

## 10.0 Mali

BMZ	German Federal Ministry for Economic Cooperation and Development
DFID	Department for International Development (UK)
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GTZ	German Technical Assistance Agency
IDRC	International Development Research Centre
IUCN	International Union for Conservation of Nature
LDCF	Least Developed Countries Fund
MEATEU	Ministry of Public Infrastructure, Territorial Planning, Environment and Urbanization (Ministère de l'Équipement, de l'Aménagement du Territoire, de l'Environnement et de l'Urbanisme)
MET	Ministry of Public Infrastructures and of Transport (Ministère de l'Équipement et des Transports)
MFC	Mali-Folkecenter Nyetaa
NAPA	National Adaptation Programme of Action
NGO	non-governmental organization
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

### A. Adaptation Needs and Priorities

The landlocked Republic of Mali is among the largest countries in the world. Most of the country lies in the southern part of the Sahara Desert and receives only a limited amount of annual precipitation. Similar to other least developed countries, Mali has a low capacity to adapt the impacts of climate change due to its weak socio-economic conditions. The country already experiences a number of climate-related risks, including droughts, floods, storms and high temperature variability. Many rural areas of Mali already experience severe droughts and irregular rainfall (MET, 2007) that are causing diminished agricultural production. This impact represents a priority threat to food security and Mali's economy given that agriculture represents half of the country's GDP (LDCF, 2008).

Drought and irregular rainfall are expected to become a greater threat in the future due to climate change. Average temperature in Mali is expected to rise by between 2.71 and 4.51°C by 2025; rainfall could decrease by 8 to 10 per cent by 2025 (MEATEU, 2000); and there is projected to be an increase in inter- and intra-annual variability (MET, 2007). The Sudano-Sahelian zone of south-central Mali is very likely to be the region most affected by climate change (LDCF, 2008). Several scientific assessments undertaken in five representative rural areas (Bougouni, Dioila, Sélingué, Koutiala and Sikasso) concluded that climate change is likely to cause significant losses in crop production, including cotton, millet, sorghum and rice, by 2025 (MEATEU, 2000; MET, 2007).

Given these projections, Mali has identified the following sectors as being priorities for adaptation action: agriculture, natural resources, energy and health (MET, 2007). Priorities in these sectors include:

1) *Agriculture sector priorities:*

- Develop cereal crops that better resist to droughts;
- Adopt a new crop system;
- Crop diversification;
- Establishment of hydro-agriculture infrastructures;
- Potable water sources management; and
- Improvement of food alert systems.

2) *Natural resources sector priorities:*

- Awareness raising;
- Domestic and industrial used-water recycling;
- Water protection from pollution; and
- Reinforcement of sub regional cooperation for cross-border water management.

3) *Energy sector priorities:*

- Promotion of energy efficiency and renewable energies;
- Promotion of substitutive products to ligneous combustibles;
- Establishment of hydroelectricity sites; and
- Improvement of forest resources management practices.

4) *Health sector priorities:*

- Implementation of a preventive and responsive system for climate-related illnesses;
- Elaboration of an alert-system plan for extreme weather conditions; and
- Training and awareness-raising on negative climate change impacts on the population.

## B. National Level Policies and Strategic Documents

Mali completed its Initial National Communication on Climate Change in 2000 and its National Adaptation Programme of Action (NAPA) in 2007. It has also initiated outreach and communication efforts to raise awareness within the country of the need to adapt to the impacts of climate change.

**Table 1: Key Government Policies and Reports reflecting Adaptation Needs, Priorities and Planned Actions**

Name of Policy Action	Government Division Responsible	Status	Summary description
1. Environmental information, education and communication program (as part of the environmental plan of action) (MET, 2007)	Government of Mali	Adopted (year unknown)	This program involves training programs in order to assess climate change impacts as well as information and awareness raising activities. Support to NGO, press and organizations for the diffusion of information on climate change are part of this program.
2. National Communication on Climate Change	Ministry of Public Infrastructure, Territorial Planning, Environment and Urbanization (Ministère de l'Équipement, de l'Aménagement du Territoire, de l'Environnement et de l'Urbanisme)	Released in 2000	This document describes the steps Mali is taking and envisages undertaking to implement the UNFCCC. It underlines key vulnerabilities (agriculture/food security, water resources, public health, fisheries, land resources and biodiversity) as well as potential adaptation measures.
3. National Adaptation Program of Action on Climate Change	Ministry of Public Infrastructures and of Transport (Ministère de l'Équipement et des Transports)	Released in 2007	The NAPA identifies national and regional climate change impacts and climate change adaptation measures to address those impacts. A total of 19 priority interventions have been identified.

