

IFAD/GEF partnership on climate change: Fighting a global challenge at the local level



Poorer countries: The most vulnerable to climate change

There is a general consensus that rural areas and rural livelihood systems will bear the brunt of climate change across the globe. More frequent extreme weather events such as heat waves and intense precipitation are likely to place the livelihoods of many rural people at risk. Africa is expected to be the most vulnerable continent to climate change, and will face a decline in both food security and agricultural activity, particularly in relation to subsistence farming. The impact of climate change on agriculture is expected to be devastating in many parts of the developing world. Especially in the least developed countries, declining crop productivity and livestock deaths associated with further global warming pose a serious threat to food security and national economies.

Nonetheless, vulnerability to climate change can be exacerbated by poverty, marginality and low adaptive capacity. An integrated approach is therefore needed to bridge the gap between local development and the global challenge of climate change.



BOX 1

Developing countries will bear the brunt of climate change, according to the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (AR4), 2007

Africa

Agricultural production and food security are expected to be severely compromised by climate variability and change in many African countries. In some countries, yields from rainfed agriculture could fall by up to 50% by 2020. A projected 75 million to 250 million people will be exposed to increased water stress due to climate change in Africa by 2020. If coupled with increased demand, this will adversely affect livelihoods and exacerbate water-related problems.

Latin America

IPCC projections indicate with medium confidence that warming in Latin America could range from between 1°C and 4°C to between 2°C and 6°C by 2100, according to various climate scenarios. As land-use changes in Latin America have intensified the use of natural resources, land degradation and desertification have accelerated. It can be stated with high confidence that by the 2050s, 50% of agricultural land will be subject to desertification, and in some areas salinization.

Asia

A 2.5% to 10% decrease in crop yields is projected for parts of Asia by the 2020s, as well as a 5% to 30% decrease by the 2050s compared to 1990 levels, without CO₂ effects (medium confidence). Projected sea-level rise is very likely to result in significant losses of coastal ecosystems: one million people along the coasts of South and South-east Asia will be at risk from flooding (high confidence). According to projections, crop yields could rise by up to 20% in East and South-east Asia, falling by up to 30% in Central and South Asia by the mid-twenty-first century.

Very high confidence: at least a 9 out of 10 chance of being correct; high confidence: an 8 out of 10 chance; medium confidence: a 5 out of 10 chance; low confidence: a 2 out of 10 chance.

Climate change and the Millennium Development Goals

Efforts to achieve sustainable development pathways and economic growth rates will be affected by changes in ecosystems, natural resources and rural infrastructure. A key challenge will be to continue promoting win-win development options such as pro-poor approaches to climate change without compromising the timely achievement of the Millennium Development Goals (MDGs). Declining economic growth in the wake of global warming will result in reduced income opportunities for the rural poor and will directly affect achievement of the MDGs.

The adverse impact of climate change will exacerbate poverty, hampering the achievement of the first goal (MDG1), which aims to eradicate extreme poverty and hunger. But this is not the only goal at risk.

The seventh goal, on environmental sustainability (MDG7), is at highest risk due to the direct impact of climate change on agricultural land, hydrology and water resources, coastal and low-lying areas, ecosystems, biodiversity and human health. Changes in temperature, precipitation, and climatic extremes will place added stress on agricultural resources while eroding the quality of agricultural

land. The impact will be particularly serious in areas where droughts and land degradation, including desertification, are already severe.

By decreasing agricultural productivity, depleting the natural resource base and further exacerbating current gender inequities, climate change will place additional burdens on rural women. It will increase their vulnerability, affecting achievement of the third goal (MDG3) on gender equality in particular. Unequal access to resources needed to adapt to and mitigate climate change could widen existing gaps and differential impacts in terms of achieving the MDGs as a whole.



Vulnerability and opportunities for adaptation in rural economies

Any discussion on the involvement of developing countries in adapting to and mitigating climate change needs to focus on two sectors in particular: agriculture and forestry. The reason for this is threefold: first, the agriculture and forestry sectors are the most sensitive to climate change in developing countries; second, significant economic growth is expected in the agriculture sector over the coming years; third, land-use change and agricultural practices in developing countries will be particularly relevant to future climate change strategies.

