed partnerships with climate and weather specialists;
- > innovatively communicated seasonal forecasts to National Societies; and
- > made advance arrangements to deploy disaster first-responders in the region.

## CHALLENGES

Despite this success story, serious challenges remain in the use of climate information in humanitarian decision-making. Firstly, forecasts give only probabilities, not certainties, leaving disaster managers including those based in the Federation’s Dakar Zone to make “judgement calls” to utilise seasonal forecasts to apportion scarce resources. In reality, the Zone Office does not have enough resources to prepare for everything all the time. Another challenge is that the further in advance a forecast is made, the less accurate it is likely to be. In 2008, it was important for disaster managers not only to plan for above-normal rainfall, but also to continue to monitor the situation through forecasts on several timescales.

### Lessons Learned

- > **Reinforce links** between National Red Cross/Red Crescent Societies and weather services.
- > **Interpret** forecasts carefully.
- > **Be aware that “normal” or “below-normal” seasonal rainfall forecasts** do not exclude the possibility of intense rainfall events.
- > **Start EWEA activities even earlier** including pre-emptive appeals for funding.
- > **Remove logistical and communications bottlenecks.**

## 2.8 Climate Change, Poverty and Adaptation in Nepal: ‘Even the Himalayas have Stopped Smiling’

IMPLEMENTING AGENCY: OXFAM



### BACKGROUND

Nepal's diverse topography, fragile ecosystems and extreme poverty make it very vulnerable to the negative impacts of climate change. It is one of the countries most affected by climate change, yet it has one of the lowest emissions in the world - just 0.025 percent of total global Greenhouse Gas Emissions. Nepal is also one of the poorest countries in the world, with around 31 percent of its population of 28 million living below the poverty line. Most of Nepal's poor live in rural areas and rely on rain-fed subsistence agriculture. They are vulnerable to extreme weather events and lack the knowledge and resources to cope with, and recover from, weather-related disasters.

Nepal is already a country vulnerable to natural disasters particularly floods and landslides. More intense monsoon rains will increase the risk of flash flooding, erosion and landslides and warmer temperatures will increase the prevalence of diseases such as malaria and Japanese Encephalitis. In recent years, winter drought and delayed onset of the summer monsoon have affected agricultural production and contributed to widespread food shortages; it is currently estimated that 3.4 million Nepalese inhabitants require food assistance.

Glacial retreat increases the risk of catastrophic glacial lake outburst floods and in the long term will eventually result in reduced river flows, which when combined with more variable rainfall patterns will make it harder to irrigate crops, operate hydro-power facilities and provide water to communities. However the impact of the glacial retreat will be felt far beyond Nepal's borders with the annual glacial melt from the Himalayas accounting for as much as 70 percent of the summer flow in the Ganges and 50-60 percent of the flow in Asia's great rivers. These could become seasonal should the Himalayan glaciers disappear and the impact on riverine communities would be catastrophic. This could affect up to 1.3 billion people in Asia including 500 million people in South Asia alone.

### ACTIVITIES

In 2009, Oxfam conducted interviews in fourteen rural communities where partner organisations work on water and sanitation and rural livelihoods with disaster risk reduction (DRR) and gender equality as cross-cutting themes. These communities inhabit the three main ecological zones of Nepal (*Terai* lowlands, Hills and Mountains) and the least developed regions (the Mid and Far Western). The interviews captured a snapshot of how some of the poorest people in Nepal see climate change affecting their lives. The report combines these testimonies with the existing literature on climate change in Nepal and the views of government officials, experts and climate scientists (see *Oxfam*, 2009b).



## OUTCOME

People spoke of increasingly unpredictable weather patterns. This included warmer winters with less snow making it more difficult to grow traditional winter crops such as wheat. They also talked about more unreliable monsoon rains with long dry spells followed by intense rainfall that destroy crops. Many older community members identified rivers that were once impossible to cross for three months during the wet season but are now easily traversed. For the people interviewed the impact of these changes on food production, access to water and people's health are clear and are related.

These observations were found to be remarkably consistent with the literature on climate change in Nepal and the region. Climate change is already happening, particularly at higher altitudes with average annual temperatures rising and weather patterns becoming increasingly unpredictable including warmer and drier winters, delays in the onset of the summer monsoon and more intense precipitation events.

The predicted impacts of climate change will heighten existing vulnerabilities, inequalities and exposure to hazards. Poor and marginalised communities in Nepal are the most vulnerable to climate change and are the least able to cope, often living in areas most at risk of floods and landslides. In all surveyed communities, women were found to be the most-affected (the men of many poor households migrate seasonally to seek work). Women, children and the elderly are left to fend for themselves. Women are walking longer distances to fetch water, fuel and fodder for the household and are increasingly taking on additional wage labour to ensure sufficient income to buy food.

## CHALLENGES

Some communities are already undertaking adaptation measures such as crop diversification, improved water management, increased reliance on non-agriculture income and implementation of disaster risk reduction approaches. However, these examples are few in the face of the vast numbers of families facing climate related hunger and uncertainty. Although a variety of climate change initiatives are underway in Nepal, more needs to be done. While debate over distinguishing climate driven and poverty driven impacts continues, it is becoming increasingly clear that urgent action is needed to help the poor living in remote areas of rural Nepal.

### Lessons Learned

#### Mitigating the impacts of climate change on the poor requires:

- > **immediate measures to address key issues** such as food insecurity and awareness raising at all levels on climate change and its impacts.
- > **Institutionalisation of disaster risk reduction approaches and climate change adaptation into national level planning** in order to address key vulnerabilities and hazards. This should result in increased support for rural livelihood adaptation for those most vulnerable to climate change impacts.
- > **Harmonised and sustained support for this process** from the donor community.
- > **Recognition of the regional implication of the melting of the Himalayan glaciers** - Nepal should lead an alliance of countries whose populations rely on the rivers that flow from these glaciers, to call for ambitious global emission reduction targets and substantial financial and technological support for adaptation.
- > **A need for Nepal to work closely with India and Bangladesh to improve management of their common river systems** ensuring that development projects are planned, reviewed and managed to minimise negative impacts on all riverine communities.