## C. Current Adaptation Action

Mali is among the most active countries in West Africa with respect to the implementation of adaptation projects and programs, particularly through bilateral and NGO-supported initiatives. Notably, the country has received funding for two projects through the Least Developed Countries Fund (LDCF). Current initiatives cover adaptation needs related agriculture and freshwater resources in particular, as well as energy, forestry, civil society, disaster risk management, ecosystem conservation and governance.

**Table 2: Current Adaptation Actions in Mali**

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
<b>National Action</b>							
1. Sustainable Management of Bougouni Forest Ecosystems <sup>183</sup>	The objective is to improve forest workers' role in the adaptation to climate change and improve ecosystem management so that the ecosystems can supply sustainable goods and services.	Unknown	MFC/ Local elected representatives	Capacity building; Knowledge communication	Unknown	Forestry	Garalo, Yinindougou, Sebirila, Koloni, Gouna, Doussoudiana, et Koussan
2. Awareness Raising of Elected Community Representatives' on Climate Change Adaptation <sup>184</sup>	The objective is to raise awareness of elected representatives and rural populations on climate change impacts in order to encourage adaptation consideration in local development plans.	Unknown	MFC/ Christian Aid	Knowledge communication	Unknown	Government	Rural regions
3. Reinforcement of Decision Makers' and Civil Society's Capacities on Climate Change <sup>185</sup>	The objective is to facilitate the integration of climate change considerations such as adaptation in national policies and development strategies	Embassy of Denmark	MFC/ Environment department	Capacity building; Policy formation and integration	Unknown	Government; Civil society	National
4. Increase Population Resilience to climate Change Impacts through Access to Clean Energy Services <sup>186</sup>	The objective is to install clean energy services to diversify economic activities and increase populations' capacities to adapt to climate change	Unknown	MFC/ Christian Aid	Field implementation	Unknown	Energy	Sikasso, Koulikoro, and Kayes regions
5. Climate Adaptation from the Bottom-up <sup>187</sup>	Collaboration between Malian communities and scientific organizations to identify and implement responsive water management actions in order to adapt to climate change	Unknown	UNEP	knowledge communication; Field implementation	Unknown	Freshwater supply	National

<sup>183</sup> MFC, [www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf](http://www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf)

<sup>184</sup> MFC, [www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf](http://www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf)

<sup>185</sup> MFC, [www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf](http://www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf)

<sup>186</sup> [www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf](http://www.malifolkecenter.org/.../Activites%20MFC%20CC.pdf)

<sup>187</sup> <http://www.acccaproject.org/evolution/modules/knowledgebox/external2/view.php?id=290&kbid=5>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
6. Sustainable Livelihoods Development in the Niger River Basin based on the Experience of the Inner Niger Delta, Mali <sup>188</sup>	The objective is to contribute to the implementation of major policies in the Niger River Basin, including the Sustainable Development Action Plan and Investment Plan, Integrated Water Resource Management Action Plans and NAPAs, by making available strategic orientations and tools for sustainable development based on the experience of the Inner Niger Delta.	Wetlands International	Unknown	Policy formation and integration; Field implementation	2009 – 2010	Watershed management	Niger River Basin
7. Scaling up the Climate Change Adaptation Activities of the FAO and UNDP <sup>189</sup>	To introduce new agricultural techniques that will enhance communities' resilience to climate change and improve agricultural production.	Government of the United States	Unknown	Capacity building	2010 – ?	Agriculture	Gao, Mopti, Ségou, and Timbuktu
8. Improving Mali's Water Management Systems <sup>190</sup>	To include irrigated rice production by building or restoring perimeters on the fields and promoting the use of appropriate technologies, such as new seed varieties.	Government of the United States	Unknown	Capacity building	2010 – ?	Freshwater supply; Agriculture	National
9. Controlling Erosion <sup>191</sup>	To protect farmland from degradation, which will enhance climate resilience by increasing water availability and improving crop production.	Government of the United States	Unknown	Capacity building	2010 – ?	Agriculture	Mopti region
10. Soil and Water Conservation Measures <sup>192</sup>	To introduce high-yield and short-cycle millet and sorghum varieties to maintain soil moisture longer and to assist with field management.	Government of the United States	Unknown	Capacity building	2010 – ?	Agriculture; Freshwater supply	National
11. Enhancing Adaptive Capacity and Resilience to Climate	The objective is to enhance adaptive capacities of vulnerable rural populations to	LCDF; co-financing	UNDP; Ministère de	Capacity building;	2010 – 2014	Agriculture	National