Agriculture is a pivotal sector in rural economies: 75 per cent of the poor live in rural areas, and most of them derive their livelihoods from the sector. Agriculture provides employment for 1.3 billion smallholders and landless workers; yet just 4 per cent of overseas development assistance and 4 per cent of public spending in Africa now go to agriculture, whereas the sector contributes 30 per cent of gross domestic product (GDP). In sub-Saharan Africa, increased spending on agriculture would accelerate economic growth overall. In other regions, the World Bank's World Development Report for 2008 found that growth originating in the agricultural sector has about double the effect on poverty reduction than growth originating in other sectors.

Climate change is increasing production risks in many farming systems while reducing the ability of farmers and rural communities to manage risks on their own. The rural poor will be exposed to increased climate-related risks, damage to livelihoods, fragile food security and higher exposure to disease.



Climate change is expected to have a disproportionate impact on poor people and subsistence farmers in rural areas, where successful adaptation depends on accurate assessments of agro-ecosystem sensitivity under various socio-economic IPCC scenarios.

Adapting agriculture and rural livelihood systems to climate change calls for policy and strategy measures to improve adaptive capacity and facilitate specific adaptation instruments. Lessons from the field show that farmers are already making local adaptations that could provide a good knowledge base. These forms of adaptation are mainly autonomous

and defined by the local context and available technologies. Shifts in cropping systems, the adoption of new crop varieties and modified grazing patterns in response to changing rainfall trends are common forms of adaptation at the community level.

While autonomous adaptation by small farmers has proven to be effective locally, there continues to be a need for more integrated approaches at the national and subregional levels. Given uncertainty about climate change trends and impacts on rural livelihood systems, adaptation packages must combine a long-term vision with cost-effective investments.

Agriculture and forestry: Source of and sink for greenhouse gases

According to the IPCC fourth assessment report (AR4) (2007),¹ agriculture is both a sink for greenhouse gases and the source of approximately 13 per cent of total emissions, 74 per cent originating in developing countries (figure 1). Among these, methane (CH₄) and nitrous oxides (N₂O) are the most important.

Emissions from developing countries are expected to rise as a consequence of various drivers, such as population pressure, growth in food demand, higher incomes, increased urbanization, shifts in diet with a growing demand for meat, improvements in productivity due to technological changes and increased commercial flows of agricultural products. An overview of the trend in methane and nitrous oxides emissions in developing regions is shown in figure 2, which refer to a business-as-usual scenario taken

from USEPA² and developed using data from Verchot (2007).³

Forests play an important role as carbon sinks for CO₂ emissions. Forests are able to store almost half the world's carbon present in the atmosphere, and tropical forests have greater storage capacity than non-tropical ones (Moutinho and Schwartzman 2005).⁴ According to IPCC AR4, greenhouse gas emissions from the forestry sector account for 17.4 per cent of the total,⁵ and deforestation rates are highest in Latin America, Africa and South-east Asia. Although projections of greenhouse gas emissions from forestry hinge on the assumed future deforestation rate, most studies estimate an increase in forest area in the developed countries (between 60 and 230 million hectares [ha] according to IPCC AR4), while in the developing countries deforestation is expected to continue, leading to a

decrease in the forest area by about 200 to 490 million ha (IPCC AR4).

The agricultural sector can play a pivotal role in addressing climate change, offering opportunities for both mitigation and adaptation. Agriculture has good potential to reduce greenhouse gas emissions by promoting energy efficiency and clean energies, reducing deforestation or changing land use, and promoting sustainable agricultural practices such as the rehabilitation of degraded lands, water conservation and management, and increased biomass production.

1 Intergovernmental Panel on Climate Change (IPCC). 2007. 'Mitigation of climate change.' Working Group III Report, in *Fourth Assessment Report (AR4)*. Geneva.