## 2.9 Piloting Risk Reduction Plans to Strengthen Agriculture Support Services in Nepal

IMPLEMENTING AGENCY: **FAO**



### BACKGROUND

Agriculture is Nepal's principal economic sector employing more than 80 percent of the population. The sector is highly exposed to a number of recurring natural disasters such as floods, drought, landslides, hailstorms, snow avalanches, glacial lake outbursts, hot and cold waves, and pest and disease epidemics. These natural disasters threaten livelihoods and result in severe economic losses for farmers.

Global climate change is further increasing the frequency of hazardous events and associated social, economic, and environmental impacts. Similarly, increased climate variability caused by global climate change, is creating temperature extremes and longer drought and flood periods. Climate change therefore poses a severe threat to food security and rural livelihoods in Nepal.

Social and institutional factors contribute to the vulnerability of rural livelihoods to recurrent natural disasters and a changing climate. These include few institutional support services, limited public awareness, inadequate community preparedness and planning, insufficient early warning systems, poor coordination, limited knowledge of local vulnerability and risks, and inadequate information dissemination to vulnerable communities. These have led to a weakened overall response to climate related extreme events. The situation is compounded by agriculture dependence, shrinking farm size (e.g. in the *Terai* or foothill region of the Himalayas) and continued agriculture in hazard prone areas.

#### Objectives of the pilot project were as follows:

- > Assisting the Ministry of Agriculture and Cooperatives in testing and operationalising the process of shifting from a reactive emergency response intervention toward a proactive natural hazard risk prevention/preparedness in the agriculture sector.
- > Prioritising and demonstrating locally relevant climate change adaptation and disaster risk management practices in close participation with farmers.
- > Creating and improving institutional and technical capacity and awareness on climate variability, climate change, and disaster preparedness for enhancing the resilience of rural communities to current and emerging climate risks.

### ACTIVITIES

#### Improve mechanisms for climate change adaptation and disaster preparedness in agriculture by:

- > improving institutional and technical capacity for climate risk management and disaster preparedness;
- > developing a national-level Plan of Action for the Department of Agriculture on disaster preparedness and climate change adaptation; and

- > coordinating and contributing to the process of Nepal's National Adaptation Programme of Action (NAPA) in the agriculture sector.

**Strengthen agriculture service systems for climate risk management by:**

- > developing District Risk Reduction Plans based on an analysis of local vulnerability and risks;
- > collecting, analysing and monitoring climate impact data;
- > demonstrating a set of suitable, location-specific technologies for climate and disaster risk management at the district and community level; and
- > implementing extension and awareness strategies, including district and community-level capacity building programmes on climate change adaptation and disaster preparedness.

## OUTCOME

Farmers' groups, together with the project implementation technical group at the district level, demonstrated location-specific practices to enhance the adaptive capacity and resilience of the communities to climate risks. Adaptation practices included: 1) crop improvement for drought and flood tolerance; 2) soil and water conservation; 3) management of high/low temperature stress; 4) restoration and improvement of degraded community natural resources; and 5) support to improve local monitoring, learning and awareness-raising.

A Farmer's Climate Field School was facilitated to raise awareness on climate change, disaster risk and climate resilient technologies. The school empowers farmers to make appropriate decisions in a proactive way through understanding the consequences of climate related extremes and knowing how to employ appropriate adaptation practices. The approach promotes farmer participatory "learning by doing". The project facilitated the development of district disaster risk management plans with emphasis on agriculture and food security. A vulnerability risk assessment was carried out by employing spatial analysis tools integrated into the risk management plans.

## CHALLENGES

- > **The primary challenge is to scale up the initiative** in similar geographical areas (the project is currently being implemented in three district clusters) through prominence in the National Adaptation Programme of Action (NAPA), which is currently under development and by linking with the new disaster risk management strategies.
- > **Another challenge is to overcome institutional disconnects.** The Ministry of Environment, Science and Technology leads the NAPA formulation process; whereas disaster risk management is lead by the Ministry of Home. However, the agriculture sector (employing approximately 80 percent of the population and yet vulnerable to the impacts of climate change) needs to find a strong presence in both policy agendas, but this is a challenge given the institutional mandate of the Ministry of Agriculture and Cooperatives.

### Lessons Learned

- > **Community perceptions of climate risks** are central to the preparation of vulnerability and risk profiles.
- > **Disaster risk management plans at the decentralised levels** should mobilise all relevant actors and promote active community participation.
- > **A livelihoods perspective is helpful** to enhance the overall resilience and adaptive capacity of communities to cope with current and future risks.

## 2.10 Integrated Pest and Vector Management in Sri Lanka

IMPLEMENTING AGENCY: WHO, FAO AND UNEP



### BACKGROUND

Warmer temperatures, in settings where irrigated agriculture is practiced, are predicted to increase the exposure of rural communities to health risks from vector-borne diseases and exposure to agricultural and public health pesticides (correlating with their increased use). At present, collaboration between the agriculture and health sectors to jointly address these problems is insufficient in most developing countries.

Since 2002, WHO, together with FAO and UNEP have been involved in supporting the Ministries of Agriculture and Health in Sri Lanka to implement a community based inter-sector pilot project that uses the farmer field school approach to integrate the management of vector-borne diseases and the improvement of rice productivity, also known as Integrated Pest and Vector Management (IPVM).

