



International donor activity on climate change mitigation and adaptation in the G5 Sahel countries

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Questions

- *What have international donors been doing to support climate change mitigation and adaptation programmes in Burkina Faso, Chad, Mali, Mauritania, and Niger?*
- *What lessons have been learned from these activities?*

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1. Summary

This review provides a snapshot of current adaptation and mitigation projects being implemented by multilateral and bilateral donors in the G5 countries of the Sahel. Although not a systematic review, the research for this review has methodically examined key multilateral donor websites and bilateral donor websites for information on each of the G5 countries and climate change programmes. The review has focused on programmes currently being implemented or that have completed in the last two years or so. Therefore, the review is not exhaustive; it has particularly focused on programmes that have impact evaluations and reviews in order to identify lessons learned. Its focus is limited to programmes that are explicitly related to climate adaptation or mitigation. Therefore, donor programmes that focus on for example natural resources management or food security, or that have identified climate co-benefits have not been included (for example, see Annex 11: screening the portfolio and pipeline for climate co-benefits in the World Bank's Country Partnership Framework for Mauritania (World Bank, 2018h)). Donor funding to assist with efforts such as developing United Nations Framework Convention on Climate Change (UNFCCC) submissions have also been omitted. There are several projects that are in the pipeline of multilateral institutions but not yet approved, which have also been omitted.

In general, there is a lack of in-depth information on many of the projects identified. It is also important to note that neither of the review authors can speak French, which has limited the reports and information that can be included in this review. For example, many of the assessment reports from the African Development Bank (AfDB) for projects in French-speaking G5 Sahel countries were only available in French and so were not included.

This review is organised into six sections, one for each of the G5 Sahel countries (Burkina Faso, Chad, Mali, Mauritania, and Niger) and another section for regional programmes (those that include two or more of the G5 Sahel countries). Each section has been further split into multilateral programmes and bilateral programmes, with projects organised alphabetically by implementing agency for multilateral programmes and by donor for bilateral programmes.

General findings from this review include:

- Across the countries, there are some similarities in the types of programmes being funded and the approaches being implemented. For example, projects supporting climate adaptation and resilience in the agricultural, forestry, and water sectors; projects to strengthen the collection, dissemination and use of hydro-meteorological information in agriculture; and, projects supporting the mainstreaming of climate change issues and adaptation into national and local government policies and plans. Common approaches across projects include Farmer Field Schools, piloting climate-smart agricultural practises, and capacity development at the local, regional and national levels.
- Projects and programmes implemented at the national level primarily target community-based adaptation, capacity building, and policy formation and integration, complemented by physical measures to reduce vulnerability to climate change. Regional programmes tend to focus more on improved access to climate information and data, including early-warning systems and strengthening the use of such information in decision-making processes, and management of shared natural resources.
- A number of projects aim to improve monitoring and evaluation and data collection. For example, an EU-funded project in Mali is supporting the forestry sector to develop a national monitoring system.

- The security and political situation conditions project implementation. For example, funding was suspended to a UNDP-Climate Change Adaptation Facility project in Mali due to political instability. In 2018, a World Bank project in Chad was rated as 'high-risk' due to the political and governance contexts.
- Some projects have suffered poor implementation due to factors including resources not being adequately allocated to the implementing agencies, partnership problems, and the security situation.
- The projects underway in Burkina Faso focus on a wide range of sectors, though the primary emphasis is on agriculture, climate information, and forestry. A number of projects and programmes are being implemented in the north, north-eastern, and north-central areas of Burkina Faso, specifically in the Boucle du Mouhoun region.
- In Mali, project activities seem to be clustered in the centre of the country around the Ségou region.
- In Mauritania, projects seem to focus on food security, agriculture and natural resources management. They also seem to be clustered around the southern and coastal areas.
- The Sahel Alliance (supported by UK and other donors) recently announced that EUR6 billion is being made available to G5 Sahel member countries for the implementation of over 500 projects between 2018 and 2022. They will be implemented rapidly, particularly in the most vulnerable areas, and aim to align with priorities of the G5 Sahel countries.
- There was a paucity of good quality evaluation data and quantitative data. There were some lessons learned captured in project proposals and appraisals for funding, but these were not always clear. Projects that did undertake some analysis of their results were often small pilots, such as those undertaken by CGIAR in Mali and Niger. This makes it difficult to extrapolate lessons learned.

Most of the lessons learned are derived from agriculture, pastoral and forestry focused projects. General lessons learned include:

- Women's roles and leadership is critical in tackling some of the biggest challenges facing the Sahel. Women are often excluded from land ownership, which can be a barrier to addressing women's vulnerability to climate change. Therefore, a greater focus on enhancing women's capabilities and rights is crucial.
- The importance of traditional systems for learning and capturing, and managing relevant knowledge, and of learning from local people. Involving communities in defining priorities for action (solutions) and not just defining their vulnerabilities (problems) to ensure a sense of ownership (for example the BRACED projects).
- Agricultural extension services, training and capacity development (including in non-farming related areas such as improving literacy) are important for increasing farmers' resilience to climate change and their adaptation capacity. Linking-up different development projects, so that farmers can access a combined range of services, could increase adaptation capacity.
- Evidence from previous projects in the Sahel shows that mobility is a major factor in the resilience of not only pastoral and agro-pastoral households, but also local host communities along their routes of passage.
- Success of sustainable land management interventions is more likely under an integrated approach, which combines investments in landscape management and income

generating activities, since the latter reduces pressure on natural resources and sustains sustainable land management practices in the long term.

- Importance of participatory planning processes. Using participatory mapping and analysis of vulnerabilities to ensure that the nature-based solutions implemented align with local community needs. For example, in Burkina Faso, village level participatory approach to monitoring and evaluation has empowered groups towards more equitable, collective decision-making.
- Mainstreaming risk factors and mitigation strategies at the early stage of project design is essential for success.
- Continuous technical support and monitoring are crucial for the creation of quality physical assets and their maintenance after project completion. Capacity building is also key.
- A greater engagement with governance and state institutions is needed to build sustainability of results. Specific identified needs include building local capacity to manage and co-ordinate donor support, building functional linkages between local and higher levels of government, and enhancing resource mobilisation.

2. Burkina Faso

Multilateral programmes

African Development Bank (AfDB)

Desert to Power Initiative – Yeleen Rural Electrification Project (Projet Yeleen D'electrification Rurale)

The Desert to Power Initiative programme is financed through the Bank's African Development Fund (ADF), in addition to co-financing from the Green Climate Fund (GCF), and the European Union (EU). The programme will also leverage private sector investments through equity and debt raised from commercial banks.

The Yeleen Rural Electrification project aims to increase electricity access in Burkina Faso, specifically in rural areas, by connecting 150,000 households to solar mini-grids (50,000 households) and through stand-alone solar kit systems (100,000 households) (AfDB, n.d.). The total installed capacity of the 100 mini-power plants supplying energy to the mini-grids is estimated at 22.6 MW. The project will help to avoid the emission of approximately 39,000 tonnes of CO₂eq per year, or 974,000 tonnes over the expected 25-year lifespan of the installations (AfDB, 2018c, p. 12).

The Yeleen Rural Electrification project takes into account aid co-ordination and that several bilateral and multilateral development partners are involved in the energy sector in Burkina Faso, including the Agence Francaise de developpement (AFD), World Bank, European Investment Bank (EIB), Islamic Development Bank (IsDB), West African Development Bank (BOAD), the EU and India. The project was designed taking into account previous AfDB group experience in the energy sector, and lessons learned from executing infrastructure projects in Burkina Faso and similar countries. Specifically, this project took into account the lesson pertaining to the need for an investment operation to ensure good quality data at entry. For this reason, the Bank provided support, through a SEFA grant, to recruit a consultancy firm to develop an enabling environment

for green mini networks, prepare documents for the recruitment of private developers, and conduct capacity-building workshops (AfDB, 2018c, p. 9).

Further documentation is only available in French and so is not included in this review.

Cashew Development Support Project in Comoé Basin for REDD+

This project is funded by the Forest Investment Programme (FIP)¹, one of the three programmes of the Strategic Climate Fund set up by the Climate Investment Funds (CIF). In 2010, Burkina Faso was one of the eight pilot beneficiaries of the FIP programme. Following a request for proposals in 2013, Burkina Faso, through the Wouol Farmers' Association, submitted the proposal for this project. The project is jointly financed by the FIP, ADF, Fund for African Private Sector Assistance (FAPA), the private sector, the Government and beneficiaries.²

Launched in October 2017, over a five-year period, the project focuses on three components: support for carbon production and sequestration, development of the cashew value chain, and project management. Ultimately, the project is intended to be a replicable model in any other country with tree plantations that could be included in the reduction of greenhouse gas (GHG) emissions from deforestation and forest degradation, and the maintenance and development of forests.

The project was designed taking into account previous AfDB group experience in the rural development sector and lessons learned that included (AfDB, 2017, p. 7):

- the efficient implementation of a forest management plan, and the self-sustenance of project structures sought ultimately must necessarily be long term (15 years and above);
- the involvement of decentralised services in project implementation through the participatory approach is an important pillar for sustainability of actions; and
- the adoption of transparent principles through the management tools of economic interest groups has fostered good governance in natural resource management structures.