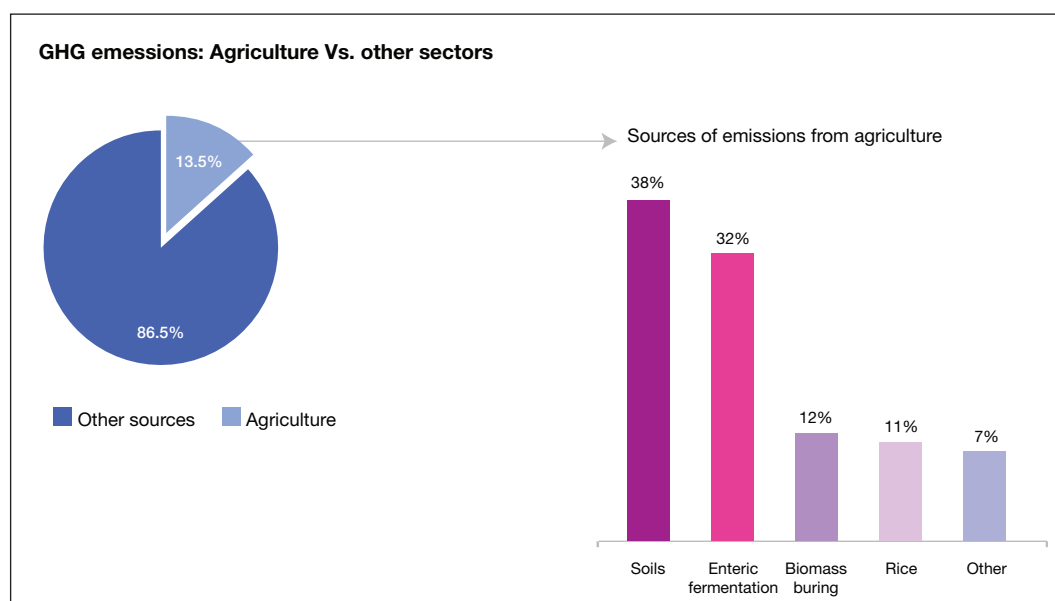
2 United States Environmental Protection Agency. 2006. *Global Mitigation of Non-CO₂ Greenhouse Gases*. US.EPA Report 430-R-06-005. Washington, D.C.

3 Verchot, L.V. 2007. *Opportunities for climate change mitigation in agriculture and investment requirements to take advantage of these opportunities*. Report to the UNFCCC Secretariat, Financial and Technical Support Programme. Nairobi: World Agroforestry Centre.

4 Moutinho, P., and S. Schwartzman. 2005. *Tropical deforestation and climate change*. Belém, Pará, Brazil: Instituto de Pesquisa Ambiental da Amazonia and Environmental Defense.

5 This figure includes emissions from deforestation, emissions from the decomposition of above-ground biomass that remains after logging and deforestation, and emissions from peat fires and decay of drained peat soils (IPCC AR4, Working Group III, Ch.1 p.105).