### ACTIVITIES

The focus of work in Sri Lanka was the development, by project partners, of a new curriculum for use in farmer field schools, integrating an agricultural and a vector-borne disease component (partly in response to a changing climate). Besides its suitability under Sri Lankan conditions, the IPVM approach is potentially replicable in other countries and regions, as an adaptive educational approach to addressing the effects of climate change on health, initially focusing on situations where vector-borne diseases are associated with irrigated rice environments. This approach could usefully be integrated into national climate action plans.

## OUTCOME

An evaluation of the programme verified that the IPVM intervention has had an impact on farmer awareness of climate change, agricultural practices and vector control actions. To date, approximately 1,300 farmer families in 11 locations have been trained (and the cost of this training has been low – approximately USD 25 per farmer). Rice farmers from intervention villages who have graduated from the farmer field school have implemented vector control and environmental sanitation activities, increased their personal protection measures, and reduced agricultural use of insecticides (and thus unnecessary exposure to these chemicals). A 60 percent increase in bed-net use was reported and attributed to IPVM, indicating an increased awareness of the need for personal protection. Knowledge shared with farmers and subsequently with local communities has therefore empowered individuals to protect their health in the face of future climate change impacts.

## CHALLENGES

To ensure the sustainability of IPVM in the country, there is a need for national level policy change. This will require consultation with key stakeholders in relevant related ministries and programmes and the preparation of a communication strategy to disseminate results

### Lessons Learned

- > **Success of the project is attributed to the use of a participatory approach founded on educating local farmers** to the threat of climate change, which facilitates adaptation at the local level.
- > **Collaboration across stakeholders and sectors, in this case health and agriculture, is vital** for example, the involvement of the Ministry of Health in a project that would normally be led by the agricultural department (as a result of facilitation by WHO).

## 2.11 Community Based Adaptation in Bangladesh

IMPLEMENTING AGENCY: **FAO**



### BACKGROUND

Due to its geophysical position and socio-economic context, Bangladesh is highly prone to regular natural hazards and the impacts of climate change. In particular, regions of Bangladesh are susceptible to drought, with adverse impacts for rice crops (which account for more than 80 percent of the total cultivated land) and jute (the country's main cash crop).

In 2005, the FAO initiated a project at the request of the Bangladesh government that was designed to improve the adaptive capacities of rural populations and their resilience to drought and other climate change impacts. It was also aimed at sharing project findings with service providers and policy-makers, in order to improve support to future adaptation processes. Objectives of the pilot project were as follows.

#### **Firstly, to develop a methodology to increase understanding of how:**

- > results of climate change impact assessments, based on General Circulation Models and different climate change scenarios, can be translated into location specific agricultural impact outlooks and livelihood adaptation practices;
- > adaptation options can be tested and implemented in a participatory way with farmers; and
- > project results can be shared with agricultural researchers, policy-makers and the climate change community, in order to facilitate replication of success cases and avoid mal-adaptations.

#### **Secondly, to initiate and facilitate field testing with farmers of:**

- > livelihood adaptation strategies to better respond to disaster and climate risks; and
- > improved long-lead climate forecasting and responses to future climate change projections in agriculture.

### ACTIVITIES

Project activities included:

- > in-depth local situation assessment;
- > identifying suitable entry point activities;
- > developing a participatory project implementation strategy, suitable for replication elsewhere;
- > putting in place or strengthening institutional mechanisms;
- > technical capacity building and training;
- > developing a set of viable location-specific adaptation options relevant to the agro-ecological and social settings of vulnerable groups; and
- > identifying lessons learnt from the community-based adaptation processes.



Local awareness raising strategies included orientation meetings, field days, folk songs, drama, and demonstration rallies. In the absence of farmers' field schools in the project region, the FAO initiated participatory field demonstrations on the farmer's own fields. More than 225 demonstrations of 15 viable adaptation practices were conducted for five seasons in four sub-districts of undulating upland areas in Northwest Bangladesh.

### Selecting Adaptation Options

**Categories of good practice recommended for demonstration** included agronomic management, water harvesting, water use efficiency, crop intensification, alternate enterprises, alternative energy sources, household level energy efficiency and post harvest practices.

**Viable adaptation practices for each of the categories were selected** through a sequence of evaluation processes involving a range of stakeholders from the community level through to local research institutions and development organisations.

**Selection criteria included:** drought mitigation potential, suitability for future climate scenarios, economic viability, sustainability, increased productivity, social acceptability, relevance to vulnerable communities, gender integration, household income, applicability to multiple sectors, seasonal relevance, immediate need, institutional support, and expert acceptance.

**A wide range of livelihood adaptation options were then prioritised for demonstration** as part of the project, including: 1) homestead gardening (providing additional income and nutritional security); 2) drought-tolerant fruit tree gardening (allowing crop diversification); 3) mini-nurseries for fruit trees (a community initiative providing income); 4) improved stoves for household use (fuel and time saving); 5) rain water harvesting (providing economic benefits and ensuring a stable income); 6) use of alternative cereals such as maize (drought tolerant and income stabilising); 7) use of compost and organic manures for water conservation (needs training and time for decomposition); 8) cultivation of non-conventional oilseeds (pest and disease infestation reduced yields); 9) dry seed bed to manage early dry spell risk (requires technical capacity); 10) water saving irrigation for rice (requires electricity).

Of the several adaptation practices demonstrated, farmers groups identified mini-ponds, cultivating *jujube* fruit trees, dry seedbeds for rice, and homestead gardens as their preferred adaptation options.



## OUTCOME

The project successfully demonstrated, developed and is constantly updating a menu of diversified good practice adaptation options, which have been tested in the field to promote community based adaptation and build resilience to climate change through applying a livelihoods perspective. These include not only physical adaptive measures (such as irrigation) but introducing alternative enterprises/systems; adjusting existing practices; making socio-economic changes such as livelihood diversification; strengthening community resilience and formal institutional structures; formulating policy to catalyse enhancement of adaptive livelihood opportunities; and creating awareness and advocacy on disaster risk reduction and links with climate change and adaptation.