<sup>188</sup> <http://www.wetlands.org/Whatwedo/Ourfieldprojects/Projectarchive/tabid/59/mod/601/articleType/ArticleView/articleId/2446/Default.aspx> .

<sup>189</sup> USDS, <http://www.state.gov/documents/organization/164588.pdf>

<sup>190</sup> USDS, <http://www.state.gov/documents/organization/164588.pdf>

<sup>191</sup> USDS, <http://www.state.gov/documents/organization/164588.pdf>

<sup>192</sup> USDS, <http://www.state.gov/documents/organization/164588.pdf>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
Change in the Agriculture Sector in Mali <sup>193</sup>	<p>the additional risks posed by climate change on agricultural production and food security in Mali and to achieve eight priority projects indicated in Mali's NAPA:</p> <ul style="list-style-type: none"> <li>• Strengthening the resilience of local grain production systems to climate change through the dissemination of seeds adapted to changing climatic conditions;</li> <li>• Diversification of revenue sources in rural communities as a mean to enhance food security of vulnerable households;</li> <li>• Extending hydro-agro-meteorological services to crop and livestock farmers;</li> <li>• Implementation of multi-use water management plans (watering, irrigation, mobilization of non-conventional waters, etc.);</li> <li>• Restoring soil fertility through climate-resilient techniques;</li> <li>• Improving water retention capacities through improved run-off water catchments; and</li> <li>• Development of an adaptation training package for rural communities.</li> </ul>	Budget: US\$10,275,000	l'Agriculture, de l'Elevage et de la Pêche	Community based adaptation; Field implementation			
12. Integrating Climate Resilience into Agriculture Production for Food Security in Rural Areas of Mali <sup>194</sup>	The objective is to increase resilience of the agricultural sector and livelihoods to climate variability and change in Mali in order to adapt to climate change	LCDF; co-financing  Budget: US\$6.6 million	FAO; Ministry of Agriculture	Capacity building; Field implementation	2011 – 2015	Agriculture	National

<sup>193</sup> <http://www.gefonline.org/projectDetailsSQL.cfm?projID=3776>

<sup>194</sup> <http://www.gefonline.org/projectDetailsSQL.cfm?projID=3979>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)	
<b>Participation in Regional and Global Projects</b>								
13.	Climate Proofing Energy Systems: Vulnerability-Adaptation-Resilience <sup>195</sup>	The objective is to develop a methodology and indicators in order to evaluate the vulnerability of energy systems to climate change and to adapt to climate change	France; GIZ; BMZ; IUCN; and La Francophonie	HELIO International	Research; Assessment	2007 - 2009	Energy	Regional: Benin; Burkina Faso; Cameroon; DRC; Kenya; Mali; Nigeria; Senegal; Tanzania; Uganda
		<p><i>In Mali:</i> The study indicates that, for Mali, hydroelectricity from national or regional schemes is currently the least costly way forward for energy production. This development would be accompanied by an increase in capacities for generating, transmitting and distributing energy.</p> <p>A program based on hydroelectric schemes presents a severe risk given the changes in climate that could occur, notably in terms of reduced rainfalls over relatively short or longer periods, and the ensuing low water levels in rivers.<sup>196</sup></p>						
14.	Advancing Capacity for Climate Change Adaptation (ACCCA) <sup>197</sup>	The rationale for this project is that countries lack scientific knowledge and understanding of climate risks, and that this is an impediment to addressing climate variability. Activities include the following: identify and prioritize climate risks; assess available knowledge about risks and adaptation opportunities; develop, test, and disseminate risk communication materials that are designed to assist adaptation decisions; and identify critical knowledge gaps that impede effective	IDRC; DEFRA; Swiss Federal Office for the Environment; NCAP; European Commission	UNITAR	Assessment; Capacity building; Policy formation and integration	2007 – 2010	Multi-sectoral	Global: 17 countries in Asia and Africa <sup>198</sup> including Burkina Faso, Ghana, Mali, Niger and Nigeria
		<i>In Mali : Not available</i>						