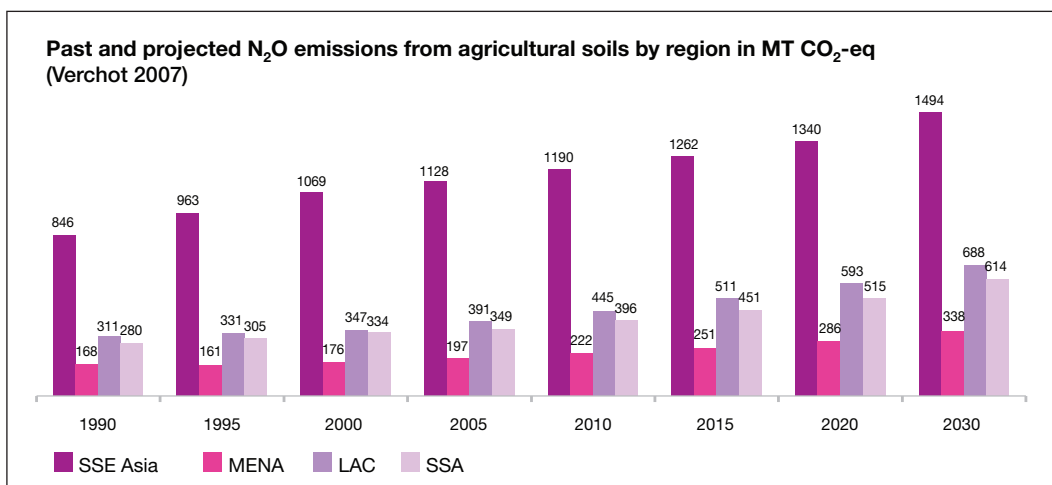
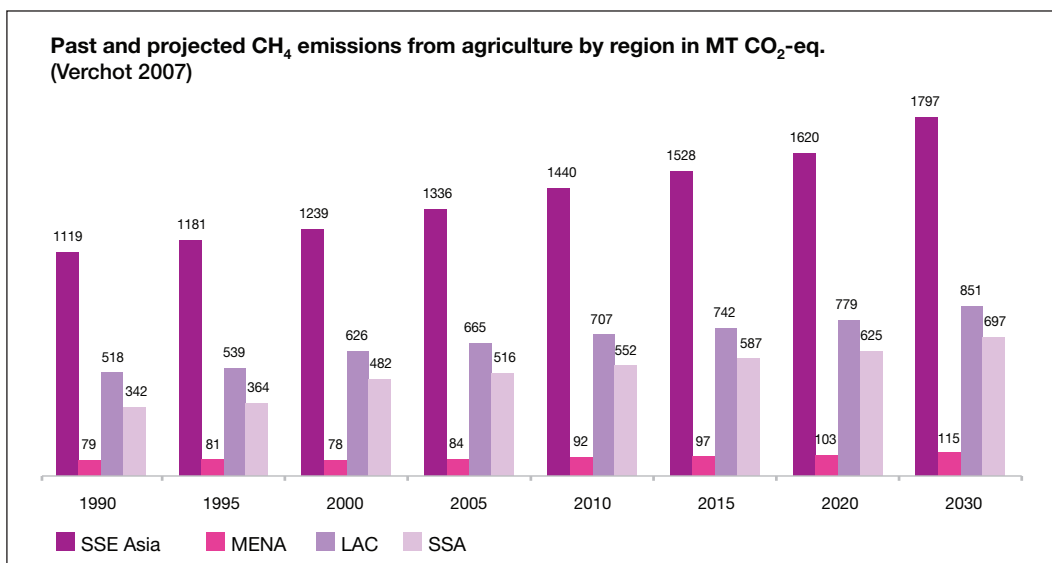
FIGURE 1
Greenhouse gas emissions from agriculture versus other sources and sources of emissions from agriculture (IPCC 2007)



The United Nations Framework Convention on Climate Change (UNFCCC) emphasizes the role of land use, land-use change and forestry as a means of protecting carbon stocks and reducing greenhouse gas emissions. Adaptation to climate change in the agricultural and forestry sectors is equally important to reduce vulnerability and increase the resilience of the rural poor to climate change, while at the same time encouraging sustainable development paths.



FIGURE 2
Trend in non-CO₂ emissions from agriculture



Reconciling climate change adaptation and mitigation in agriculture

In its past operations, the Fund has gained experience relevant to climate change through its efforts to increase the resilience of rural populations to climate variability. By adopting risk management approaches and placing the objective of reducing vulnerability at the core of its programmes, it has sought to empower rural people to improve their own livelihoods and overcome poverty. The IFAD Strategic Framework 2007-2010 acknowledges climate change as one of the factors affecting rural poverty and as one of the challenges it needs to address.

Agriculture is the most climate-sensitive economic sector, and the rural

poor in developing countries will have the greatest exposure to the effects of climate change in the coming years. Accordingly, IFAD considers sustainable development to be achievable only if the rural poor are well prepared to face the challenges of climate change. However, at present, very few development strategies for promoting sustainable agriculture have explicitly included measures to adapt to or mitigate the effects of climate change. Pro-poor climate change mitigation and adaptation policies require interventions at many different levels, ranging from crop and on-farm management to the community,

national, regional and global levels. Interactions between mitigation and adaptation in the agricultural sector may take place at the same time but vary in form depending on geographical characteristics (IPCC 2007).