Food and Agriculture Organisation (FAO)

Integrating Climate Resilience into Agricultural and Pastoral Production for Food Security in Vulnerable Rural Areas through the Farmers Field School Approach³

This project aims to enhance the capacity of Burkina Faso's agricultural and pastoral sectors to cope with climate change. This is by mainstreaming climate change adaptation practices and strategies into on-going agricultural development initiatives and agricultural policies and programming, and upscaling of farmers' adoption of climate adaptation technologies and practices through a network of Farmer Field Schools. It is funded through the Least Developed Countries Fund and runs from 2015 to 2019.

¹ FIP seeks to facilitate the reduction of deforestation and forest degradation and promote sustainable forest management, and thereby help to reduce greenhouse gas emissions, maintain the forest carbon stock and reduce poverty (REDD+).

² Information taken from <https://projectsportal.afdb.org/dataportal/VProject/show/P-BF-AAD-006> [retrieved 02/05/2019]

³ See <http://www.fao.org/gef/projects/detail/en/c/1056824/>

The project builds on many lessons learned, from other countries and from Burkina Faso, as well as from past experiences implementing similar projects. In particular, the FAO/GEF⁴ Project Document notes that lessons learned from similar projects in the past show that, whereas it is relatively straightforward to identify, in a participatory manner, the required investments needed to improve resource management, often the financial capacity, is not present and there is no way to make the actual investments. Hence, participatory planning processes lead to low-cost investment plans, but the necessary investments do not take place. This needs to be addressed and accounted for in project design (FAO/GEF, n.d., p. 85). The FAO/GEF Project Document also highlights the following general lessons learned (FAO/GEF, n.d., p. 24 – 27):

- The importance of a holistic livelihood programme (including within a Disaster Risk Management framework).
- The need to include planning based on natural resources and socio-economic settings.
- The importance of the quality of capacity building process.
- The importance of reinforcing the appropriate use of legal instruments by stakeholders and communities.
- The importance of traditional systems for learning and capturing, and managing relevant knowledge.

International Institute for Environment and Development (IIED), International Union for Conservation of Nature (IUCN) and UN Environment World Conservation Monitoring Centre (UNEP-WCMC)

Ecosystem-based approaches to adaptation: strengthening the evidence and informing policy

This project is implemented in Bangladesh, Burkina Faso, Chile, China, Costa Rica, El Salvador, Kenya, Nepal, Peru, Senegal, South Africa and Uganda by IIED. It is in partnership with IUCN and UNEP-WCMC, and in collaboration with local partners. Implemented between 2015 and 2019, it was funded by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).⁵

This project explores the evidence for the effectiveness of Ecosystem-based Adaptation (EbA) on the ground. It aims to show climate change policymakers when and why EbA is effective – the conditions under which it works, and the benefits, costs and limitations of natural systems, compared to options such as hard, infrastructural approaches – and promote the better integration of EbA principles into policy and planning. The project focuses on a portfolio of established EbA project sites (funded by IKI and others).

In Burkina Faso, IIED and IUCN collated evidence from the Ecosystems Protecting Infrastructure and Communities (EPIC) project piloted in northern Burkina Faso, which aimed to build community resilience by implementing nature-based solutions to disaster risk reduction and

⁴ Projects can be funded through the GEF Trust Fund, the Least Developed Countries Fund (LDCF) or the Capacity Building Initiative for Transparency.

⁵ Information taken from https://www.international-climate-initiative.com/en/nc/details/project/ecosystembased-approaches-to-adaptation-strengthening-the-evidence-and-informing-policy-15_II_116-441/?cookieName=search_results&source=single and <https://www.iied.org/ecosystem-based-approaches-climate-change-adaptation> [retrieved 07/05/2019]

climate change adaptation. Activities ran from 2013 to 2017 and were implemented in six villages in Yatenga and Lorum provinces, which were specifically targeted due to the high levels of vulnerability to climate change, food insecurity, and poverty experienced there. The project combined climate-smart agriculture and ecosystem-based approaches to restore the productivity of croplands and rangelands.⁶

In a project report, exploring the research findings and effectiveness of the Burkina Faso project, it is highlighted that the main lesson learned from the EPIC project was the importance of learning from local people and of participatory mapping and analysis of vulnerabilities to ensure that the nature-based solutions implemented align with local community needs. Involving communities in defining priorities for action (solutions) and not just defining their vulnerabilities (problems) ensured a sense of ownership and a strong commitment to implementation from all project stakeholders (Reid et al., 2018, p. 15).

Building on the research results from EPIC, IUCN Burkina Faso is working with National Council for Emergency Relief and Rehabilitation (CONASUR), and the National Council for the Environment and Sustainable Development (CONEDD) to mainstream EbA into national climate change strategies. For example, the latter organisation has started implementing a United Nations Development Programme-Global Environmental Finance (UNDP-GEF) funded project on EbA, which is benefitting from evidence derived from EPIC, particularly on how they can engage communities in EbA, which is their main issue.⁷

Participatory Natural Resource Management and Rural Development Project in the North, Centre-North and East Regions ('Projet Neer-Tamba')

This part GEF-funded project is running from 2012-2021 and aims to improve the living conditions and incomes of almost 200,000 rural households. These households are among the poorest in Burkina Faso, in the country's eastern, north central and northern regions, enabling them to increase their autonomy and expand their role in building economic and social sustainability. The project focuses on⁸:

- Strengthening resilience to climate change at the household, farm and village levels through sustainable land development;
- Intensifying small-scale farmers' production capacity through the dissemination of best practices and the promotion of financing and innovation, and
- Ensuring that poor rural women and men act as full partners in development activities, in order to achieve long-term economic independence.

This project built on IFAD's previous experiences and programmes in Burkina Faso, specifically the Community Investment Programme for Agricultural Fertility (PICOFA) and the Sustainable Rural Development Programme (PDRD). Using a scaling-up approach, the project is based on soil and water conservation (SWC) and soil defence and restoration (SDR) activities, which in earlier projects resulted in IFAD's most significant value added.

⁶ Information taken from <https://www.iied.org/eba-evidence-policy-burkina-faso> [retrieved 07/05/2019]

⁷ Information taken from <https://www.iied.org/eba-evidence-policy-burkina-faso> [retrieved 07/05/2019]

⁸ Information taken from https://www.ifad.org/en/web/operations/project/id/1580/country/burkina_faso [retrieved 01/05/2019]

No lessons learned were found on this project; however, a mid-term review was published in 2018 in French (so is not included in this review) which may provide insights.⁹

United Nations Development Programme (UNDP)

Adapting Natural Resource Dependent Livelihoods to Climate Induced Risks in Selected Landscapes in Burkina Faso: the Boucle du Mouhoun Forest Corridor and the Mare d'Oursi Wetlands Basin¹⁰

This project is funded by UNDP and GEF and is being implemented by UNDP between 2015 and 2021. The main aim of the project is to reduce the vulnerability of ecosystems and local communities to additional risks from the effects of climate change in the Boucle du Mouhoun forest corridor and wetland landscapes of the Mare d'Oursi basin in Burkina Faso. UNDP's Transparency Portal includes a number of documents about this project. However, this information is in French and a full review of this information was not possible during the course of this review.

UNDP-UNEP Poverty-Environment Initiative (PEI)

Burkina Faso is one of the UNPEI Scale-Up countries that started implementation of the PEI country programme in 2010. In order to promote sustainable development in the natural resource sector, the PEI country programme focuses on supporting the acceleration of productivity and growth, through the mainstreaming of poverty-environment objectives into the strategic planning processes and budgets.¹¹ PEI Burkina Faso is jointly led by the Ministry of Environment (MECV) and the Ministry of Economy and Finance (MEF). In addition, various sector ministries are involved in the project implementation. PEI Burkina Faso also partners with the Green Economy Initiative (GEI) and is closely collaborating with the UNDP Country Office as an implementing agency. A major achievement is that poverty-environment issues were fully integrated in Burkina Faso's national development plan (the SCADD) 2011-2015, the national policy for sustainable development, and accompanying legislation and local planning processes (e.g. Agenda 21 in the Po Region). In 2011, a budget line to support environment and natural resources management within the MEF was created, and budgeting and planning tools have been developed for the operationalisation of the SCADD.

World Bank

The World Bank undertakes various climate change projects in Burkina Faso, in addition to supporting national level actions. The World Bank's project portal includes a number of active climate change projects, with some available results to date (Table 1); however, many of the results documents are not yet publically available.