<sup>195</sup> <http://www.helio-international.org/projects/VAR09.cfm>.

<sup>196</sup> <http://www.helio-international.org/VARMali.En.pdf>

<sup>197</sup> ACCCA, <http://www.acccaproject.org/accca/>

<sup>198</sup> *African countries include:* Burkina Faso, Cameroon, Ethiopia, Ghana, Kenya, Malawi, Mali, Niger, Nigeria, Tanzania, Tunisia and South Africa. *Asian countries include:* Bangladesh, India, Mongolia, Nepal and the Philippines.

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	adaptation decisions.						
15. Interdisciplinary and Participative Research on Interactions between Ecosystems, Climate and Societies in West Africa <sup>199</sup>	The project will identify the relations between ecosystem vulnerabilities and human populations in order to scientifically support political responses to climate change.	France's Foreign Affairs Ministry	Agence inter établissements de la recherche pour le développement (Inter-institutional Research Agency for Development)	Research	2007 – 2011	Ecosystem conservation	<i>Regional:</i> Benin, Burkina Faso, Cameroon, Cape Verde, CAR, Chad, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Nigeria, Senegal, Togo
<i>In Mali : Not available</i>							
16. Resilience and the African Smallholder: Enhancing the capacities of communities to adapt to climate change <sup>200</sup>	This project aims to enhance the ability of households, communities and relevant institutions to respond to changing circumstances with a view to reducing future threats to food security and environmental integrity. It will do so by working with farmers to identify improved farming technologies, and translating the results into action plans at the appropriate institutional level whether local or national. Promote adaptation among vulnerable populations through developing comprehensive systems for assessing global changes and the changes of these impacts	DFID and IDRC through the CCAA program  Budget: CND 1,319,800	University of Zimbabwe; International Food Policy Research Institute	Community based adaptation; Policy formation and integration	2007 – 2011	Agriculture	<i>African:</i> Ghana, Mali, Mozambique, Tanzania, Uganda, Zambia, Zimbabwe
<i>In Mali : Not available</i>							

<sup>199</sup> <http://www.aird.fr/ripiecsa/index.htm>.

<sup>200</sup> IDRC, [http://web.idrc.ca/en/ev-118881-201\\_104140-1-IDRC\\_ADM\\_INFO.html](http://web.idrc.ca/en/ev-118881-201_104140-1-IDRC_ADM_INFO.html)



Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	across disaggregated systems, groups, and factors influencing initial state of vulnerability. Provide regional organizations, policy-makers and farmers in sub-Saharan Africa with tools to identify and implement appropriate adaptation strategies.						
17.	Supporting the Vulnerable: Increasing the adaptive capacity of agro-pastoralists to climate change in West and Southern Africa using a transdisciplinary research approach <sup>201</sup>	BMZ	International Livestock Research Institute	Research; Community based adaptation	2008 – 2011	Agriculture; Pastoralism	African: Mali, Mozambique
		<i>In Mali : Not available</i>					
18.	Support Fund for Local Adaptation Strategies <sup>202</sup>	DFID and IDRC through the CCAA program	Innovations, Environnement Développement Afrique	Capacity building	2009 – 2011	Civil society	Regional: Burkina Faso, Mali, Senegal
		<i>In Mali : Not available</i>					
19.	Groundwater in sub-Saharan Africa: Implications for food security and livelihoods <sup>203</sup>	Alliance for a Green Revolution in	International Water Management	Research; Policy formation and	2009 – 2011	Freshwater supply	African: Burkina Faso, Ethiopia,