The foregoing justifies the added value of a portfolio or mix of strategies that includes mitigation, adaptation, technological development and research. Development portfolios targeting rural poverty reduction must integrate climate change issues from the grass roots to the national and regional levels, combined with policies and investments that involve incentive- and risk-based approaches.

BOX 2 International Fund for Agricultural Development

The International Fund for Agricultural Development (IFAD) is a specialized agency of the United Nations dedicated to combating rural poverty in the world's most disadvantaged regions. Through both loans and grants, this international financial institution develops and finances programmes and projects that enable rural poor people to overcome poverty themselves.

IFAD reaches more than 10 per cent of the world's rural poor people living on less than US\$1 a day. There are 187 ongoing IFAD-supported rural poverty eradication programmes and projects, totalling US\$6.2 billion. IFAD has invested more than US\$2.9 billion in these initiatives. Cofinancing has been provided by governments, project participants, multilateral and bilateral donors and other partners.

Working with partners, including rural poor people, governments, NGOs, financial and development institutions and the private sector, IFAD tackles poverty not just as a lender but also as an advocate for rural poor people. One of its priorities is to assist rural poor people in developing and strengthening their organizations so that they can advance their interests and remove the obstacles that prevent so many people, especially women, from creating a better life for themselves. In this way, rural poor people are able to participate more fully in determining and directing their own development.

IFAD's Global Environment and Climate Change Unit

In May 2008 IFAD broadened the mandate of its Global Environment Facility (GEF) Unit. The renamed Global Environment and Climate Change (GECC) Unit serves as the technical arm of IFAD's Programme Management Department on climate change issues. Through this unit, IFAD promotes investments in adaptation and mitigation in its country portfolio and facilitates dialogue on operational and technical matters with the UNFCCC. The GECC coordinator is also the focal point for the Nairobi Work Programme on impacts, vulnerability and adaptation. The unit will maintain its GEF operational function – designing impact-oriented projects that complement IFAD's investments – and will continue its participation in relevant environment-related international meetings and committees.



Investment and financial flows to address adaptation needs in agriculture

Adaptation is associated with uncertainty and risks (particularly over the long term). The cost-effectiveness of adaptation options has yet to be studied fully, and the literature on adaptation costs and benefits remains limited (IPCC 2007). According to the IPCC, most adaptation studies associate the benefits of agricultural adaptation with the avoidance of climate impacts as reflected in increased yields or incomes, or decreases in the number or percentage of people at risk. Adaptation costs in the agricultural sector are difficult to estimate due to the complexity of the options and processes involved and their underlying assumptions. However, some estimates have highlighted the positive impact that adaptation could have on agricultural GDP across regions, as reflected in the graph below (data derived from Toll 2002).⁶

Adaptation is the only way to cope with the impact of climate change in the coming decades. Good adaptation

practices should build on sustainable development strategies. Growth promotion and diversification of economic activity to promote risk pooling mechanisms, including social safety nets for the poorer, are vital to reduce the vulnerability of rural poor people.

An analysis of financial needs for adaptation in agriculture, forestry and fisheries indicates that US\$14 billion in investment will be needed in 2030 over and above 2005 investment levels, of which US\$7 billion will be needed for non-Annex I parties.⁷ This estimate is based on the projected level of investment in physical assets needed in 2030 according to the Organization for Economic Cooperation and Development (OECD) ENV-Linkages model and the International Energy Agency's World Energy Outlook reference scenario projections.⁸ Official development assistance will need to increase by 150 per cent between now and 2030 to meet increasing demand

BOX 3
The cost of climate change in India and South-east Asia could be as high as a 9-13 per cent loss in GDP by 2100

“The cost of climate change in India and South-east Asia could be as high as a 9-13 per cent loss in GDP by 2100 compared with what could have been achieved in a world without climate change. Up to an additional 145 to 220 million people could be living on less than 2 dollars a day, and there could be an additional 165,000 to 250,000 child deaths per year in South Asia and sub-Saharan Africa by 2100 due to income losses alone” (Stern Review).⁹

due to the impact of climate change in non-Annex I countries (UNFCCC, 2007). A large share of this investment will need to target the rural poor.