### Lessons Learned

- > **Launch adaptation with a focus on current variability** and factor in climate change.
- > **Introduce climate adaptation as a social learning process** to create the capacity to cope with climate change-related impacts.
- > **Introduce multiple and integrated adaptation measures** across sectors
- > **Ensure that adaptation to climate change is location-specific.**
- > **Develop clear definitions of roles and responsibilities** for institutional capacity building and organisational networking.
- > **Apply a livelihoods perspective** to understand and promote local-level adaptation to climate change.
- > **Promote better sustainable natural resource management** practices in the context of future risks.
- > **Revitalise and strengthen research** and development links.
- > **Monitor ongoing adaptation practices** and potential risks of mal-adaptation, and establish links with policy making.
- > **Assess the value of indigenous knowledge** in the context of managing future risks.
- > **Focus on adaptation practices related to crop diversification and income generation**, which are preferred at community level.
- > **Promote public-private partnerships** in climate change adaptation.

## 2.12 Drought Mitigation and Preparedness Planning in the Near East

IMPLEMENTING AGENCY: **FAO**



### BACKGROUND

In 2004, the FAO Agriculture and Land and Water Use Commission for the Near East (ALAWUC) met and discussed progress achieved to date in developing strategies for drought mitigation and preparedness planning in the Near East Region. Based on these discussions, they developed a list of recommended future activities to enhance drought risk reduction efforts. One of the recommendations made by the Commission was for the creation of guidelines to assist countries in the preparation and implementation of national action programmes for combating drought.

Drought has become a recurrent natural hazard and characteristic of the climate in the Near East Region. If it is not managed properly, the rapidly developing desertification process is likely to increase with significant impacts on human livelihoods and their productive capacities (agriculture, livestock, and agri-business). In addition, coping mechanisms to adapt to climate change are likely to deteriorate as a result.

### ACTIVITIES

To meet this need, the FAO Regional Office for the Near East and National Drought Mitigation Centre (Nebraska University) published the Drought Preparedness Planning Manual, along with a comprehensive review on drought occurrence and impacts in the Near East countries from Morocco to Iran. Specific activities in Egypt, for example, have included modelling of climate change impacts on water resources, organisation of workshops and seminars, and development of pilot programmes for developing stress tolerant crops.

### OUTCOME

The guiding principles of this Manual have already been used for capacity building on drought risk reduction in a series of regional FAO Workshops and Technical Cooperation Programme projects in Morocco, Tunisia, Jordan, Syria and Iran.

### Lessons Learned

- > **Coordinated regional action on slow onset disasters** is essential. The Drought Preparedness Planning Manual is an important tool for securing coordinated action and building capacity on drought risk reduction.
- > **Roll-out of the Drought Preparedness Planning Manual.** It is recommended that this Manual be used in focused training sessions for drought and water managers in the region.

## 2.13 Initiating a National Dialogue on Climate Change and Food Security in Egypt

IMPLEMENTING AGENCY: **WFP**



### BACKGROUND

WFP Egypt has taken the first steps towards promoting a national dialogue on climate change and food security and building key relations with research institutes. This dialogue responds to a national institutional and programmatic gap in this area. While numerous local and international actors are now actively involved with climate change and food security, the relationship between them is less understood and insufficiently integrated into the structures and mandates of governmental and non-governmental organisations. To-date, food security in the local dialogue has equated with food production. Household food insecurity, nutritional status, poverty and coping mechanisms have received little attention.

WFP is partnering with government and civil society actors to influence thinking about climate change, hunger and malnutrition, and advocate for anticipatory adaptation measures in support of the most vulnerable communities.

Specifically, WFP is partnering with the Ministry of Environment, the Ministry of Agriculture, the Egyptian National Competitiveness Council (a civil society actor, which has the political backing to play an advocacy role in crucial issues), UNDP (which is coordinating a Spanish grant to further climate change preparedness and adaptation in Egypt), the International Centre for Agricultural Research in Dry Areas (ICARDA) and the Centre for Environment and Development for the Arab Region and Europe (CEDARE) for technical expertise. These partnerships should help to further WFP's national reach and better position the organisation to advocate at international climate talks.

### ACTIVITIES

The project includes:

- > identify the most vulnerable zones/communities in terms of household food security through a combination of mapping and field assessments;
- > gather information on indigenous knowledge and coping/adaptation mechanisms; and
- > mobilise government and civil society support embodied in a national action plan to help communities cope with the food security risks of climate change.

## OUTCOME

The project has:

- > enhanced awareness, dialogue and activity promoting anticipatory adaptation measures to ensure food security for the most vulnerable communities in Egypt;
- > strengthened Government capacity and response planning to establish the link between climate change and households food insecurity;
- > increased collaboration with civil society organisations in order to improve national capacities; and
- > built WFPs' influence in discussions on climate change, hunger and malnutrition.

## CHALLENGES

Generally, the focus of global food security and climate change discussions has centred on the risks associated with limited food availability resulting from declining food production.

However, climate change poses a wider range of food-access challenges in relation to hunger and malnutrition for vulnerable communities and their livelihoods, and this complexity must be addressed.

## 2.14 Climate Resilience and Preparedness in Tuvalu

IMPLEMENTING AGENCY: **TUVALU RED CROSS**



### BACKGROUND

Tuvalu is a remote island nation, too often in the media spotlight as a result of the potentially catastrophic impacts of climate change. If, as predicted, sea levels continue to rise, this string of low-lying islands in the southwest Pacific could gradually disappear. Apart from its vulnerability to rising sea levels, Tuvalu is also at risk from cyclones, tsunamis, house fires, drought, and flooding due to high tides and storm surges. The outer islands are very isolated, making communications difficult, if not impossible at times; the country's two cargo/passenger boats operate when they can to deliver essential supplies.

