

Addressing climate change in The Near East and North Africa

Major challenges for agriculture and rural development

The Near East and North Africa region is one of the world's driest and most water-scarce regions. In many areas in the region, demand for water already outstrips supply. Although the region contributes relatively little to greenhouse gas emissions, it will be among those hardest hit by climate change. Climate experts predict that, in future, the climate will become hotter, drier and more variable. Over the next 15 to 20 years, average temperatures are estimated to rise by at least 2 degrees Celsius, and possibly up to 4 degrees Celsius. Higher temperatures and reduced precipitation will increase the occurrence of drought, as is already evident in the western part of North Africa. Densely populated low-lying coastal areas in Egypt, Kuwait, Libya, Qatar, Tunisia and the United Arab Emirates are particularly at risk from rising sea levels and saltwater intrusion into agricultural land.

Climate change threatens to increase food insecurity, diminish already scarce water resources and hinder economic growth. And these pressures will increase the likelihood of conflict, migration, and poverty and inequality. By 2080, agricultural output could decrease by 40 per cent.

To some degree, the region has an advantage in that its inhabitants have been adapting to high temperatures and water scarcity for thousands of years, and have developed strategies for coping with these environmental constraints. The region is a repository of traditional and institutional



knowledge that could be widely applied in efforts to address climate change across the globe.

IFAD's response

In response to these urgent problems, IFAD is helping countries in the region mainstream adaptation and mitigation activities in their development strategies. One focus is supporting poor women and men to leverage their traditional knowledge and practices to face the challenges of climate change. In areas of Egypt, Jordan and the Sudan with a high dependency on climate-sensitive agriculture, IFAD-supported projects are

introducing adaptive strategies for farmers and other vulnerable social groups dependent on fragile resources. Water management and water harvesting and storage are key activities across the region. IFAD provides technical expertise for simple practices, such as introducing climate-resilient crops or capturing and storing floodwater, that conserve resources and build the resilience of rural communities. IFAD grant projects are designed to pilot innovative approaches and introduce new technologies that build poor rural communities' resilience to the effects of climate change and stimulate the exchange of ideas and practices across regions.

One regional grant helps farmers build resilience to salinity, water logging, drought and high temperatures through crop and livestock diversification.

Examples of climate change activities in IFAD loans and grants

IFAD loans

Floodwater capture in the Sudan

The Gash River Delta and surrounding areas, which vary in climate from semi-arid to arid and hot, suffer from recurrent drought. Since the 1940s, there has been a trend of declining rainfall in the area. In the mid-1980s, severe drought resulted in widespread displacement of communities and loss of livelihoods. Average annual rainfall now ranges from 260 millimetres in the south-east to less than 100 millimetres in the north-west. Rainfall is highly seasonal, occurring from July to October, and is extremely variable in amount, intensity and distribution. As a result, farmers rely on harvesting seasonal floodwaters for irrigation. An IFAD-funded project in the area focuses on rehabilitating the traditional spate irrigation system to increase water availability and strengthen livelihoods against climatic variability. While spate irrigation is not fail-safe, it stores water in different layers of soil (or the “soil profile”) and in shallow aquifers at a much lower cost than storing water in a surface reservoir. Spate irrigation also makes use of one of the variables that is likely to increase with climate change: floodwater. The project adopts the sustainable livelihoods approach in its design, focusing on community strengths, vulnerabilities and livelihood strategies to provide an important platform for developing resilience-building approaches to climate change adaptation.

Project name: Gash Sustainable Livelihoods Regeneration Project

Contact information: Rasha Omar, Country Programme Manager, r.omar@ifad.org; and Mohamed Abdelgadir, Country Programme Officer, m.abdelgadir@ifad.org