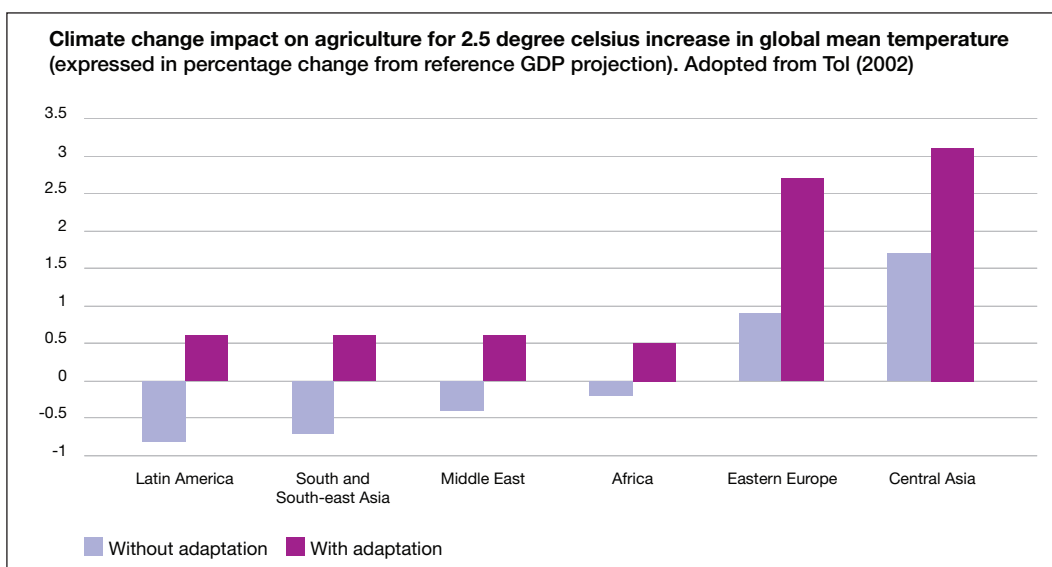
6 Food and Agriculture Organization. 2007. Adaptation to climate change in agriculture, forestry and fisheries: Perspective, framework and priorities. Rome, Italy.

7 The UNFCCC defines non-Annex I parties as “countries that have ratified or acceded to the United Nations Framework Convention on Climate Change that are not included in Annex I of the Convention”. The latter lists “the industrialized countries which were committed to return their greenhouse-gas emissions to 1990 levels by the year 2000”.

8 Source: Background paper on Analysis of existing and planned investment and financial flows relevant to the development of effective and appropriate international response to climate change, UNFCCC 2007. Available from http://UNFCCC.int/cooperation_and_support/financial_mechanism_/items/4053.php

9 Stern, N. 2006. *Stern review on the economics of climate change*. London: Government Economic Service, United Kingdom, www.sternreview.org.uk/

FIGURE 3
Climate change impacts with or without adaptation



Delivering pro-poor climate change investments

Global aid architecture has changed drastically over the last decade. About one third of official development assistance is now delivered through partnership-based programmes at the regional or global level (Lele et al. 2007). This shift to programmatic approaches will drive the mainstreaming of the climate change agenda in future sustainable development frameworks, in the spirit of the Paris declaration on aid effectiveness. IFAD's results-based country operations, in synergy with the efforts of other development partners, should provide a basis for a harmonized response to the many challenges posed by climate change to

the rural poor and their livelihoods.