In 2005, the Tuvalu Red Cross Society agreed to take part in a pilot project on climate change, in conjunction with the International Federation of Red Cross and Red Crescent Societies' Pacific delegation based in Suva. The aim of the pilot project was to investigate and tackle the issue of climate change within the national context. The Tuvalu Red Cross Society reviewed different components of the disaster risk management spectrum, from preparedness and response to adaptation to climate change and development.

### ACTIVITIES

The Tuvalu Red Cross Society is a founding member of the Tuvalu Climate Action Network, a joint government-civil society body that promotes cooperation on climate change, by raising awareness and sharing skills and knowledge. For the past two years, the Tuvalu Red Cross Society has had a regular slot on national radio through which it broadcasts messages on health, the environment, climate change and disaster preparedness, and promote activities. The show has included competitions for schoolchildren and the general public to raise awareness of actions people can take to protect themselves from disaster risks.

To assist in addressing communication problems both during a disaster and at normal times, the New Zealand Red Cross has rolled out the "Talking Briefcase" - a satellite phone, various types of charger, and instructions on how to operate it, all in a waterproof carry case. Positioning satellite phones on remote islands increases warning times and reduces response times for climate and non-climate related disasters. When distributing the equipment, the Tuvalu Red Cross Society also works with communities to map hazards and discuss coping mechanisms. Climate change is incorporated into community based disaster preparedness and first aid since it is such a major concern for the country.

Young people have also been actively involved. School programmes run jointly by the Tuvalu Red Cross, the Tuvalu Meteorological Office and the National Disaster Management Office have targeted primary school pupils. The programmes provide an overview of the role of each agency, tips on survival before, during and after a disaster, information on climate and weather, and include drawing activities, a question and answer session, and first-aid training. Young people have also participated in a national poster design competition on climate change.

## OUTCOME

A range of positive project outcomes has emerged. These include:

- > **improved response capacity** on the islands;
- > **better understanding of the role** of the Red Cross;
- > **branches on outer islands** have been revived;
- > **the Tuvalu Red Cross is now an active member** of the National Disaster Committee and works in partnership with the National Disaster Management Office and the Tuvalu Meteorological office;
- > **eight satellite phones have been distributed** to the outer islands and the isolated islet of Funafala; and
- > **youth groups know about, and are involved** in, Red Cross activities.

Next steps are to: 1) build on existing partnerships and conduct more activities with the National Disaster Management Office; 2) replicate activities carried out on Funafuti (the atoll forming the capital of the island nation) on the outer islands; 3) develop more information material in the local language; 4) raise awareness of the Red Cross/Red Crescent structure and international response mechanisms; 5) continue to improve the work of TuCAN; 6) share Vulnerability and Capacity Assessment (VCA) skills with the environment department; 7) conduct volunteer induction courses on the outer islands; and 8) carry out more activities with communities linking projects to funding sources.

## CHALLENGES

One of the key challenges is to train local volunteers on using the new technology. In particular, the caretakers of the satellite phones need to be proficient in technology and if they leave the island a “back-up” individual needs to be available as a replacement. To counteract this, Red Cross headquarters conduct regular scheduled “call-ins” to identify a problem and ensure users get practice.

### Lessons Learned

- > **Develop working relationships** with other organisations to reduce duplication and pool knowledge and funding.
- > **Complement the technical knowledge in government ministries** with the local knowledge of volunteers, who can serve as “the legs and the voice” on the ground.
- > **Regularly share experiences with other stakeholders to collect** a range of insights and feedback on progress and improvement opportunities.
- > **Use different media (radio broadcasts, competitions, school programmes)** for raising awareness and providing advice on climate change.
- > **Enhance communication by using simple technology** (e.g. the “talking briefcase”).



## 2.15 Climate Change and Community Based Health in the Solomon Islands

IMPLEMENTING AGENCY: **SOLOMON ISLANDS RED CROSS**



### BACKGROUND

The Solomon Islands Red Cross (SIRC) has been working with communities and other agencies to develop disaster risk reduction mitigation strategies and climate change adaptation strategies in order to support communities already experiencing the effects of climate change. The latter range from extreme weather events to changing health needs.

The following case study outlines the way in which SIRC has recently piloted the incorporation of information on Climate Change into its community based health promotion program '*Tugeda fo Helti Komuniti*' (THK). The aim has been to increase community awareness of the public health risks associated with climate change and the adaptive behaviour required to maintain healthy communities in changing environments.

### ACTIVITIES

The THK Program utilises a peer-to-peer information exchange model to create community awareness of health and sanitation issues and to demonstrate and promote behaviour that can keep communities healthy. During the first phase of this project, health dissemination volunteers undertook training on the impacts of climate change on the health of Pacific communities and the behavioural changes needed for communities to adapt to a changing environment and to stay healthy. THK volunteers then returned to their own communities and held discussions with inhabitants about the changes they see taking place every day. Villagers reported confirmed cases of malaria in places where mosquitoes had never bred before, so volunteers suggested that community members protect themselves and sleep under bed nets even though such precautions had previously not been required.

Basic sanitation needs are also changing and communities noted that as a result of varying temperatures and conditions, food that had previously kept after being cooked now takes less time to become unsafe. Similarly, extreme weather events and resulting disasters are also having a significant impact on health with flooding and water borne diseases becoming more frequent and/or widespread.



## OUTCOME

Although simple, it is anecdotally reported that adaptation practices such as more frequent washing of hands and the use of sanitation facilities (e.g. latrines) are having a positive health impact in communities. Furthermore, by increasing community awareness of the public health risks associated with climate change, simple awareness-based adaptation strategies will contribute to maintaining healthy communities under a changing climate.