<sup>201</sup> CIGAR, <http://ongoing-research.cgiar.org/factsheets/supporting-the-vulnerable-increasing-the-adaptive-capacity-of-agro-pastoralists-to-climatic-change-in-west-and-southern-africa-using-a-transdisciplinary-research-approach-2/>

<sup>202</sup> [http://www.idrc.ca/en/ev-118878-201\\_105518-1-IDRC\\_ADM\\_INFO.html](http://www.idrc.ca/en/ev-118878-201_105518-1-IDRC_ADM_INFO.html)

<sup>203</sup> IWMI, <http://gw-africa.iwmi.org/>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	targeted by AGRA. The specific objectives include: assessing groundwater availability and sustainability, including the impacts associated with its use and role in adapting to climate change; identifying opportunities and constraints in using groundwater, and provide advice to investors in groundwater interventions; and developing a groundwater strategy for the region.	Africa (AGRA)	Institute	integration			Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Tanzania, Uganda, Zambia
<i>In Mali: unknown</i>							
20.	Evolution of Protected Area systems with regard to climatic, institutional, social, and economic conditions in the West Africa Region <sup>204</sup> (also known as <i>Climate Proofing Protected Areas in West Africa</i> )	GEF; co-financing  Budget: approx. US\$14.0 million	UNEP World Conservation Monitoring Centre	Capacity building	2009 – 2015	Biodiversity; Ecosystem conservation	<i>Regional:</i> Chad, The Gambia, Mali, Sierra Leone, and Togo <i>Plus:</i> Burkina Faso, Côte d'Ivoire and Ghana
<i>In Mali: unknown</i>							
21.	Water Supply, Sanitation, and Hygiene Infrastructure Program <sup>205</sup>	USAID	Unknown	Field implementation	[2010 - ?]	Freshwater supply	<i>Regional:</i> Burkina Faso, Ghana, Mali and Niger
<i>In Mali: unknown</i>							

<sup>204</sup> [http://www.unep-wcmc.org/protected\\_areas/cppawa.htm](http://www.unep-wcmc.org/protected_areas/cppawa.htm)

<sup>205</sup> <http://www.state.gov/documents/organization/151601.pdf>

Name		Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
22.	West African Science Service on Climate and Adapted Land Use <sup>206</sup>	The project aims at generating knowledge and developing analytical capabilities in West Africa to cope with climate change by the design of resilient land-use systems and the development of measures to conserve or restore healthy ecosystems that allow sustainable development. It relies upon cooperation between the West African research community and the expertise existing in Germany on climate change and adapted land management.	German Federal Ministry of Education and Research	University of Bonn	Research	2010 – 2011	Agriculture; Ecosystem conservation	<i>Regional:</i> Benin, Burkina Faso, Cote d'Ivoire, Gambia, Ghana, Mali, Niger, Nigeria, Senegal and Togo
			<i>In Mali:</i> unknown					
23.	Great Green Wall <sup>207</sup>	The project will address desertification and food security through the creation of a biological corridor along participating countries. The goal is to increase investment in appropriate sustainable land and water management and technologies. In addition the project seeks to encourage cooperation within and among participating countries and for countries to incorporate evidence-based policy development. The program's goals are to: "expand investment in sustainable land and water management technologies in order to help communities adapt production systems to climate variability and change; improve land use planning; and improve climate and water monitoring network improvements, institutional cooperation within and across countries, and evidence-based policy development." <sup>208</sup>	LDCF; SCCF; World Bank; AfDB  Budget: US\$3.108 billion		Capacity building; Research; Policy formation and integration	2011 – ?	Agriculture; Ecosystem restoration	<i>African:</i> Benin, Burkina Faso, Chad, Djibouti, Eritrea, Ethiopia, Ghana, Mali, Mauritania, Niger, Nigeria, Senegal Sudan and Togo
			<i>In Mali:</i> More information required					

<sup>206</sup> [http://www.lap.uni-bonn.de/research/research-projects/wascal?set\\_language=en](http://www.lap.uni-bonn.de/research/research-projects/wascal?set_language=en)