There are many ways in which IFAD could support its clients in adapting to climate change and reducing the vulnerability of the rural poor while maintaining growth rates. In its past operations, the Fund has gained experience of relevance to climate change through its efforts to increase the resilience of people in rural areas. IFAD's work at the grass-roots level emphasizes community empowerment to help the rural poor not only overcome poverty but also reduce their vulnerability vis à vis climate risks. By adopting risk management approaches and placing the objective of reducing vulnerability at the core of its

programmes, the Fund has sought to empower rural people to improve their own livelihoods and overcome poverty. Although IFAD's comparative advantage lies mainly in adaptation to climate change, it is increasingly engaging in mitigating the impact of climate change in rural settings.

BOX 4 Index-based weather insurance: An innovative approach to climate change adaptation

Managing weather-induced risk and hedging farmers against vulnerability have received attention in IFAD-supported projects. In China, where farmers are exposed to cyclical poverty due to regular crop failures induced by erratic weather patterns, IFAD has cofunded an initiative to develop and implement an index-based weather insurance system. This private/public-funded activity will insure the rural poor's incomes against weather hazards, breaking the frequent risk of "short term shock – long term impact". A similar initiative, aimed specifically at the need to address climate-change-induced risks, is planned under the Livestock Sector Adaptation Project in Mongolia and is financed through the GEF-managed Special Climate Change Fund. The project, currently under development, aims to increase the resilience of Mongolian livestock systems to changing climatic conditions by strengthening natural resources management, 'climate-proofing' the pasture water supply, and building the capacity of herders' groups to address climate change.



IFAD and the Global Environment Facility: Together we can achieve more

Given the global importance of climate change and its implications for the rural poor, IFAD seeks to join forces with other organizations, forging partnerships leading to harmonized and impact-oriented deliverables.

A key challenge for building sustainable partnerships at all levels is the promotion of a pro-poor approach to climate change while pursuing achievement of the MDGs. Strategic partnerships should continue to aim at combating poverty and promoting economic growth. At the same time, IFAD considers partnerships a means to ensure a transition to a cost-effective low-carbon economy for IFAD's client countries, supporting both mitigation and adaptation efforts. Responses to climate change should be coordinated with social and economic development in an integrated manner to avoid adverse impact on growth, taking into full account the legitimate priority need of developing countries to achieve sustained economic growth and eradicate poverty.

As one of the main financial mechanisms for climate change, the GEF represents a strategic partner for IFAD. As the only United Nations agency dedicated to reducing rural poverty and increasing food security in rural areas, IFAD has brought to the GEF family its experience in people-oriented approaches. Furthermore, the combination of IFAD's flexible lending programmes with GEF grants has widened the traditional spectrum of interventions and strengthened the programmes and projects of the two organizations.

The IFAD/GEF engagement strategy for the GEF fourth replenishment aims at nurturing clear linkages between poverty alleviation, sustainable land

management and climate change issues.

IFAD/GEF adaptation activities aim at:

- ensuring that best practices in tackling climate change are captured and replicated;
- linking sustainable land management to adaptation activities;
- identifying and implementing drought preparedness and contingency plans;
- nurturing local knowledge and rural farmer innovations to improve adaptation capacity;
- contributing to an effective exchange of knowledge and information among local communities on climate change impacts and variability.

There are currently four international financing sources for adaptation, all administered by the GEF:

- the Least Developed Countries Fund (LDCF) under the UNFCCC;
- the Special Climate Change Fund (SCCF) under the UNFCCC;
- Piloting an Operational Approach to Adaptation (SPA) under the GEF Trust Fund; and,
- the Adaptation Fund under the Kyoto Protocol.

As a GEF executing agency, IFAD helps its client countries access these funding opportunities within the GEF adaptation programme. In particular, IFAD is already working to support the implementation of national action plans for adaptation (NAPAs) under the LDCF.

For GEF, IFAD's comparative advantage on mitigation lies mainly in biomass for energy. Projects in this area will promote biomass production, conversion and use for energy services

through technical assistance, capacity-building and investment. Recently, GEF has widened the spectrum of activities eligible for greenhouse gas mitigation to include land use, land-use change and forestry activities. This opens up major opportunities to IFAD for engaging in climate change mitigation, in particular by supporting the implementation of land use, land-use change and forestry activities and working with local communities to develop alternative livelihood methods to reduce emissions and sequester carbon. In the context of the IFAD/GEF fourth replenishment engagement strategy, IFAD will also explore the possibility of linking GEF sustainable land management operations and the Clean Development Mechanism through pilot projects that will be eventually scaled up during the GEF fifth replenishment period if proven effective.