## CHALLENGES

In addition, discussions with volunteers have also unearthed the concerns of communities, which should guide future activities and provide future challenges for SIRC. For example inhabitants of the community of Sulufou on one of the artificial islands off Malaita are worried about their “sinking island” and fear for the future including the need for resettlement and/or major disaster risk reduction and climate change adaptation projects. These community fears have been fed back to Government agencies and other partners; the challenge is to work together with key stakeholders to address these wider issues.

### Lessons Learned

- > **Peer-to-peer information exchange can be used to raise community awareness and change behaviour** (e.g. health and sanitation measures) in response to climate change.
- > **Simple adaptation practices** (e.g. hand washing to reduce disease spread) can have a positive impact on communities.

## 2.16 Community Based Climate Change Adaptation: An Integrated Approach to Raising Awareness and Reducing Vulnerability in Samoa

IMPLEMENTING AGENCY: SAMOA RED CROSS



### BACKGROUND

*“Above the Monday morning hustle and bustle of Savaiithe, a chant “Samoa Red Cross-One Heart” can be heard. It comes from a circle of young, dedicated volunteers and programme staff from the Samoa Red Cross Society (SRCS) who are just about to set out to the village of Sili, where they will conduct one of the many community assessments that the SRCS has planned for this year.”*

The “One Heart” programme reflects the spirit of volunteers supporting each other while they are out in the field working with vulnerable communities. Drawing upon approaches promoted in both the Red Cross and Red Crescent Societies’ Vulnerability and Capacity Assessment (VCA) toolbox and the Community-Based Health and First Aid

Assessment Manual, the SRCS has developed an integrated approach to working with vulnerable communities.

### ACTIVITIES

The SRCS community assessments encompass the following activities.

- > **Identifying suitable entry points to reach communities.** By drawing upon established networks (for example local church leaders), volunteers plan community visits and share information in advance of visits.
- > **Undertaking consultation with households to identify risks.** A team of SRCS volunteers walks through villages and visits households to discuss a range of issues including potential risks, livelihoods, health and well being, community leadership and access to basic services (such as running water and health) and resources (e.g. food). Volunteers use a semi-structured interview format and information from these household surveys is collated and analysed to inform subsequent participatory assessments with community representatives.
- > **Confirming findings and identifying priorities.** SRCS volunteers gather community representatives together to conduct participatory assessments in small groups, for example seasonal calendars and risk mapping are used to verify information collected from the households. Community leaders are then invited to prioritise emerging issues.
- > **Designing and delivering training.** This builds upon existing community capacities and provides communities with the knowledge and skills to address the issues they face. An awareness and training package is put together by volunteers to respond to the needs and issues identified during the household surveys and sessions with community leaders and training. Training is given by SRCS volunteers and staff during the course of a week and covers a range of issues such as basic first aid, immunisation, disaster preparedness including community

mobilisation for disaster response, climate change and activities communities can adopt to minimise potential impacts, for example water safety and hygiene.

- > **Following-up with communities** to assess how knowledge gained throughout the process is being applied and to share with communities SRCS's progress in helping them address remaining long-term priorities. Often these follow-up visits include an evening programme where SRCS volunteers use drama, song and dance to consolidate key messages on issues delivered during training and awareness raising sessions.

## OUTCOME

Communities included in the programme are more aware of the growing threat of climate change and now have the resources to prepare and respond. A recent success included the provision of clean running water in the community of Moamoa on Upolu as a result of SRCS advocacy work with the Samoa Water Authority.

## CHALLENGES

SRCS clearly cannot meet all priorities identified by communities and therefore has an equally strong role to play in advocating and working with other key stakeholders and partners to address community priorities. However, as the Secretary-General of SRCS notes, there are always challenges involved in asking stakeholders to take on extra work and responsibility.

### Lessons Learned

- > **Build the knowledge and understanding of a core group of volunteers to ensure effective and targeted activity.** In particular, it is important that volunteers understand linkages between a cross-section of programmatic areas including first aid, community health, climate change and disaster management, and have skills in participatory approaches.
- > **Build the skills of a core group of volunteers** in the use of participatory approaches to ensure that key community concerns and perceptions are identified.
- > **Design and deliver awareness and training** to assist communities develop the knowledge and skills they require to meet their specific priorities.
- > **Draw on available methodologies (e.g. VCA) and adapt them** to the programming needs of the National Society to provide practical tools for action.

## 2.17 From Humanitarian Response to Building Resilience to Climate Change in the Highlands of Peru

IMPLEMENTING AGENCY: **ASOCIACIÓN PROYECCIÓN AND OXFAM AMERICA**



### BACKGROUND

The district of Caylloma, in the highlands of Peru, is nearly 16,000 feet above sea level. The people who live there are alpaca herders, the only livelihood sustainable at that altitude. The area is highly vulnerable to extreme weather, including sudden and very low temperatures, ground frosts, and drought. In June 2004, a severe “cold snap” resulted in the death of more than 8,000 llamas and alpacas; over 20 percent of the total livestock in the communities of Caylloma. The health of the surviving animals was seriously affected, and 100 percent of the pregnant females miscarried.

Oxfam America and local partner Asociación Proyección joined forces to support the communities to rebuild their economic assets. Almost five years later, in 2009, both organisations are working on a climate change adaptation project to protect and improve the livelihoods of alpaca dependent communities in Caylloma and the neighbouring communities of Espinar in response to changing rainfall patterns. This five-year process has allowed communities to shift from post disaster reconstruction to preventive action, by helping build resilience to existing risks, in addition to the effects of climate variability and change.

### ACTIVITIES

The immediate response provided for herders during the 2004 “cold snap” was to protect the surviving alpacas by providing vaccinations and veterinary care that saved the lives of more than 26,000 animals, as well as the provision of dried alfalfa for feed. Oxfam and Proyección joined forces to find a more long-term way of addressing this climatic risk.