⁹ See <https://operations.ifad.org/documents/654016/a182a2d5-d401-4a78-9d1e-f16a037810f6>

¹⁰ For more information on the project, in French, see the project webpage <https://open.undp.org/projects/00079493> [retrieved 06/05/2019]

¹¹ Information taken from <https://www.unpei.org/what-we-do/pei-countries/burkina-faso> [retrieved 02/05/2019]

Table 1: World Bank projects in Burkina Faso

Project Name	Implementation dates	Objectives	Results
Africa Hydromet Programme – Strengthening Climate Resilience in Burkina Faso – funded by the GCF¹²	2018-2024	Improve the country’s hydro-meteorological, climate and early warning services, and improve access to such services by targeted sectors and communities. The project will work with national and regional counterparts to support: i) capacity building and institutional development; ii) improvement of hydromet and early warning infrastructures; and iii) enhancement of service delivery and early warnings to communities and sectors, with a specific focus on agriculture and civil protection. The project will contribute to a more nuanced picture of the food-water nexus and facilitate the development of integrated mechanisms to prepare for, cope with, adapt to and recover from extreme natural disasters and climate change (World Bank, 2018c).	Information not currently available
Livestock Sector Development Support Project¹³	2017-2022	Enhance productivity and commercialisation of non-pastoral animal production in selected chains, and strengthen the country’s capacity to respond to severe crises affecting the	Information not currently available

¹² See <http://projects.worldbank.org/P164078?lang=en> [retrieved 02/05/2019]

¹³ See <http://projects.worldbank.org/P159476?lang=en> [retrieved 02/05/2019]

livestock sector, and to provide immediate and effective response in the event of an Eligible Crisis or Emergency

<p>BF - Support to the National Biodigester Program¹⁴</p>	<p>2017-N/A</p>	<p>Increase use of biodigesters in rural households of Burkina Faso. The long-term objective of this project is to support Burkina Faso's efforts in mitigating climate change through the promotion of the biodigester technology to rural cattle-owning households, which, in addition, provides several benefits for the households, including better access to clean energy and slurry to improve soil fertility.</p>	<p>As of end of 2016, the verification process accounted the emission reduction related to the installation of about 4,700 biodigesters, and about 2,000 more are expected for 2017. While this is encouraging, this was under the expectations and could lead to a total production of Certified Emission Reductions (CERs) about 10% lower than expected over the project lifespan (World Bank, 2018e).</p>
<p>Local Forest Communities Support Project¹⁵</p>	<p>2015-2020</p>	<p>The objective is to strengthen the capacity of targeted local communities in the Targeted Regions of Burkina Faso to participate in REDD programmes at local, national and global levels. A key component is the development of managerial and technical capacities and skills of local communities. This component will support training in leadership development, conflict resolution and negotiation skills to ensure active participation in initiatives related to natural resource-</p>	<p>The Project continues to make sound progress and considerable implementation progress has been observed. Capacity-building initiatives including training for grassroots organisations and community support organisations as well as capacity building of the national platform of civil society organisations are being carried out as planned. After 2 years of effective implementation, the results already achieved are</p>

¹⁴ See <http://projects.worldbank.org/P156413?lang=en> [retrieved 02/05/2019]

¹⁵ See <http://projects.worldbank.org/P149434?lang=en> [retrieved 02/05/2019]

		based mitigation and adaptation to climate change. Another component is support for the development of economic and sustainable natural resource management activities.	encouraging (World Bank, 2018a).
FIP¹⁶ - Decentralised Forest And Woodland Management Project¹⁷	2014-2019	The project objective is to promote national development policies as well as to support the definition and implementation of community-based natural resource management processes in 32, mostly rural, communes in a way that strengthen sustainable local development practices and contributes to reducing GHG emissions from deforestation and woodland degradation.	As of June 2018, the project was about 24 months behind schedule but making good progress, and investments in the communes should start shortly. In 2015, Burkina Faso received a grant for USD3.8 million from the Forest Carbon Partnership Facility (FCPF) for REDD+ Readiness support. FCPF decided in March 2018 to allocate an additional envelope of USD3 million for REDD+ Readiness, which will be implemented in close coordination. Burkina Faso have decided to design an Emission Reduction Investment Programme building on REDD+ experiences (World Bank, 2018d).
Burkina Faso Electricity	2013-2021	The objectives of Electricity Sector Support Project (ESSP) for Burkina Faso are to: (i) increase access to electricity (ii) improve	The project became effective in February 2014 but project implementation has been significantly slower than

¹⁶ FIP resources supported two complementary projects that reinforce one another yet avoid duplication of effort: (1) World Bank funded Decentralized Forest and Woodland Management Project (PGDFEB); (2) the AfDB funded Participatory Management of State Forests Project (PGFC/REDD+) (see section above).

¹⁷ See <http://projects.worldbank.org/P143993?lang=en> [retrieved 02/05/2019]

Sector Support Project¹⁸

the reliability of electricity supply, and (iii) improve efficient use of energy in target areas.

expected due to a series of political events in 2014 and 2015. Since 2016, implementation progress and disbursements have improved. A second Additional Financing was approved in 2017. Progress so far includes: the contract for the PV plant in Fada (7.5MW) has been signed and works are ongoing; 40 communities have been electrified with about 9,700 people connected to the grid (World Bank, 2018f).

Lessons learned from World Bank programmes in Burkina Faso

The following insights are taken from the World Bank's country partnership framework for Burkina Faso for the period 2018-2023 (World Bank, 2018c).

A number of World Bank projects in Burkina Faso are being used to test multiple approaches to sustainable natural resource management on a large scale, with a focus on: (i) participatory land governance; (ii) land tenure security; (iii) improvement of integrated production systems; and (iv) reduction of forest and land degradation. The lessons learned from these projects are helping the government design a large investment programme to reach Burkina Faso's National Economic and Social Development Plan (*PNDES*) objectives of reducing GHG emissions by 8 million tons CO₂eq and restoring 25,000 ha of degraded land by 2020, while supporting the decentralisation process and improving land governance. The World Bank's pipeline Communal Climate Action and Landscape Management Project will aim to promote a green economy as a way to reduce both poverty and GHG emissions (World Bank, 2018c, p. 30).

In the appraisal document for the Local Forest Communities Support Project proposal, a number of lessons learned were highlighted from over 30 years of experience in participatory local forest management and capacity building (in awareness raising, production, sustainable land management, poverty reduction and project management and co-ordination) in Burkina Faso. Selected lessons that informed specific aspects of the proposed project and were integrated in the activities included (World Bank, 2015a, p. 9):

- *Securing land usage rights improves productivity:* Producers of non-timber forest products (NTFPs) in Burkina Faso often have limited rights to the land that they work on or use, diminishing their incentives to invest in the land. Women are especially exposed

¹⁸ See <http://projects.worldbank.org/P128768?lang=en> [retrieved 02/05/2019]

to this vulnerability. The acquisition of land titles for female producers in the Boucle de Mouhoun, a project financed by the Millennium Challenge Account of Burkina Faso (MCA), demonstrated that women receiving land titles significantly increased output of shea butter because they were able to benefit from reinvestments in their production areas and the production chain.

- *Improving awareness of markets and benefits for local communities:* Limitations of information and access to financing and markets have resulted in many local level producers receiving only minimal incomes from the production of NTFP, and small scale businesses without many chances to improve their livelihoods. The Market Development Approach (MDA) promoted by TreeAid in Burkina Faso has helped create greater awareness of markets and value chains, pricing, and exchanges of technical know-how among villagers. By increasing the regular supply of products (such as shea butter) through value chain linkages, and better understanding of pricing and diversifying production, local communities were able to improve their livelihoods through a market based approach.
- *Participatory Approach to Monitoring and Evaluation:* Experience in Burkina Faso with village level participatory approach to monitoring and evaluation has empowered groups towards more equitable, collective decision-making. The approach builds on a participatory process in development planning that allows communities to become capable of managing the development process on their own. This ability makes it possible for communities to independently sustain their development process, by adjusting different goals and objectives based on observations of progress on objectives over time.

World Food Programme (WFP)

The WFP supports a number of programmes in Burkina Faso, and has recently released its country strategic plan for 2019-2023, which aims to continue to respond to emergencies and strengthen social protection systems while reinforcing government capacities and ownership to promote long-term resilience (WFP, 2018a). In particular, WFP supports farmers' organisations to invest in crop production and gain access to quality markets. In six regions, WFP supports the creation of agricultural assets, including restoring degraded land.¹⁹

World Meteorological Organisation (WMO)

Burkina Faso: Strengthening National Capacities for Early Warning System Service Delivery

This project is being implemented by the CREWS Initiative (Climate Risk and Early Warning Systems Initiative) (implementing partners are the WMO, the World Bank, and the Global Facility for Disaster Reduction and Recovery (GFDRR)) between July 2017 and December 2020.

