

# KEY ACTIONS AGAINST CLIMATE CHANGE IN THE AGRICULTURE AND FORESTRY SECTORS IN NIGER



<http://www.undpcc.org/en/niger>

Native plants that are resistant to drought will be important for adaptation to climate change in Niger. Photo: BBC

→ Climatic constraints are one of the main factors that limit socio-economic development in Niger. According to a national assessment of investment and financial flows (I&FF) completed in September 2010, more than US\$ 2.5 billion is needed through to 2030 for Niger to implement priority actions to:

- Reduce emissions of greenhouse gases from deforestation and land use, and
- Adapt to the impacts of climate change in the agriculture/livestock sector.

Nearly 75% of these funds are needed to improve access to energy through the use of alternatives to firewood. In addition, US\$ 374 million is needed to ensure food security and secure the agriculture/livestock sector against the effects of climate change.

Having completed the I&FF assessment, the government of Niger is now well placed to discuss the costs of climate change in the international climate change negotiations. This work was conducted as part of the global UNDP project, *Capacity Development for Policy Makers to Address Climate Change*, in which 20 countries participate. The project is funded by the governments of Norway, Switzerland, Spain, and Finland, UNDP and the UN Foundation.

## Selection of key sectors

The **forestry** sector contributes to 17% of the national Gross Domestic Product (GDP). Forest resources are of strategic importance for the people who rely on them to satisfy their basic needs. Inadequate management of forests is an important issue for Niger.

The **agriculture/livestock** sector is highly vulnerable to the impacts of climate change. Niger's economy is largely rural; the primary sector employs about 85% of the national workforce and accounted for 44% of GDP in 2008.

## Institutional arrangements

At the national level, project supervision is carried out by the National Environmental Council for Sustainable Development (CNEDD), an institution reporting to the Prime Minister through its Executive Secretariat (SE/CNEDD) with the support of the National Technical Commission on Climate Change and Variability (CTNCVC). A project coordination unit was placed in the SE/CNEDD.

A national non-governmental organization (NGO), OSEILED, was contracted to carry out the two sectoral I&FF assessments and established two multidisciplinary expert teams for this purpose. Numerous national institutions provided data and other information for the assessments. The two teams were trained in Niamey from 6-8 July 2009 by a Regional Centre of Excellence, the Pan-African Start Secretariat (PASS) based in Tanzania, on the use of a bottom-up UNDP methodology developed under the project for assessing investment and financial flows.

# ASSESSMENT OF INVESTMENT AND FINANCIAL FLOWS

## Objectives of the Investment and Financial Flows Assessment

The overall objective of the I&FF assessment is to determine the extent and sources of funds needed to address climate change at the national level, and builds directly on national government strategies, plans and programmes. In essence, the assessment seeks to answer the question: *“From a development perspective, what can my country do to address climate change in selected key sectors, and what level of financial contributions will be needed to achieve these objectives?”*

In this context, the I&FF team examined the following questions:

- What are the main adaptation / mitigation measures for the selected sectors in the next 25 years?
- Who is investing in the sector / Who are the main stakeholders and sources?
- What changes / increase in I&FF will be needed in the sectors?
- What additional I&FF are needed to address climate change?



*“Having completed the assessment of investment and financial flows, we hope to have a tool for decision makers to guide investments for adaptation in the agriculture sector and mitigation in the forestry sector. The results of the assessment will develop policy options to address climate change and will be presented to the political authorities for integration in the development of national budgets and in other national planning activities” Mr. Gousmane Moussa, National Project Focal Point, Niger.*

The I&FF assessment covered the time period 2005-2030, using a baseline scenario and a reference scenario. Values are given in constant 2005 US\$ (US\$ 1 = 527.5 CFA). The assessment looks at the changes in I&FF needed for three different groups: households (families, individual farmers), corporations (private and NGOs), and the government.

### **For the forestry sector (mitigation of greenhouse gas emissions)**

The team of national experts has determined that US\$ 2.17 billion is needed to reduce emissions of greenhouse gases in the forestry sector through priority actions of reforestation (US\$ 266 million) and the substitution of fuelwood as an energy source (US\$ 1.9 billion):

Five measures have been proposed to increase carbon sequestration through restoring degraded land, afforestation and reforestation:

- Natural regeneration (US\$ 3.5 million);
- Forest management (US\$ 20.1 million);
- Reforestation (US\$ 76.5 million);
- Plantations (US\$ 70.8 million); and
- Dune fixation (US\$ 95.4 million).

Measures to substitute fuelwood with other energy sources include:

- Photovoltaic (US\$ 1493.4 million);
- Solar thermal (US\$ 171.1 million); and
- Energy conservation (US\$ 238.3 million).

### **For the agriculture / livestock sector (adaptation to the impacts of climate change)**

US\$ 374 million is needed to adapt to the effects of climate change in the agriculture/livestock sector through the implementation of four main measures:

- Improving rainfed crop production (US\$ 120 million);
- Promotion of irrigated crops (US\$ 181.1 million);
- Improving the production of extensive livestock (US\$ 51.6 million); and
- Promotion of intensive farming (US\$ 21.1 million).