As a part of the medium-term mitigation work, several activities were put in place in Caylloma in the 18 months following the “cold snap.”

- > **Introduction of 100 hectares of barley cultivation** as a buffer against food shortages for livestock. Previously, grazing was the sole method for feeding.
- > **Construction of 44 new adobe sheds** with metal roofs, which now stand in some of the coldest mountain pockets, offering critical shelter for alpacas.
- > **Irrigation of enclosed pastures of rye grass** using gravity-fed sprinklers, guaranteeing a steady source of nourishment for animals.
- > **Introduction of an Early Warning System (EWS)** by putting in place three radio communication centres connected to the National Weather Service and the Civil Defence, which warns the population of the proximity of a cold front.

Finding alternative livelihoods to alpaca rearing at such a high altitude is almost impossible. Thus, the priority has been to find diverse ways of protecting the key economic asset of the population in a context of more unpredictable cold weather. The combination of the EWS and construction of sheds is also working as a good preparedness strategy.

Lately, families have begun to worry about the timing of the rains, which is affecting the growth rate of the grasses on which their animals feed. Generally, the rains fall in November, but for the past two or three years, they have not arrived until January, stunting the growth of grasses. This in turn prevents the grasses from dropping their seeds and initiating a new round of growth before the May ice season arrives. Studies of the Peru National Weather Service support the community's perceptions of significant rainfall variability.

In 2009, Proyección supported by Oxfam America (with a three year fund of more than 600,000 USD) has been leading the work of a consortium of national NGOs and research groups specialising in development and the environment, as well as academic and national governmental institutions, in 60 communities to carry out the following

- > **Research the effects of climate change** for alpaca herders' communities;
- > **Design, test, and demonstrate five different examples of adaptation** activities: recovery of native pastures in high-altitude wetlands; silage of fodder barley; animal protection sheds; water-saving irrigation techniques; and EWS combined with local knowledge and ancestral indicators.
- > **Raise awareness and train communities** on the likely effects that climate variability will have on their livelihoods.
- > **Document learning and advocate for changes** in local and national policies and practices to allow alpaca herders to become more resilient to climate change.

## OUTCOME

Proyección and Oxfam America have fed lessons learnt from the project into ongoing work in a similar area called Espinar and, in a last ongoing phase, has piloted the expansion of activities in a larger area inhabited by approximately 150,000 indigenous Andean families living under similar conditions.

## CHALLENGES

The introduction of new agricultural and cultural practices is not only a technical process but also requires that communities are open to changes. As such, success in applying new practices depends on an individuals' ability to absorb change. Furthermore, the isolation of these communities coupled with the authorities' reported lack of political interest in their needs makes it very difficult to engage decision makers on the long-term investment needed in the region in order to reduce risk and adapt to climate variability and change.

### Lessons Learned

- > **Develop technologies with communities allows people** to participate and see results. Communities are empowered to demand serious commitment from authorities.
- > **Encourage local governments to commit to long-term investment and replication** of activities by incorporating the new knowledge in their development proposals. Local governments' commitment coupled with communities' awareness guarantee a long-term effort in the face of climate change.
- > **Disaster risk reduction as part of reconstruction** can form the basis of ongoing adaptation activities to a shifting climate.
- > **Adopt a livelihoods perspective**, but consider also other aspects related to protection of human health and quality of life, like housing and nutrition.

## 2.18 Developing an Early Warning System (SATCA) in Central America

IMPLEMENTING AGENCY: WFP



### BACKGROUND

In one of the most disaster prone regions of the world, WFP has been leading the development of a sophisticated web-based, multi-hazard monitoring and forecast tool called SATCA (Spanish acronym for *Sistema de Alerta Temprana para Centro America*, Satcaweb.org). The system, which uses state of the art technology and provides precise, real-time information for on-going and forecasted natural hazards, supports the work of existing regional emergency preparedness and relief response institutions, and promotes capacity development and enhanced cooperation among partners in the Central America region.

SATCA functions as a “one-stop-shop” for disaster preparedness and has become an important source of information among practitioners. Now entering its second phase of development, this demand-driven tool is in the process of strengthening its monitoring and information analysis capacities in areas such as food security monitoring and climate variability and change. Indeed, one of the most evident impacts of climate change is the increasing frequency and intensity of natural disasters. By identifying and monitoring natural hazards and climatic threats, the SATCA service provides Government institutions and humanitarian and development partners with relevant information to manage disaster risks more efficiently, thereby helping minimise the impact of natural disasters on vulnerable people, livelihoods, and local and regional development pathways.

SATCA partners include, amongst others, the institution responsible for disaster management at the regional level (CEPRENAC), as well as Civil Protection entities from various countries, and several scientific institutions.

### ACTIVITIES

By effectively supporting anticipatory risk management, the SATCA initiative provides the following key services:

- > **www.satcaweb.org** consolidates and summarises easily accessible, up-to-date disaster related information and warnings at the regional level. Events are shown in a geo-spatial manner with the possibility of accessing increasingly more detailed information.
- > **Food security monitoring (crop conditions).** SATCA is also increasingly incorporating information on food production and availability as a result of enhanced field data collection capacities at the local level, and systematic analysis of existing data at a regional and national level. This function will result in the production of forecasts for the planting season as well as expected harvest outputs, which will strengthen regional food security analysis capacities and anticipate potential risks for the livelihoods of affected vulnerable populations.
- > **Advanced system for warning dissemination.** Using different communication technologies (including e-mail, instant messaging, fax), this system will allow relevant national institutions



to promptly issue warnings as well as notify both targeted audiences and the general public about approaching hazards and recommended actions. The system will provide different levels of notification according to the degree of severity.