The focus of the project is on building the capacity of the National Meteorological Service and strengthening its co-operation with key sectoral ministries, departments and other stakeholders working in the above areas to put in place complete systems that deliver warnings and relevant information to end-users. This will be achieved through developing capabilities on data

¹⁹ There is some information on the WFP's country page for Burkina Faso <https://www1.wfp.org/countries/burkina-faso> [retrieved 01/05/2019]

management, observation network monitoring and control, implementation of analysis, monitoring and forecast tools for weather and climate early warning, as well as strengthening the interface with information users. Enhancement of these basic capabilities will be complemented with support for integration of early warnings into national processes. The project will draw on advanced technical expertise from co-operating institutions to ensure access to relevant data, products, tools, training and equipment.²⁰

In the most recent implementation assessment report (covering the period December 2017 – July 2018), the following lessons learned were identified (Migraine, 2018):

- A previous UNDP Programme on Climate Information for Resilient Development in Africa (CIRDA) project provided equipment without a proper maintenance plan nor a data management framework. Meteorological and hydrological data is currently collected (automatically and manually) through approximately five different networks, and not concentrated in a single server nor assimilated into any forecast.
- The institutional framework, data sharing practices and definition of warning are adequate for institutional collaboration in relation with anticipating impacts of drought and locust infestation; and still inadequate for warning in relation with rapid-onset events.

Bilateral programmes

Canada

Sustainable Energy and Economic Growth in the Boucle du Mouhoun Region

This project is financed by the government of Canada and is being implemented over four years 2017-2021 by Cowater International Inc. The project aims to increase inclusive and sustainable economic growth in Burkina Faso. It is active in the Boucle du Mouhoun region, with particular emphasis on the communes of Bana and Kona. The project carries out integrated interventions, with activities that include electrifying 14 localities from the national electricity grid, promoting certified solar lamps in rural areas, and equipping 30 remote health centres with solar energy systems. The project also contributes to building an enabling environment for electrification and related economic development through the improvement of local governance, the establishment of electricity management structures, as well as technical assistance to local authorities, and support to the Ministry of Energy. The expected outcomes for this project include: (1) increased income and number of job opportunities for women in the Boucle du Mouhoun region, and (2) the promotion of an environment conducive to electrification and gender-sensitive economic development.²¹

No results or lessons learned are available yet.

²⁰ Information taken from <https://www.crews-initiative.org/en/projects/burkina-faso-strengthening-national-capacities-early-warning-system-service-delivery> [retrieved 07/05/2019]

²¹ Information taken from <https://w05.international.gc.ca/projectbrowser-banqueprojets/project-projet/details/D003316001> [retrieved 07/05/2019]

Germany

Erosion control, soil fertility protection and recuperation of degraded surfaces, adaptation to climate change

Financed by the German government's Energy and Climate Fund and implemented by the German Agency for International Cooperation (GIZ) between 2013 and 2019. This project aims to increase the capacity to adapt to the impacts of climate change of the local population in south-western Burkina. The project focuses mainly on the local and regional levels. In south-western villages, the project targets women, men and children engaged in agriculture and livestock breeding. Other co-operation partners include municipalities, technical service providers, organisations, and research institutes that offer services and expertise for climate change adaptation. On behalf of the project, Agriculture and Finance Consultants are advising selected rural communities on how to reclaim infertile and eroded land for cultivation and how to prevent further erosion. The project is also supporting municipalities and service providers in integrating adaptation measures into municipal development plans and services.

The project has successfully supported 28 communities in south-western Burkina Faso in integrating adaptation measures into their agricultural practices, implementing long-term erosion control systems and re-cultivating reclaimed agricultural land. Some 330 km of erosion control systems have either been installed or repaired, and 170,000 agroforestry plants have been planted. To date, 18,000 hectares of watersheds have been reclaimed or protected.²²

UK

Building Resilience and Adaptation to Climate Extremes and Disasters (BRACED)

BRACED, originally running for three years from 2015-2018 (with an extension until September 2019 for nine projects), aims to build the resilience of up to five million vulnerable people against climate extremes and disasters. This will be through 15 projects working across 13 countries in East Africa, the Sahel and Asia. The BRACED global programme is funded by UK Aid and had a number of projects implemented in Burkina Faso, which are highlighted below. In a learning document based on the third (and final) year of implementation, BRACED drew a set of five-key messages that reflected the programme's interpretation of resilience-building efforts and implications for future practice (Silva Villanueva et al., 2018, p. 10-12):

1. Resilience building is not just determined by what you do, but how you do it.
2. Adaptive and flexible programming approaches are essential to deal with potential trade-offs and mitigate the risks of future maladaptation.
3. Addressing climate variability is more important than providing long-term climate information.
4. Building resilience requires equality – projects must move beyond participation of the most vulnerable towards addressing the root causes of exclusion.
5. Building resilience is not enough – change also needs to be sustainable and transformative.

²² Information taken from <https://www.giz.de/en/worldwide/32355.html> [retrieved 07/05/2019]

BRACED – Zaman Lebidi: Strengthening resilience to adapt to the effects of climate change

The programme aimed to build the resilience of vulnerable communities to climate extremes and disasters in high-risk locations of Burkina Faso²³. These include droughts, floods, extreme temperatures and extreme precipitation (BRACED, n.d.). The programme ran from January 2015 until January 2018. The programme worked with a consortium of ten partners across 353 target villages in the north (Passoré), north-central (Sanmatenga, Namentenga) and east (Gnagna) of the country to:

- improve access to reliable climate information;
- improve local capacity through strategies for market diversification, such as home gardens, a broader range of irrigation systems, and development of lowlands, and
- better understand the specific impact of climate extremes on women and girls.

In a learning document covering BRACED research on climate-resilient innovative farming in the Sahel region, key messages from four projects based there (including Zaman Lebidi) included (Grist & Harvey, 2017, p. 1, 4):

- Farmers in the Sahel have innovated for centuries, as part of dynamic, informal processes of learning and responding to change. Innovation is central to efforts to encourage both economic growth and social development in rural areas.
- A grassroots, inclusive 'innovation' may have one or more of five characteristics: newness; adaptation from other efforts; collective and socially cohesive interactions; application of new knowledge content and new or improved learning pathways.
- Innovations in climate resilience include changing practices (e.g. technical aspects of farm production), economic innovations (e.g. credit access and savings schemes), and social innovations (e.g. participatory planning and access to and integration of climate information by farmers).
- Many technologically focused projects have failed in practice in the Sahel, despite their initial promise. People have learnt that existing techniques that people have developed and used over the years are often very effective, despite some shortcomings. Blanket solutions to adapting to climate change in the Sahel region do not exist due to the specific social and geographical contexts.

BRACED – BRES: Changing farming practices to prepare for heavy rain and high temperatures

This project will build the economic, ecological and organisational resilience of 620,000 rural people in Burkina Faso and strengthen their ability to cope with the effects of increased rainfall variability and higher temperatures. This will be achieved by diversifying agricultural production and increasing incomes (through improved, sustainable access to drought-tolerant seeds, soil fertility improvement and enterprise development), together with strengthened government extension services to reduce crop losses and early-warning weather systems. The project will scale proven resilience-building approaches, embed climate adaptation approaches in local,

²³ See <http://www.braced.org/about/about-the-projects/project/?id=c086852f-3625-488d-83cc-a16dc6d9f1eb> [retrieved 07/05/2019]

regional and national plans, and generate and disseminate best practice guidance on climate adaptation approaches.²⁴ This project is funded by UK Aid until September 2019.

3. Chad

Multilateral programmes

EU

GCCA+: Climate change adaptation and renewable energy development in Chad

Funded through the Global Climate Change Alliance Plus (GCCA+) Initiative from 2013 to 2020, this project's key objectives are to strengthen climate change governance through mainstreaming climate change into key policy sectors, and to implement field projects aligned with Chad's National Adaptation Programme of Action (NAPA). Achievements to date include supporting the preparation of Chad's Intended Nationally Determined Contribution (INDC); supporting the integration of adaptation and mitigation issues in the 2016-2020 national development plan; supporting the Ministry of Energy and Oil to calculate CO₂ emissions; and the establishment of a NAPA monitoring and evaluation system.

The project's webpage details a number of the institutional activities of the project, but there are scant details on the field projects aspect.²⁵ No impact evaluation data was found during the course of this review.

IFAD

Project to Improve the Resilience of Agricultural Systems in Chad

This is an ongoing project from 2015 to 2022, co-financed by the Global Environment Fund's Least Developed Countries Fund. Working in the Guera, Batha and Hadjer-Lamis regions of central and southern Chad, the project aims to increase seasonal and off-season agricultural production by reducing the risks linked to climate change and supporting the diversification of reliable sources of income (IFAD, 2014). This will improve food security, and improve the resilience of agricultural systems and the economy of rural households to climate change and external shocks (IFAD, 2014). The project's target group is vulnerable smallholder farming households dependent on food crop production, small livestock and supplementary off-season activities, including market gardening (IFAD, 2014).

Project activities include improving agricultural water collection and management through constructing or repairing collection infrastructure; sustainably intensifying production systems for cereals alongside complementary crops (e.g. groundnuts and sesame), and income generating activities including market gardens, small livestock and bee-keeping (IFAD, 2014, 2015). Farmer Field Schools will train farmers and combine education with an initial equipment grant, and support seed producer networks promoting more climate resilient varieties of seeds (IFAD,

²⁴ Information taken from: <http://www.braced.org/about/about-the-projects/project/?id=44fb903b-45a0-452c-90bd-80beeb849416> [retrieved 07/05/2019]

²⁵ The project's webpage: <http://gcca.eu/programmes/climate-change-adaptation-and-renewable-energy-development-chad> [retrieved 29/04/2019]

2015). The project will rehabilitate 10,000 hectares of land, as a mix of gardeners' site, flood-recession crops and rain-fed crops (IFAD, 2015). User associations will be established and trained to carry out management and routine maintenance (IFAD, 2015). Cross-cutting support measures include literacy, nutrition and environmental education (IFAD, 2014). The project will also upgrade transport routes so they can be used in the rainy season, and build or renovate 40 community warehouses and lean-period banks (IFAD, 2014).