<sup>207</sup> GEF, <http://www.thegef.org/gef/node/4503>

<sup>208</sup> IISD, <http://climate-1.iisd.org/news/gef-council-approves-programme-that-includes-great-green-wall-initiative/>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
24. Global Climate Change Alliance <sup>209</sup>	The Global Climate Change Alliance seeks to deepen the policy dialogue between the European Union and developing countries on climate change; and to increase support to target countries to implement priority adaptation and mitigation measures, and integration climate change into their development strategies. The program's five priority areas for funding are: improving the knowledge base of developing countries to the effects of climate change; promoting disaster risk reduction; mainstreaming climate change into poverty reduction development strategies; reducing emissions from deforestation and degradation; and enhancing participation in the Clean Development Mechanism.	European Commission, Czech Republic, Sweden, 10th European Development Fund  Budget: € 140 million	National Governments	Policy formation and implementation; Knowledge communication	2008 – ongoing	Disaster risk management; Government	Global: 17 countries <sup>210</sup> and the Pacific region, including Mali and Senegal
<i>In Mali: More information required</i>							
25. Partners for Resilience <sup>211</sup>	To increase the resilience of citizens against natural disasters, climate change and the deterioration of ecosystems, through various intervention strategies: stimulating sustainable economic developments; strengthening the capacity of local organizations and local authorities, among other things by making a risk assessment, natural disaster risk management plans and warning systems; advocacy and stimulation of knowledge sharing between governments, civil society, knowledge institutes and the	Netherlands  Budget: EUR 40m total	Dutch Red Cross, Red Cross Climate Centre, CARE, Cordaid, Wetlands International	Capacity building; Knowledge communication	2011 – 2015	Disaster risk management	Global: Ethiopia, Guatemala, India, Indonesia, Kenya, Mali, Nicaragua, the Philippines, Uganda
<i>In Mali: More information required</i>							

<sup>209</sup> GCCA, [http://www.gcca.eu/pages/1\\_2-Home.html](http://www.gcca.eu/pages/1_2-Home.html)

<sup>210</sup> These countries are; Bangladesh, Belize, Cambodia, Ethiopia, Guyana, Jamaica, Maldives, Mali, Mozambique, Mauritius, Nepal, Rwanda, Senegal, Seychelles, Solomon Islands, Tanzania and Vanuatu.

<sup>211</sup> Red Cross, <http://www.climatecentre.org/site/partners-for-resilience>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	private sector in the field of natural disaster reduction and climate adaptation.						

#### D. Proposed Adaptation Action

Through its NAPA, Mali identified 19 planned projects. The bulk of these projects aimed to address particular concerns related to agriculture (particularly food production), but also target water resources, the provision of meteorological information, energy, forestry, communication and health. Some of the objectives of Mali's NAPA projects that aim to improve food security and increase agricultural production systems' resilience are targeted by the LDCF supported projects "Enhancing adaptive capacity and resilience to climate change in the agriculture sector in Mali" and "Integrating climate resilience into agriculture production for food security in rural areas of Mali" (see Table 2).

**Table 3: Priority projects identified in Mali's NAPA (MET, 2007)**

Name	Objectives	Project type	Priority Sector(s)	Geographic focus (if any)
1. Agricultural extension of improved food crop varieties adapted to climate change	To improve the living conditions of the populations	Capacity building	Agriculture	Regions of Sikasso, Ségou, Koulikoro, Kayes Mopti
2. Agricultural extension of animal and plant species with the highest adaptation potential to climate change	To increase pastoral and forestry production and productivity	Capacity building	Agriculture	Sikasso, Ségou, Mopti, Kayes, Koulikoro, Timbouctou
3. Promotion of income-generating activities and development of mutual assistance	To create jobs for women and young persons and to reinforce their financial capacities.	Capacity building		Timbouctou, Gao, Kidal, Mopti, Ségou, Koulikoro, Kayes, Sikasso
4. Income diversification	To contribute to the fight against poverty through income sources diversification in the agriculture and fishing sectors	Capacity building	Fisheries; Agriculture	Kayes, Koulikoro, Sikasso, Ségou, Mopti, Timbouctou, Gao, Kidal et le District de Bamako
5. Promotion of cereal banks	To reinforce cereal banks' capacities in Mali in order to ensure permanent access to food	Capacity building	Agriculture	National
6. Use of meteorological information to improve agricultural production and contribute to food security	To provide rural populations with advices and meteorological information as well as technical support in order to enable them to	Capacity building	Agriculture; Climate information services	National