BOX 5 IFAD support to NAPA implementation

In 2008, IFAD's GECC unit secured financing through the Least Developed countries Fund to support the implementation of the Sierra Leone NAPA. The project objective is to lessen the impact of climate change on vulnerable rural communities and the natural resource base in order to sustain agricultural production and increase food security.

At the corporate level, the GECC unit is carrying out an internal capacity-building programme on climate change. The programme also aims to increase awareness on how to access resources for adaptation – including implementation of NAPAs in countries that have identified agriculture and food security as priority sectors of intervention – as well as how to mainstream NAPAs into IFAD's strategic planning.



BOX 6
Examples of IFAD/GEF activities on climate change

Community-based approaches to adaptation in Sri Lanka. With GEF financing, IFAD is implementing a community-based approach to rehabilitating three key coastal ecosystems – mangroves, coastal lagoons and sand dunes – along the tsunami-devastated east coast of Sri Lanka. The project will also enhance the ecosystems’ resilience to climate variability, while reducing the population’s vulnerability to climate change.

Towards a climate-proofed Strategic Investment Programme investment in sub-Saharan Africa. In Sub-Saharan Africa, IFAD supports adaptation to climate change within the framework of a Regional Partnership on Sustainable Land Management (TerrAfrica) and its Strategic Investment Programme (SIP). The programme, which was approved by the June 2007 GEF Council, brings together all GEF Agencies, the New Partnership for Africa’s Development (NEPAD) and the African Union under World Bank leadership. The partnership will allow interventions to better address in a comprehensive, holistic, yet flexible way the barriers and threats to the protection and sustainable use of natural resources. A total envelope of US\$150 million was

allocated to the SIP in 2006/07 from the GEF fourth replenishment and is expected to be used for operations that alleviate rural poverty as well as pursuing adaptation activities such as:

- Minimizing physical exposure to climatic hazards
- Avoiding or reducing potential for adverse impact (climate-proofing)
- Enhancing adaptive capacity and resilience (addressing determinants of adaptive capacity)
- Improving planning to take climate change into account, to avoid an adaptation deficit and remove any barriers to adaptation
- Creating and managing information to facilitate adaptation

Enhancing carbon sequestration by reducing forest degradation. Tropical peatland forests in South-east Asia play important roles in the water cycle and in climate and landscape stabilization. They provide valuable services and functions, storing up to 6,000 tons of carbon/ha, and have great significance for biodiversity conservation and the provision of economic and community benefits. Through the GEF-financed project for Rehabilitation and Sustainable Use of Peatland Forests in South Asia, IFAD is supporting the efforts of the secretariat of the Association of Southeast Asian Nations (ASEAN) and the Governments of Indonesia, Malaysia, the

Philippines and Viet Nam to enhance protection of existing peatland forests and reduce emissions from drainage and fire in degraded and converted peatlands.

Integrated sustainable land management: a better way to adapt to climate change in the Middle East and North Africa region: The MENARID programme aims to promote integrated sustainable land management in the drylands of the Middle East and North Africa region, improving the economic and social well-being of the targeted communities by restoring and maintaining ecosystem functions and productivity. MENARID brings together all GEF agencies and is being developed under IFAD leadership. The programme’s main objective is to advance the mainstreaming of sustainable land management, improving governance for natural resource management, and coordinating investments to decrease vulnerability to climate change and improve ecosystem resilience and integrity. MENARID will offer a programming document that seeks to promote cross-cutting approaches and generate impact across all GEF focal areas. Global benefits will include better ecosystem resilience to climate change and drought (ensuring that climate adaptation is considered in sustainable land management investments) and improved adaptation to climate change.

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Enabling poor rural people
to overcome poverty