An August 2018 supervision report rated the project 4 out of 6 for likelihood of achieving its objectives, and 5 out of 6 for overall implementation performance (IFAD, 2018). As of August 2018 the project had reached 10,482 households against a project-end target of 35,000 households (roughly 25% of the rural sedentary households in the project area), including 21,136 women against a project-end target of 70,000 (IFAD, 2018).

In September 2018, the ***Strengthening Productivity and Resilience of Agropastoral family Farms Project*** was approved to complement and extends the above project to four new areas (activities are located in Guera, Batha, Hadjer Lamis, Chari Baguirmi and Salamat regions). Running until 2024 with funding from the GCF, the project will reach an estimated 146,000 households.²⁶

UNDP

UNDP undertakes a number of climate change projects in Chad in addition to supporting national level actions such as the development of Chad's NAPA and submissions to UNFCCC. UNDP's Transparency Portal includes a number of active climate change projects in Chad, with some available results to date (see Table 2). However, this information is in French and a full appraisal of this information was not possible during the course of this review.

²⁶ For more information see: <https://www.ifad.org/en/web/operations/project/id/2000001060/country/chad> [retrieved 29/04/2019]

Table 2: UNDP projects in Chad

Project Name	Implementation Dates	Objectives	Donors
Rehabilitation Ecosysteme Au Tchad²⁷	2017-2020	Support adaptation and mitigation of the adverse effects of climate change on local communities in the Lac region, especially women, by developing production systems and income generating activities.	UNDP, France, India
Improving the management of Lake Chad²⁸	2013-2019	Supporting the Lake Chad Basin Commission to implement its Strategic Action Programme	Global Environment Fund
Community Based Climate Risks Management²⁹	2017-2021	Strengthen the responsiveness and capacity of vulnerable populations to better cope by responding earlier to warning signals and adopting financial risk transfer mechanisms. The project will install a community-based early warning system and enhance risk management capacities.	Global Environment Fund

World Bank

Climate Resilient Agriculture and Productivity Enhancement Project

Approved in 2018 and running until 2023, this project aims to promote the adaptation of improved technologies leading to increased productivity, and enhance the climate resilience of agricultural production systems in target areas (World Bank, 2018g). It has four components:

- Institutional support for agricultural development and climate resilience to strengthen institutional capacities for agricultural research and development at the national level;
- Supporting adoption of demand driven technologies and climate-smart agriculture in targeted areas, including improving the efficiency of agricultural support services;
- Contingency emergency response, creating a mechanism for financing emergency eligible expenses in the case of a disaster event;
- Project management, co-ordination, monitoring and evaluation and knowledge management.

²⁷For more information on the project, in French, see the project webpage <https://open.undp.org/projects/00102737> [retrieved 29/04/2019]

²⁸ For more information on the project, in French, see the project webpage <https://open.undp.org/projects/00075006> [retrieved 29/04/2019]

²⁹ For more information on the project, in French, see the project webpage <https://open.undp.org/projects/00102936> [retrieved 29/04/2019]

It aims to reach 360,000 farmers (108,000 of them women) with agricultural assets or services, and increase average agricultural yields of direct beneficiaries by 25% (World Bank, 2018g). In terms of surface area, the project aims to have 21,400 hectares cultivated using improved technology disseminated by the project, with 10,700 hectares cultivated using climate-smart agriculture technologies/practices (World Bank, 2018g).

However, at the end of 2018, project activities still had not begun, and the World Bank (2018g) rated the project as 'high-risk' in October 2018. The high-risk rating is based on the political and governance, and macroeconomic contexts, as well as sector strategies and policies categories (World Bank, 2018g). The fiduciary, environmental and social categories were rated as substantial risks (World Bank, 2018g).

Bilateral programmes

Germany

Adapting to Climate Change in the Lake Chad Basin³⁰

Funded by the German government and implemented by GIZ between 2013 and 2019, this project operated at both the regional and local level. At the regional level, it supported capacity development activities for the Lake Chad Basin Commission (including its field structures in member countries and national ministries), to strengthen its ability to provide comprehensive advice to member states. At the local level, techniques for improving agricultural yields were piloted in a cross-border zone in Chad (Chari-Baguirmi and Mayo-Kebbi-Est areas) and Cameroon, with best practice disseminated to the Lake Chad Basin Commission member states.

Project results include:

- A climate change study modelling the possible impacts of climate change trends on the basin's ecosystems and related socio-economic consequences;
- Surveys in over 1,100 villages on agricultural systems, with the results used to develop measures for increasing harvests, improving storage practices, and diversifying value chains;
- Increased yields and a more reliable harvest in the pilot zone, as well as replication of measures such as the introduction of early seed varieties, and
- Development and dissemination of adaptation measures through a radio programme broadcast between July 2016 and February 2017.

The project developed a number of best practices, including the introduction of early seed varieties with a maturation cycle of 90 days compared to the 120 days of traditional seeds; postponing sowing in response to a later start to the rainy season, and self-training (Farmer-to-Farmer Field School Approach) promoting the replication of adaptation measures (Stache, 2018).

³⁰ The information in this section is derived from the project's webpage on the GIZ website and the Lake Chad Basin Commission webpage, which can be accessed here: <https://www.giz.de/en/worldwide/24845.html> and <http://www.cblt.org/en/projects/acc-giz> [retrieved 29/04/2019]

4. Mali

Multilateral programmes

AfDB

Project for Scaling-up Renewable Energy in Mali (PAPERM)

Supported by the AfDB and the CIF's Scaling-up Renewable Energy Programme in Low Income Countries (SREP), project objectives include improving the policy, legal, regulatory and institutional frameworks; capacity building for stakeholders, and improving the sub-sector's monitoring and evaluation system.³¹ A key expected result from the project was the approval of 40 renewable energy projects between 2015 and 2017 (AfDB, 2018a). However, no project evaluation data was found during the course of this review.

As of 2017, AfDB and SREP were also co-financing the design and construction of the Ségou Solar Power Plant and a transmission line (AfDB, 2018a)³². In addition to increasing access to electricity, the project is anticipated to avoid 8,811 tonnes of CO₂ annually and 220,293 tonnes over the course of the plant's lifetime (AfDB, 2016).

Mali's solar power potential has also attracted attention from other donors. In 2019, the GCF and BOAD approved the *Mali solar rural electrification project*, which will avoid an anticipated 821,800 tonnes of CO₂ as well as reaching approximately 31,000 new households with electricity (GCF, 2019). In February 2019, BOAD also received approval for co-financing from the Green Climate Fund for a project to support the scale-up of solar energy in Niger, Mali, Burkina Faso and 3 other countries³³.

Development of the Master Plan and Priority Investment Programme for Integrated Development and Climate Resilience of Populations in the Delta 2 Plains

Through this project the Bank's African Water Facility will support the Ségou Rice Office with a medium- and long-term planning tool, as well as environmental and implementation studies for the construction of hydro-agricultural development infrastructure in the Delta 2 Plains area (including parts of Ségou, Macina, Baroueli and San). The project will run from 2018 to 2020.³⁴

CGIAR

In addition to the two projects outlined below, CGIAR, through its Research Programme on Climate Change (CCAFS) has supported the Malian government's Agency for Environment and

³¹ See <https://www.afdb.org/en/projects-and-operations/selected-projects/afdb-and-srep-help-promote-renewable-energy-in-mali-131/> [retrieved 30/04/2019]

³² In 2018, SREP and AfDB also approved a mini hydropower plants and related distribution networks development project. The project's cover page can be accessed here: <http://pubdocs.worldbank.org/en/292061538084018635/pdf/1895-SREP-Mali-AfDB-Mini-Hydropower-Plants-Cover-Page-Final-Version.pdf> [retrieved 30/04/2019]

³³ The project's webpage can be accessed here <https://www.greenclimate.fund/projects/fp105> [retrieved 30/04/2019]

³⁴ The project's overview page can be accessed here <https://projectsportal.afdb.org/dataportal/VProject/show/P-ML-EAZ-004?lang=en> [retrieved 30/04/2019]

Sustainable Development to establish a national science-policy dialogue platform for climate change and food security, and a 2014 pilot of its Climate-Smart Agricultural Prioritization Framework to help guide Climate-Smart Agriculture (CSA) investments (Andrieu et al., 2017). In June 2015, the Economic Community of West African States, with CCAFS as a partner, launched the Climate-Smart Agriculture Alliance. The alliance was initiated in Mali and members include Niger.³⁵

Climate Smart Villages³⁶

CGIAR's CCAFS is working in two villages (home to 305 households) in Cinzana, Ségou region to develop climate-smart model villages. Farmers are working with researchers and other local partners to test climate-smart technologies and practices.³⁷ In 2017, CSA practices including micro-dosing, compost, improved seed, intercropping and contour ridges were tested and evaluated (Bonilla-Findji et al., 2018). Qualitative evidence from farmers who took part in the trials outlined increased productivity, and using CSA practices on small fields resulted in better crops yields compared to large fields not using CSA practices (Dembele & Magassa, 2018). As part of the 2017 trials, market garden training was given to women, leading to improved vegetable yields, which contributed to household nutritional requirements and health (Dembele & Magassa, 2018). The women's group also sold a large part of their crop, saving the money in a joint bank account, which members of the group can borrow from (Dembele & Magassa, 2018).