Project duration: 2004-2013



Fighting chronic drought in the Sudan

The Sudan has a range of climates, from semi-arid in the north to savannah in the central regions. Drought is a dominant threat. Data from weather monitoring stations show that average rainfall has decreased significantly over the past 60 years. This has been accompanied by an increase in variability, especially in the north and west. Seventy per cent of the population is dependent on rainfed agriculture and therefore highly vulnerable to climate change. In its first climate change report in 2003, the Sudanese Government predicted a significant long-term decline in the yields of staple crops, such as millet and sorghum, resulting from shorter growing seasons imposed by higher temperatures. An IFAD-supported programme in western Sudan, although not explicitly conceived of as a climate change adaptation operation, directly addresses climate risk and variability in many of its activities. It is, for example, fostering the development and dissemination of early maturing crop varieties, and has established demonstration plots to show the impact of water-harvesting technologies on production. The conflict in the Kordofan region has been closely linked to resource scarcity and environmental degradation, which in turn has been causally linked to recurrent droughts, combined with the effects of unsustainable practices. The programme directly addresses these conflict/climate/resource degradation linkages through its focus on natural resources management strategy development and on mapping, and by demarcating stock routes to reduce conflict between pastoralists and settled agriculturalists and to remediate the negative environmental impacts of overgrazing.

Programme name: Western Sudan Resources Management Programme

Contact information: Rasha Omar, Country Programme Manager, r.omar@ifad.org;

Mohamed Abdelgadir, Country Programme Officer, m.abdelgadir@ifad.org

Partner: OPEC Fund for International Development

Programme duration: 2005-2014

*The activities described represent a component or a specific feature of the project presented.





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Climate-proofing in Jordan

As a rapidly developing semi-arid country, with only about 7 per cent of its available land considered suitable for agricultural production and with limited and declining natural resources, Jordan faces serious climate change and environmental challenges. Climate change is expected to reduce the quantity and quality of the country's water resources. Higher temperatures, together with changing precipitation patterns, will decrease the availability of surface water, with negative repercussions on agriculture. In anticipation of future water scarcity, an IFAD-funded project, now in its second phase, is promoting the development of agro-ecosystem action plans, which include the use of water-harvesting technologies and the construction of off-farm water storage facilities. It is also supporting off-farm income-generating activities to build the resilience of rural communities and reduce their vulnerability to climatic change.

Project name: Agricultural Resource Management Project - Phase II

Contact information: Omer Zafar, Country Programme Manager, o.zafar@ifad.org

Partners: OPEC Fund for International Development;
Global Environmental Facility (GEF)

Integrated GEF grant (Trust Fund): Mainstreaming Sustainable Land and Water Management Practices

Duration: 2005-2015



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Ecosystem protection in Morocco

Morocco consists almost entirely of semi-arid and arid ecosystems. These ecosystems, rich in diverse habitats and species heterogeneity, are of global importance. However, pervasive poverty, inadequate resource management and increasing pressure on the land are leading to widespread land degradation, depletion of water resources, loss of wildlife habitats and increased susceptibility to drought and climate change. The second phase of an IFAD-supported project worked to increase the incomes and improve the living conditions of poor rural people in the country's Eastern region. It also strengthened the capacity of grass-roots organizations to adopt participatory approaches to identify and manage investment opportunities in animal production systems, to create linkages with potential markets and to diversify income-generating activities by improving access to technical, commercial and financial services. A grant from the Global Environment Facility supported the introduction of technologies that increase the levels of organic matter in the soil and improve the carbon storage and water retention of soils. It also strengthened the capacity of local users of natural resources to adapt to the effects of climate change by developing early warning coping strategies for drought and diversifying income-generating activities.

Project name: Livestock and Rangelands Development Project in the Eastern Region - Phase II

IFAD loan contact: Mounif Nourallah, Country Programme Manager, m.nourallah@ifad.org

Partners: Global Environmental Facility (GEF)

Integrated GEF grant (Trust Fund): Participatory Control of Desertification and Poverty Reduction in the Arid and Semi-Arid High Plateau Ecosystems of Eastern Morocco

GEF grant contact: Rami Abu Salman, Regional Climate and Environment Specialist, r.salman@ifad.org

Project duration: 2004-2010

IFAD grants

Markets for carbon sequestration in Morocco

New market opportunities for high-value agricultural products and services related to climate change mitigation, such as carbon sequestration, are opening up at record speed. A multi-country project, funded by an IFAD grant, was designed to ensure that poor rural people, and women in particular, have better access to, and capacity to take advantage of, these burgeoning opportunities. The project reviewed and assessed existing activities related to carbon markets in Morocco and in three countries in other regions: Ghana, Mozambique and Viet Nam.