- > **Early Impact Tool and GEO-assistant.** These tools collect and combine in a common system a variety of geo-spatial information layers, for instance vulnerable and at risk populations, disaster prone areas, as well as the existence and location of relevant civil infrastructure. The Early Impact Tool will enhance planning capacities of disaster response institutions in the region, by providing rapid estimates of the expected/potential impact of an approaching disaster, facilitating specific preparedness measures, as well as early assessment of emergency requirements.

## OUTCOME

These include:

- > enhanced emergency preparedness and disaster risk management capacities at a regional and national level;
- > an effective multi-hazard information platform for governments and partners at the regional and national level;
- > promotion of South to South collaboration, including dialogue between government and scientific agencies; and
- > development of climate related applications for mainstreaming climate risk into government and partners' risk management and adaptation strategies.

## CHALLENGES

Challenges include the incorporation of more variables, including those associated with climate change, price fluctuations, and socio-economic vulnerability; enhancing communication with the local/field level; and standardisation of monitoring and early warning tools and systems across the region.

### Lessons Learned

- > **The exchange of experiences and lessons learnt between national institutions** in the region has proved to be a successful approach, and an encouraging example of South to South collaboration.
- > **Capable human resources and equipment are needed to strengthen institutional processes**, particularly in terms of systematic analysis and exchange of information.
- > **Investment in capacity, skills and knowledge** needs to be complemented with the provision of technological support and equipment to national institutions.

## 2.19 Raising Community Awareness of Climate Change in Guatemala

IMPLEMENTING AGENCY: **GUATEMALAN RED CROSS**



### BACKGROUND

The effects of climate change are already impacting the fishing, agricultural and tourist sectors and include flooding risks in low coastal areas and more recurrent and intense hydro-meteorological events affecting some of the most vulnerable inhabitants of the country. For example, Hurricane Stan in 2005 resulted in substantial migratory flows of poor inhabitants from communities in the municipality of Sololá. Therefore, reaching the most vulnerable communities and strengthening local capacities is essential for providing adequate protection and assistance in humanitarian emergencies and strengthening their capacity to cope with future crises.

The Guatemalan Red Cross, with support from the Netherlands Red Cross, has been working with communities in Chiquimula, Guatemala to reduce climate change risks by strengthening local capacities to respond to disasters and raising awareness on the effects of climate change.

### ACTIVITIES

The project includes: Vulnerability and Capacity Assessments (VCA); collecting baseline data on attitudes, practices, and knowledge to inform community preparedness and disaster response; contingency plans; community systems for early warning; awareness campaigns; school preparedness activities; and climate risk adaptation measures.

One of the key adaptation activities has been the planting of young trees near the community schools of Sabana Grande in Chiquimula, through the direct participation of teachers, student and parents. Tree planting helps to maintain water sources (which are vital to the community), mitigates the loss of green areas and provides a habitat for the fauna and flora native to the region, as well as increasing soil stability and strengthening mountain prairies. The trees chosen are often fruit and neem trees. The latter provide shade and produces a natural pesticide, which can be useful against mosquitoes, whose numbers in some areas are increasing as a result of climate change.

## OUTCOME

The project has made a significant contribution to local community awareness of the effects of climate change and the importance of trees and other natural resources to mitigate against these effects: “people...are more conscious about their behaviour. They are aware of the importance of not harming our environment” says Adán Jiménez, President of the Community Development Council in Chiquimula.

*“One of the things that I like the most about this project, is the enthusiasm which the students support the reforestation activities here in Chiquimula. I realise that their interest to improve their environment has started to kick-in”* says 23 year-old Red Cross volunteer, Oscar Alejandro Navas, who is involved in the project.

## CHALLENGES

*“The participation of local partners and governmental organisations has been good through the development of the project and several actions have been coordinated with the other NGOs and universities. The Municipalities, through their environmental management units, have found the project interesting and are strategic partners”* says Raúl Francisco García López, Project Coordinator. However, the continuity of the project depends on the sustained interest of local partners and government institutions and a change in government or public servants is a challenge for this type of project. Furthermore, reforestation requires maintenance and therefore the mobilisation of resources (financial and human) is challenging. Other obstacles identified include developing community based early warning community systems, integration of preparedness activities into ongoing coordination and activities, and follow up of local authorities to secure their continued involvement.

### Lessons Learned

- > **Direct partnership of a range of community members in adaptation activities, particularly school children** helps increase awareness and interest in the local environment.
- > **Continuity of the project** depends on the sustained interest of local partners and government institutions.
- > **Appropriate funding and awareness campaigns** are central for sustaining such projects.

International Federation of Red Cross  
and Red Crescent Societies (IFRC)

Office for the Coordination  
of Humanitarian Affairs (OCHA)

World Food Programme (WFP)

Action by Churches Together (ACT) International

CARE International

Caritas Internationalis

Food and Agriculture Organization  
of the United Nations (FAO)

International Organization for Migration (IOM)

Norwegian Refugee Council (NRC)

Office of the United Nations  
High Commissioner for Refugees (UNHCR)

Oxfam International

Plan International

Save the Children

United Nations Children's Fund (UNICEF)

United Nations Development Fund  
for Women (UNIFEM)

United Nations International Strategy  
for Disaster Reduction (UNISDR)

United Nations Development Programme (UNDP)

United Nations Environment Programme (UNEP)

United Nations Human Settlements  
Programme (UN Habitat)

United Nations Joint Programme  
on HIV and AIDS (UNAIDS)

United Nations Population Fund (UNFPA)

World Health Organisation (WHO)

World Vision International (WVI)

For further information on  
the IASC Taskforce on Climate Change:

The IASC web site:

**[www.humanitarianinfo.org/iasc](http://www.humanitarianinfo.org/iasc)**