A 2016 study into the uptake of CSA practices in model villages in Ghana, Mali and Niger found that farmers' main reasons for adopting CSA technologies and practices are their capacity to improve crop productivity, improve soil fertility/structure, and reduce the risk of crop loss due to drought (Ouédraogo et al., 2018). The key constraints to adopting CSA options, reported by farmers, were the limited availability of inputs, poor technical capacity and illiteracy of farmers, and farmers' low financial capacity (Ouédraogo et al., 2018). Farmer recommended measures to influence wider adoption of CSA options included training for farmers, providing information/awareness/advice to farmers, improving access to agricultural credit, and providing subsidies for inputs (Ouédraogo et al., 2018). Ouédraogo et al. (2018) argue that removing barriers to CSA adoption would involve capacity building for farmers, and the provision of agricultural credits and subsidies: in order to achieve this, financial and institutional components need to be strengthened and the climate smart villages linked with development programmes in the region.

Capacitating African Smallholders with Climate Advisories and Insurance Development³⁸

Operating in Burkina Faso, Ghana, Mali, Nigeria and Senegal, the project aimed to extend the use of climate information for seasonal agricultural decision-making to over two million farmers

³⁵ More information about CGIAR's work in Niger can be accessed here <https://ccafs.cgiar.org/niger#.XNE0tihKg2y> [retrieved 30/04/2019]

³⁶ CGIAR's Climate Smart Village programme is also working in Fakara in Niger's Kollo region, home to 254 households. In 2017, a number of CSA techniques and practises were tested and evaluated in Fakara, including improved seeds, compost and income diversification (Bonilla-Findji et al., 2018).

³⁷ An overview of CGIAR's work in Mali can be accessed here <https://ccafs.cgiar.org/mali#.XMhRgihKg2x> [retrieved 30/04/2019]

³⁸ An overview of the project can be accessed here: <https://ccafs.cgiar.org/building-climate-risk-management-capacity-west-africa#.XMI13yhKg2w> [retrieved 01/05/2019]

(including 800,000 women) between 2015 and 2018. The project built on existing climate service initiatives, including scaling-up climate services in Senegal through rural radio, which already broadcasts seasonal climate forecast information to small-scale farmers.

Project activities include development of grassroots co-forecasting networks in Ségou (Mali), Kaffrine (Senegal) and Lawra-Jirapa (Ghana) to improve seasonal climate and crop performance predictions; using satellite data and ground-based observations to develop standardised climate and yield prediction products; capacity building for national meteorological services and other intermediaries in interpreting and communicating information, and developing and testing socially differentiated index insurance schemes for smallholders.

As part of this project, the Participatory Integrated Climate Services for Agriculture approach was developed and tested in two sites in Senegal (57 farmers) and Mali (47 farmers) in 2016 with 97% and 76% respectively finding the approach very useful (Dayamba et al., 2018). The approach used historical climate records, participatory decision-making tools, and seasonal forecasts to help farmers identify and plan better livelihood options suited to local climate features and farmers' own circumstances (Dayamba et al., 2018). Farmers using the approach implemented a range of innovations, including changing the timing of activities such as sowing dates, implementing soil and water management practices, selecting crop varieties, fertiliser management, and adapting farm plans to the actual resources available (Dayamba et al., 2018).

EU

GCCA+: Mali GCCA Phase 2

Between 2017 and 2026, the EU through the GCCA+ Initiative is funding a programme of activities to strengthen the sustainable management of natural resources, with a particular focus on the forest sector.³⁹ Activities include capacity building for the government's Forest Information System team (SIFOR) (responsible for collecting and managing forest data), and support to conduct at least 30 communal forest inventories; strengthening links between existing information systems and integrating forest and climate indicators into sector policy documents; initiating the establishment of a national monitoring system, and improving forest cover in targeted areas.

The EU has previously supported reforestation activities in Mali between 2012 and 2015.

FAO

Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas

Implemented between 2011 and 2016 in five regions in southern and central Mali, and funded by the GEF, this project's overall objective was to enhance the capacity of Mali's agricultural sector to successfully cope with climate change, by incorporating climate change adaptation concerns and strategies into ongoing agricultural development initiatives, as well as mainstreaming

³⁹ Information on the revised dates for the programme is taken from this 2017 EU Delegation to Mali document: https://eeas.europa.eu/sites/eeas/files/delegation_ue_mali_10.2017.pdf [retrieved 01/05/2019]

adaptation issues into agricultural policies and programming (FAO, 2018a). Project activities were grouped into three components:

- Piloting improved climate-resilient agricultural practices;
- Capacity building and promotion of improved agricultural practices through Farmer Field Schools (the most important activity in terms of time and money invested), and
- Climate change considerations mainstreamed into agricultural sector policies and programmes.

Project results included: 1) improving the climate resilience of 41,000 smallholder farmers; 2) increasing average crop yields for sorghum, millet, rice, corn, sesame and cotton; 3) reported yield increases of 97% for hybrid sorghum seeds, and 4) enabling farmers to share knowledge on how to diversify production, improve soil health and fertility, determine the toleration limits of different species, and to choose more resilient seeds and varieties (FAO, 2018b). The project's final evaluation argued that: an impact study would have been useful; that representation and participation of producers and their organisations in bodies such as the Steering Committee could have been higher; that project implementation experienced some problems with national agencies at the beginning, and that project ownership by the country was very satisfactory in technical and operational terms, but moderately satisfactory in political and financial terms (FAO, 2018a). It also found that the number of women trained as facilitators was low (10%) and only 29% of the producers trained by the project were women (FAO, 2018a)

UNDP

Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Mali, 2013 onwards

The Climate Change Adaptation Facility was established by Canada in partnership with UNDP to strengthen climate-resilient approaches to agriculture and water management, with an emphasis on gender-sensitive approaches. It supports projects in six countries including Mali and Niger, building on projects previously funded through the GEF.

In Mali, the project builds on and scales-up a GEF-funded project originally launched in. The current project aims to reduce climate change risks on agricultural production and improve food security in four target municipalities: Sandaré, Massantola, M'pessoba and Cinzana at the municipality, regional and national levels (UNDO & CCAF, 2015). In the targeted municipalities, the project scales-up successfully piloted measures, including: disseminating climate-resilient seeds; extending hydro-agrometeorological services to crop and livestock farmers; restoring soil fertility, and implementing multi-use water plans (UNDP & CCAF, 2015a).

Results include: completed vulnerability assessments in the 4 municipalities; construction of 2 micro-dams; 160 producers trained in production techniques; 4 solar-powered multifunctional platforms established; and a documentary film produced to raise awareness of climate change (UNDP & CCAF, 2015a). Emerging lessons learned include:

- Climate-resilient income generation activities are a critical approach to empower women: in some cases opportunities for income-generating activities have empowered women to discuss land ownership with landowners and local officials, resulting in women gaining land ownership in some cases, and

- Mainstreaming risk factors and mitigation strategies at the early stage of project design is essential for success: project implementation was hampered by the political crisis in Mali, and as of 2015, the project team were working to catch-up, informed by their previously developed risk mitigation strategy (UNDP & CCAF, 2015a).

World Bank

Africa Hydromet Programme - Strengthening Climate Resilience in Sub-Saharan Africa: Mali Country Project⁴⁰

Funded by the GCF and developed under the Africa Hydromet Framework Program, launched in 2015 and active in 15 countries, this Mali country programme aims to strengthen the adaptive capacity and climate resilience of vulnerable communities by developing hydro-meteorological weather warning services to support adaptation planning. Approved in 2016, the project will be completed in 2021, with project activities including training and capacity building; expanding and upgrading existing Automatic Weather Stations and hydrological stations; establishing a national network for climate services; improving flood and drought warning systems, and 'last mile' systems to ensure early warnings reach municipal and community level, as well as improving awareness at the local level. The project aims to reach approximately 5.3 million people across Mali who are currently directly exposed to drought or flooding.