The Moroccan agricultural sector is responsible for about 42 and 75 per cent of the country's total emissions of methane and nitrous oxide respectively. According to the Moroccan national communication to the United Nations Framework Convention on Climate Change, 25 per cent of the country's total emissions come from agriculture. Methane emissions come mainly from enteric fermentation. Nitrous dioxide emissions come from agricultural soils and manure. The project implemented four activities in Morocco related to agricultural climate mitigation and market access: current carbon market activities (a review and assessment of current activities related to carbon markets); access of rural poor communities to carbon markets (a study carried out on the institutional mechanisms that can link farmers to carbon markets); climate change mitigation potential (a report on the costs and benefits of agricultural mitigation activities in Morocco and identification and evaluation of best practices and options); and a pilot study for testing agricultural mitigation activities on the ground.

Grant name: Strategic Partnership to Develop Innovative Policies on Climate Change Mitigation and Market Access

Contact information: Bernadette Mukonyora, Research Officer, b.mukonyora@ifad.org

Partner: International Food Policy Research Institute (IFPRI)

Project duration: 2008-2011

<http://ifadifpri.wordpress.com/>



Combating salinity in North Africa

Salinity and water logging affect many of the groundwater-based agro-ecosystems in North Africa, and more than 25 per cent of agricultural lands irrigated from rivers. Salinity is a major challenge to crop production, especially in the arid and semi-arid parts of this region. These marginal agricultural areas are also extremely vulnerable to the impact of climate change, in particular drought and high temperatures.

A cross-regional programme (spanning North Africa and West Asia), supported by an IFAD grant, is encouraging crop and livestock diversification to strengthen farmers' resilience to the effects of climate change. It is also promoting the sustainable management of marginal land by introducing innovative technologies such as high-yielding forage plants that are better adapted to saline and marginal environmental conditions.

Grant name: Adaptation to Climate Change in Marginal Environments in West Asia and North Africa through Sustainable Crop and Livestock Diversification

Contact information: Abdelhamid Abdouli, Country Programme Manager, a.abdouli@ifad.org

Partners: International Center for Biosaline Agriculture; OPEC Fund for International Development

Programme duration: 2009-2014

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CONTACTS

Elwyn Grainger-Jones
Director
Environment and Climate Division
IFAD
Tel: +39 06 54592459
ECDmailbox@ifad.org

LINKS

IFAD and climate change
www.ifad.org/climate/

United Nations Framework Convention
on Climate Change
www.unfccc.int

Intergovernmental Panel
on Climate Change
www.ipcc.ch

COP 17
www.cop17durban.com

World Bank 2010 World Development
Report: Development and Climate Change
www.worldbank.org/wdr2010

Climate risk management in Egypt

Reports issued by the Intergovernmental Panel on Climate Change have underscored Egypt's vulnerability to the impact of climate change. The changes in climatic conditions that are taking place, and that are predicted to intensify, constitute a major environmental risk that may jeopardize Egypt's development gains and efforts to reduce poverty. While mitigation is essential, adaptation to the consequences of climate change is also inevitable. A joint programme, involving six United Nations agencies including IFAD, was designed to help Egypt align its climate risk management and human development efforts in pursuit of the Millennium Development Goals, in the face of climate change and the serious threats predicted for the country. In this context, the grant activities serve to reduce poverty and mitigate risk by combining mitigation and adaptation under one integrated climate risk management banner with special attention given to the poorest and most vulnerable members of the population.

Grant name: Climate Change and Risk Mitigation Joint Programme

Contact information: Abdelhamid Abdouli, Country Programme Manager,
a.abdouli@ifad.org

Partners: Government of Egypt; United Nations Development Programme (UNDP)

Programme duration: 2009-2012

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IFAD is an international financial institution and a specialized United Nations agency dedicated to eradicating poverty and hunger in rural areas of developing countries.

International Fund for Agricultural Development
Via Paolo di Dono 44, 00142 Rome, Italy
Tel: +39 06 54591
Fax: +39 06 5043463
E-mail: ifad@ifad.org
www.ifad.org, www.ruralpovertyportal.org

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