## EVALUATION OF POLICY IMPLICATIONS FROM THE I&FF ASSESSMENT

### For the forestry sector (mitigation of greenhouse gas emissions)

- For carbon *sequestration*, **corporations** are the most important entity regarding investments. Funding comes largely from foreign sources for land recovery measures such as plantations, fixation of dunes, and reforestation. NGOs also fund projects to benefit communities while also meeting goals to increase carbon sinks that are outlined in the National Adaptation Programme of Action, the Programme for Action in the Mid-term and the Rural Development Strategy.
- Households** increasingly contribute in a modest manner to natural regeneration efforts, which increase the forested area and therefore enhance the carbon sink of the country. To fully achieve regeneration objectives, however, it will be necessary to finance projects identified in the Second National Communication and the Programme of Action for the Medium Term through financing sources such as REDD (Reducing Emissions from Deforestation and Degradation), the Global Environment Facility, the Adaptation Fund, public aid, and other development agencies.
- From the **government** perspective, it will be important to increase funding for the environmental component of the “Special Program of the President of the Republic” in which Niger participates, which is an initiative under the fund for Heavily Indebted Poor Countries (HIPC). Achievement of these objectives will also require more consistent funding by bilateral and multilateral partners.
- For the *substitution* of fuelwood with other energy sources, households are the most important entities to alleviate pressure on forests. The National Strategy on Renewable Energy recommends raising the share of solar photovoltaic energy to 10% by 2030. Niger also participates in the PRASE programme (Regional Program of Access to basic energy services) that contributes to the achievement of these objectives.

### For the agriculture/livestock sector (adaptation to the impacts of climate change)

- The assessment focused on adaptation measures for food security and to deal with climatic irregularities that affect the agriculture sector, which is the main contributor to national wealth and the prime provider of the country's

## SUMMARY TABLES OF INCREMENTAL INVESTMENT COSTS

Table 1: Cumulative discounted IF and FF for all investments in each sector, by investment entity and funding source.  
Incremental cumulative (2005-2030) discounted sectoral investments (million 2005 US\$).

Investment category	Funding source		Mitigation		Adaptation			
			Sequestration	Substitution	Improve rainfed crop production	Promote irrigated crops	Improve livestock production	Promote intensive farming
			ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF
Households	Total		32.28	1,388.15	65.57	55.53	12.06	4.84
Corporations	National	Total	-	299.34	47.71	39.70	7.58	3.54
	Foreign	ODA	-	84.44	0.00	-	-	-
	Total		124.31	383.78	47.71	39.70	7.58	3.54
Gouvernement	National	National Budget	-	126.92	81.40	106.70	24.50	12.74
	Foreign	Loan	-	4.22	-	-	-	-
		Bilateral ODA	-	0.99	10.10	100.40	21.56	0.00
		Multilateral ODA	-	0.73	-47.93	-147.89	-9.86	0.00
		Total foreign source	-	5.94	-37.83	-47.49	11.70	12.74
	Total		109.70	132.86	43.57	59.22	36.20	12.74
Total			266.29	1,904.79	120.04	181.12	51.60	21.14

IF = Investment Flows, FF = Financial Flows

ΔI&FF = incremental changes of Investment and Financial Flows

Source: National I&FF assessment

workforce. For this purpose, under the leadership of the government, technical and financial partners and other institutions must engage in the implementation of adaptation measures and encourage households and corporations to be part of the solution through interventions such as “cash for work” and the cancellation of taxes for reinvestment.

- Additionally, there are partners who contribute to building the capacity of the private sector, NGOs, Decentralized Territorial Communities, and community organizations to increase their accountability and functionality with the aim to manage financial resources in a more effective way to buffer droughts and to reach food security.

**Table 2: Annual IF, FF and O&M for All Investments in Each Sector.**  
Incremental Annual Sectoral Investments (million 2005US\$)

Year	Mitigation		Adaptation			
	Sequestration	Substitution	Improve rainfed crop production	Promote irrigated crops	Improve livestock production	Promote intensive farming
	ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF	ΔI&FF
2005	0.00	0.00	0.00	0.00	0.00	0.00
2006	16.88	15.59	-14.38	-7.69	0.24	1.91
2007	16.58	13.05	-8.84	-7.11	-0.03	1.75
2008	15.78	14.61	-7.78	1.51	0.77	1.61
2009	15.34	15.17	-8.67	0.86	0.53	1.48
2010	14.62	16.25	-4.31	3.61	1.26	1.36
2011	14.12	18.67	-0.35	3.06	2.51	2.04
2012	13.44	74.73	4.33	4.06	2.11	1.23
2013	12.92	28.98	1.67	18.43	1.74	0.96
2014	12.31	77.11	2.62	15.91	0.95	0.88
2015	11.79	38.77	3.53	14.87	1.37	0.82
2016	11.23	41.79	4.64	14.25	1.46	0.76
2017	10.74	44.58	4.78	13.60	1.54	0.70
2018	10.21	47.25	5.60	12.93	1.64	0.65
2019	9.75	50.45	6.42	12.24	1.74	0.60
2020	9.28	52.96	7.24	11.52	1.86	0.56
2021	8.83	58.42	8.07	10.78	2.00	0.52
2022	8.40	99.07	8.93	10.01	2.15	0.48
2023	8.18	76.14	9.80	9.21	2.33	0.45
2024	7.61	116.42	10.71	8.38	2.53	0.42
2025	7.23	103.33	11.66	7.51	4.84	0.39
2026	6.86	121.38	12.66	6.61	2.93	0.36
2027	6.52	143.85	13.70	5.67	3.23	0.34
2028	6.20	170.67	14.81	4.69	3.57	0.31
2029	5.89	208.13	15.98	3.65	3.95	0.29
2030	5.58	257.42	17.22	2.56	4.38	0.27
<b>Total</b>	<b>266.29</b>	<b>1,904.79</b>	<b>120.04</b>	<b>181.12</b>	<b>51.60</b>	<b>21.14</b>

IF = Investment Flows, FF = Financial Flows  
ΔI&FF = incremental changes of Investment and Financial Flows  
Source: National I&FF assessment



**Knowledge Platform**  
The project website [www.undpcc.org](http://www.undpcc.org) contains information on activities in Niger, the I&FF methodology, and many other resources in French, English, Spanish and Russian.

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More information on activities in Niger

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