A 2018 status report identified the lack of information sharing between the four main agencies preparing and implementing the project: actions to remedy this problem include capacity development for more co-ordination and information sharing.⁴¹

Natural Resources Management in a Changing Climate in Mali

Running between 2014 and 2019, the project aims to extend the adoption of sustainable land and water management practices in targeted areas in Mali.⁴² The project works in 30 communes in two regions of Mali. Project activities include developing participatory management plans for three forest ecosystems; supporting the diversification of local livelihoods through financing sound income generating activities (often proposed by local community representatives), which do not threaten the conservation of biodiversity, and training the beneficiaries of funded activities on management and demonstrating opportunities from sustainable management of forest and non-timber forest products. As of April 2019, 658 sub-grants (237 dedicated to women) have been signed (Menang & Emeran, 2019).

The project was restructured in 2018/19 following concerns in the 2017 midterm review about slow project implementation (Menang & Emeran, 2019). Concerns around the project included weak operation resource allocation during the project design reducing the mobilisation capacity

⁴⁰ The project's webpage can be accessed here: <https://www.greenclimate.fund/projects/fp012> [retrieved 01/05/2019]. The Africa Hydromet Programme is a joint initiative of a number of partners including the World Bank, WMO, AfDB, and the AFD amongst others. More information can be accessed here: http://www.worldbank.org/en/programs/africa_hydromet_program#1 [retrieved 01/05/2019]:

⁴¹ The 2018 status report can be accessed here: https://ane4bf-datap1.s3-eu-west-1.amazonaws.com/wmocreaws/s3fs-public/ckeditor/files/Mali_status_report_jul_to_nov_2018_0.pdf?sT602czJ8ljok15PwU.fuA4kPgcTEiPb [retrieved 01/05/2019]

⁴² The project's webpage can be accessed here: <http://projects.worldbank.org/P145799?lang=en> [retrieved 02/05/2019]

of the staff of implementing agencies (Menang & Emeran, 2019). During the restructure project, indicators were revised or dropped. For example, the indicator increasing vegetation cover in targeted areas compared to baseline was dropped due to potential attribution problems (World Bank, 2018g).

The security situation in Mali has affected project implementation: the deteriorating security situation delayed implementation in Banamba and Nara Circles in the Koulikoro region, and resulted in the World Bank not making any new support commitments in those regions (World Bank, 2018g).

Bilateral programmes

Germany

The projects in Table 3 are being implemented by GIZ and funded by the German government:

Table 3: GIZ projects in Mali

Project Name	Implementation Dates	Objectives	Results
Innovate development planning for adaptation to climate change⁴³	2011-2018	Support sub-national planning and the realisation of measures by creating a more conducive national framework.	Awareness raising activities reaching over 1,000 people since 2016; supporting 20 municipalities and six districts to prepare their development plans.
Supporting the National Strategy for Adaptation to Climate Change⁴⁴	2014-2019	Improve the effective dovetailing of the policy framework at the national level with local planning and implementation of measures.	The process for planning national climate adaptation measures was launched in 2016 and an action plan has been adopted for implementation.

Norway⁴⁵

Mali is a priority country for Norway. It supports climate change mitigation and adaptation in three ways:

- Funding agricultural research (a mid-way project review found research results are being produced that can be used to enhance the efficiency of small-scale agriculture);

⁴³ See: <https://www.giz.de/en/worldwide/58587.html> [retrieved 02/05/2019]

⁴⁴ See: <https://www.giz.de/en/worldwide/31402.html> [retrieved 02/05/2019]

⁴⁵ More information about Norway's support to Mali can be accessed here: <https://norad.no/en/front/countries/africa/mali/> [retrieved 02/05/2019]

- A project reinforcing food security in the Lac Faguibine area through increasing food production by re-establishing the traditional canal system. Funds were reallocated from the Lac Faguibine project at some point after 2014 to assist the ongoing humanitarian crisis in Northern Mali; and
- Supporting Mali's Climate Fund launched in 2014 and the first of its kind in Africa: civil society organisations and international organisations can apply and the fund covers initiatives throughout Mali.

Sweden

Reso Climat Mali Phase 2⁴⁶

Running from 2015 to 2018, the project supports local sustainable adaptation initiatives for vulnerable rural community in five regions, implemented by NGO members of Reso Climat Mali. Project results include populations in the Koulikoro Region of south-western Mali have been trained in new agricultural techniques.

Sweden also supports the Mali Climate Fund; and in conjunction with the Netherlands, it funded a study into the consequences of climate change and anthropogenic pressures on the quantity and quality on water resources and uses.⁴⁷

UK

Decentralising Climate Funds

Operating in both Mali and Senegal, the project aims to build resilience and reduce communities' vulnerability by improving local authorities' institutional capacities to manage climate funds and providing direct funding to local community-identified adaption investments (NEF, 2017). The project is part of the BRACED programme funded by UK Aid (see UK section for Burkina Faso) and implemented by the Near East Foundation. A 2017 Policy Brief argues that a number of constraints need to be addressed before piloted resilience tools can be scaled-up. Constraints include: tools need to be simplified and translated into local languages, and that local government funding for implementation is problematic (NEF, 2017).

USA

Mali Climate Change Adaptation Activity⁴⁸

In partnership with Mali Meteo (Mali's National Meteorological Agency), this project's objective is to create community-based systems that can respond effectively to climate change by increasing vulnerable groups access to accurate, timely climate data, and their understanding of how to use it to make well-informed decisions pertinent to their livelihoods. The project also works with local governments to support the development of adaptation plans and integrating these into their

⁴⁶ The project's webpage can be accessed here: <https://openaid.se/activity/SE-0-SE-6-5113007807-MLI-41010/> [retrieved 02/05/2019]

⁴⁷ More information on the study can be accessed here: <https://www.gwp.org/en/GWP-West-Africa/WE-ACT/News--Events/mali-climate-change-impact-on-water-resource-management/> [retrieved 02/05/2019]

⁴⁸ The project's webpage can be accessed here: <https://chemonics.com/projects/building-climate-change-resilience-mali/> [retrieved 03/05/2019]

broader five-year development plans. Working with communities in 47 communes in the Mopti region (central Mali) to record, report and access data on local climate and livelihood conditions between 2015 and 2020, the project creates local climate-proofing committees and aims to reduce vulnerability to climate change.

USAID is also supporting various climate change related adaptation and mitigation activities, including the extension of small irrigation infrastructure, improved natural resource management practices and improved agronomic practices in millet/sorghum production throughout its Feed the Future intervention areas.

5. Mauritania

Multilateral programmes

AfDB

Improving Climate Resilience of Water Sector Investments with Appropriate Climate Adaptive Activities for Pastoral and Forestry Resources in Southern Mauritania

The aim of this project was to improve rural communities' livelihoods and means to combat poverty through managed water investments and adaptive activities for pastoral and forest resources in the southern Wilayas of Mauritania. This project was approved in 2013, funded by the Least Developed Countries Fund, and was being implemented by AfDB. Specifically, it focuses on reducing vulnerability to climate change by increasing adaptive capacity through the introduction of community-managed investment and activities such as water harvesting, natural regeneration of forest areas, land and water management, etc. Thus, the project will contribute to promote the transfer and adoption of adaptation technology. The project is designed to test an integrated approach to climate-proof baseline infrastructure while increasing resilience of additional actors.

The GEF's webpage for this project details some background information but there are scant further details on its implementation that could be found here or elsewhere.⁴⁹ No impact evaluation data was found during the course of this review.

Agricultural Transformation Support Project in Mauritania (Projet d'appui à la transformation agricole en Mauritanie (PATAM))

This project will be implemented over a five-year period (2019-2023) and will support the upstream and downstream agricultural production subsectors in the Brakna-Ouest region. Its purpose is to improve food security and the living conditions of target communities through the inclusive and sustainable development of crop sectors (AfDB, 2018b). This project is an extension of Projet d'Aménagement Hydro-agricole du Brakna-Ouest (PAHABO) launched in 2004.⁵⁰ Moreover, it builds on the reforms initiated under Phases 1 and 2 of the Economic

⁴⁹ The GEF's webpage on the project: <https://www.thegef.org/project/improving-climate-resilience-water-sector-investments-appropriate-climate-adaptive> [retrieved 30/04/2019]

⁵⁰ For more information see <https://vimeo.com/296381716> [retrieved 30/04/2019]

Reform and Diversification Support Programme (PAREDE-1 & 2)⁵¹ and complements the Youth Training and Employment Project (PAFEJ) and the Project to Support the Promotion of Micro-, Small- and Medium-sized Enterprises and Youth Employment (PAMPEJ) (AfDB, 2018b).

The project takes into account aid co-ordination and that several other multilateral development partners are involved in agricultural sector development in Mauritania, including the World Bank, the EU, IFAD, the IsDB, the Arab Fund for Economic and Social Development (AFESD), and bilateral co-operation (Saudi Fund, AFD, GIZ, etc.). Co-ordination between the various donors is carried out through thematic groups, including the Agriculture Group chaired by the Directorate for Strategy, Planning and Monitoring and Evaluation (DSPSE) in the Ministry of Rural Development (AfDB, 2018b).