Name	Objectives	Project type	Priority Sector(s)	Geographic focus (if any)
	better plan their agricultural activities and to increase agricultural production.			
7.	Development of underground water systems in Sikasso, Kadiol, Bougouni and Kangaba to promote irrigated crops	Field implementation	Freshwater supply; Agriculture	Region of Koulikoro and Sikasso
8.	Establishment of wells equipped with solar pumps or in wind turbines	Field implementation	Freshwater supply; Agriculture	Regions of Kidal, Timbouctou, Gao
9.	Energetic valorization of Typha Australis	Field implementation	Energy; Agriculture; Forestry	Office zone of Niger
10.	Promotion of solar energy domestic application in Mali	Field implementation	Energy	National
11.	Runoff water stocking and creation of water wells	Field implementation	Freshwater supply; Agriculture	National
12.	Population's awareness-raising on local natural resources conservation	Knowledge communication	Ecosystem conservation	Region of Sikasso, Ségou, Koulikoro, Kayes, Mopti.
13.	Bushfires management	Capacity building; Field implementation	Fire management	Forests of Kayes, Koulikoro, Sikasso and Ségou
14.	Water and soil conservation and restoration actions	Capacity building	Forestry; Agriculture	Yorosso, Sikasso, Tominian
15.	Development of fodder crops	Capacity building	Agriculture	Inner Niger Delta
16.	Communication on climate change impacts	Knowledge communication		National
17.	Food banks promotion for livestock	Capacity building	Agriculture	National
18.	Promotion of jatropha oil	Capacity building	Agriculture	Kayes, Koulikoro, Sikasso et Ségou

Name		Objectives	Project type	Priority Sector(s)	Geographic focus (if any)
		new generating income activities			
19.	Creation of an information systems on climate-related illnesses	To develop an information system to understand and monitor climate-related illnesses and to establish early alert systems	Capacity building	Human health	National

### E. Assessment

The process of decentralization in Mali has resulted in responsibility for managing environmental issues, including climate change adaptation and mitigation, being transferred to municipalities. According to Mali’s National Communication (MEATEU, 2000), the decentralization process offers the opportunity to raise awareness of local population on climate change impacts and to make them more responsible with regards to environmental issues. It should also be an opportunity to establish an information canal on climate change impacts (MEATEU, 2000). Probably as a result of the decentralization process, some current adaptation national and regional projects in Mali aim to reinforce the institutional capacity of local entities and raise awareness of climate change issues, including adaptation. Several NAPA projects also suggest the undertaking of awareness-raising activities at a national level.

With regards to current projects that reinforce institutional capacities at the local level, the Mali-Folkecenter Nyetaa (MFC) is involved in all those projects as an implementing agency. This local NGO is also involved in two other projects focused on energy issues that aim to help local populations to better adapt to climate change. As a consequence, MFC is involved in about half of current actions in Mali.

The energy sector is targeted by several NAPA projects, each of which involve infrastructure building activities and also include significant climate mitigation benefits. The energy projects currently being implemented aim to improve the adaptive capacity of the population and enhance energy systems resilience. The energy projects proposed in Mali’s NAPA are quite rare in comparison to other West African countries, which focus on other sectors for adaptation actions.

The two LDCF projects “Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali” and “Integrating Climate Resilience into Agriculture Production for Food Security in Rural Areas of Mali” respond to the objectives of some NAPA proposed projects. The four projects being implemented with funding from the United States will also contribute to achieving the objectives of some Mali’s NAPA projects. For example, the objectives of the “Water and Soil Conservation Restoration Actions” project are very likely to be fulfilled by the “Soil and Water Conservation Measures” project supported by the United States. One important gap in current initiatives is that there are no projects aiming to address the health sector although the latter of which was identified as priority



sector for action in Mali's NAPA. Greater attention could also be given to forestry, watershed management and gender, the latter of which is not currently a significant component of any on-going adaptation projects in Mali.

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