PATAM was designed with the sustained involvement of stakeholders, and the participatory approach was adopted prior to project design. The project was also designed taking into account previous AfDB group experience in Mauritania and similar countries. In particular, lessons from PAHABO were used as strategic guidelines to strengthen PATAM's design and implementation. These include the need to (AfDB, 2018b, p. 8):

- ensure the availability of implementation studies and the finalisation of project bidding documents (BDs) prior to project approval;
- ensure geographic concentration and a particular interest in development to maximise value added at the local level, and ensure better stakeholder mobilisation and beneficiary ownership;
- strengthen the project monitoring, evaluation and co-ordination function, which are crucial to project implementation quality;
- appoint a procurement manager and support procurement and disbursement procedures (provide capacity-building measures);
- raise awareness among the client and target population on the role of servicing and maintenance to ensure better operation and sustainability of the facilities, and
- improve the environment and business climate to ensure better private sector involvement.

FAO

Adaptive Management and Monitoring of the Maghreb's Oases Systems

The aim of this GEF-funded project is to enhance, expand and sustain the adaptive management and monitoring of the Maghreb Oasis Ecosystem in Mauritania, Morocco and Tunisia. The project seeks to enhance institutional skills and technical capacity for managing and monitoring oases production systems; build capacities of local stakeholders to disseminate knowledge and conduct trainings on best practices for sustainable landscape management (SLM); and spread awareness among policy makers, communities, and associations about oasis ecosystem and

⁵¹ For more information see <https://projectsportal.afdb.org/dataportal/VProject/show/P-MR-K00-017> [retrieved 30/04/2019]

adaptive management tools. The project was to run from 2015 to 2018 but still has a status of 'operationally active on the FAO project website.'⁵²

This project was designed taking into account the lessons learned and results of the FAO's Globally Important Agricultural Heritage Systems (GIAHS) project⁵³ in other oases systems to further enhance the benefits of its approach. In the specific case of Morocco, the FAO/IFAD project raised awareness on the importance of agricultural heritage systems at a local and national level, and set up the first building blocks for promoting its dynamic conservation, sustainable and adaptive management. It established the initial links between the national government, local institutions and oases communities. In addition, the project will learn from FAO efforts to develop and deploy data management platforms and data sharing mechanisms. For instance, participants during the project preparation phase highlighted the need to have a thorough and sound needs assessment before moving to the conceptualisation of regional databases or decision support tools, in order to ensure they are adapted to the needs of the end-user (FAO/GEF, 2015, p. 32).

No further information could be found on the status of implementation or lessons learned for this project.

The Global Facility for Disaster Reduction and Recovery (GFDRR) and World Bank

Africa Disaster Risk Financing Initiative (ADRF)

The ADRF, launched in 2015, is an initiative of the Africa Caribbean and Pacific (ACP) Group of States. It is financed by the EU and implemented by the GFDRR and the World Bank, as part of the wider ACP-EU programme Building Disaster Resilience in Sub-Saharan Africa. The ADRF Initiative is working with 19 governments in Sub-Saharan Africa to develop Disaster Risk Financing (DRF) approaches that fit each country's context and meet governments' requirements (Global Facility for Disaster Reduction and Recovery and the World Bank, 2019).

In Mauritania, the ADRF Initiative initiated technical assistance on risk financing solutions linked to the national safety net programme in May 2017. The engagement included the preparation of a diagnostic on the financing mechanisms used for shock-responsive social safety nets. To further the analysis undertaken in the diagnostic, the ADRF team started to study the vulnerability of households' food security to drought conditions using Food Security Monitoring Survey data. Final results will be used to elaborate a food insecurity risk profile at national and departmental levels, which will allow the government to provide a probabilistic assessment of intervention costs associated with food insecurity. This analysis will also support the ongoing efforts to improve the information used in the early warning system of the Food Security Observatory. The government has expressed interest in implementing a special earmarked account for a Disaster Risk Management (DRM) fund to support the financing of Disaster Risk Reduction measures and emergency response. The ADRF team is also co-ordinating with the WFP and the AfDB to align efforts (Global Facility for Disaster Reduction and Recovery and the World Bank, 2019, p. 18)

⁵² Information taken from <http://www.fao.org/gef/projects/detail/en/c/1056952/> [retrieved 02/05/2019]

⁵³ For more information see <http://www.fao.org/giahs/en/>

IFAD

The Inclusive Value Chain Development Project (PRODEFI)

The project, implemented over eight years (2016 – 2024), builds upon and scales-up IFAD's experience in Mauritania and elsewhere in the region by adopting a poverty reduction approach, based on supporting production and processing to respond to market demand. The first phase of the project will focus on horticulture, poultry farming, goat milk and NTFPs. Following market studies, new income-generating crops or activities will be defined for the second phase of the eight-year project. The farmers will receive training and advisory services to improve their production models and adapt them to climate change.⁵⁴ The project will facilitate, through an Adaptation for Smallholder Agriculture Programme (ASAP) grant, the use of solar energy, and promote sustainable management techniques for natural resources (such as water, pasturelands and seeds).

PRODEFI will develop an inclusive approach, promoting public-private-producers partnerships (4Ps) in the interest of smallholder farmers and facilitating their access to markets, which proved to be a very powerful pathway to reduce poverty in the previous IFAD supported project: Value Chains Development Programme for Poverty Reduction.

Further information on implementation progress is only available in French, but does not seem to include any lessons learned.⁵⁵

UNDP-UNEP PEI

The UNDP-UNEP Poverty-Environment Initiative (PEI) initiated the Mauritania country programme in 2005 to support the government in addressing environmental degradation issues and promote sustainable development.⁵⁶ The PEI Mauritania programme aims to enhance capacity of key decision makers and government institutions to collectively integrate pro-poor environment and climate objectives in development planning and budgeting processes. PEI Mauritania is led by the Ministry of Environment and Sustainable Development. There has been some progress with interventions, reflected in the National Development Strategy (SCAPP in French, 2016-2030) and key sector plans (rural development and fisheries) integrating pro-poor environmental sustainability objectives. The government has also made a USD200,000 contribution to poverty-environment mainstreaming and supported the revision of a co-ordination mechanism to mainstream pro-poor environmental sustainability in government plans and budgets (UNDP-UNEP, n.d.).

UNEP

Enhancing capacity, knowledge and technology support to build climate resilience of vulnerable developing countries (EbA South)

This project is funded by the Special Climate Change Fund and is implemented by UN Environment. It is executed by the National Development and Reform Commission of China

⁵⁴ Information taken from <https://www.ifad.org/en/web/operations/project/id/2000001071/country/mauritania> [retrieved 01/05/2019]

⁵⁵ See <https://operations.ifad.org/documents/654016/9a2fd513-86d8-4810-bf0a-64af44e36257>

⁵⁶ Information taken from <https://www.unpei.org/what-we-do/pei-countries/mauritania> [retrieved 02/05/2019]

(NDRC) through the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences (IGSNRR, CAS). It is not clear the exact dates of implementation but original duration was expected to be 2013 – 2018. This project sought to help developing countries across Africa and Asia-Pacific adapt to climate change, in part by restoring natural habitats across all types of ecosystems. The project was piloted in three countries: Mauritania, Nepal and Seychelles. In Mauritania, the project focused on rehabilitating 450 hectares of multi-use green belts using drought resilient and soil-stabilising species.⁵⁷ New livelihood options are being identified; these include fruit harvesting (e.g. *Ziziphus mauritiana*), collection of gum arabic, and processing of plant products (e.g. *Balanites* seeds) for producing cosmetics and food products (taking account of products for own consumption as well as marketable products). The project also involves building an interactive web-based platform for knowledge-sharing,⁵⁸ producing documentaries, funding guidance, policy briefs and planning tools for adaptation activities.

The web-based platform provides information on best practices through a database of case studies related to EbA and tools for policy and practice. However, lessons learned from the programme in Mauritania are not yet available.

World Bank

Mauritania Sustainable Landscape Management Project under the SAWAP⁵⁹

This project is funded by the GEF and implemented over 2015 to 2021. The development objective of the project is to strengthen sustainable landscape management (SLM) in targeted productive ecosystems in Mauritania. The project comprises of three components: (i) sustainable landscape management knowledge, governance and partnerships; (ii) SLM practice supports investments in SLM practices in degraded gum Arabic producing ecosystems and their integration into local development planning, for mutual reinforcement; and (iii) project management support to the Ministry of Environment and Sustainable Development (MEDD).⁶⁰

In a recent Implementation Status & Results Report, the following progress was reported (World Bank, 2019b). Almost all Community development Associations (52 out of 60) have been created, this has permitted the project to implement activities. 30 sites were fenced off, leaving another 30 to be fenced off by project completion. 60,000 seedlings, originating from 29 tree nurseries, were planted. Noting that progress is expected to accelerate now that project institutions are in place.

The project design was influenced by lessons from other SLM projects in the region and from the Mauritania Community Based Watershed Management Project (PACV, closed in March 2013). These included (World bank, 2015b, p. 10-11):

- Success of SLM interventions is more likely under an integrated approach, which combines investments in landscape management and income generating activities, since

⁵⁷ Information taken from <https://www.unenvironment.org/pt-br/node/24202> [retrieved 02/05/2019]

⁵⁸ For more information see <http://www.ebasouth.org/home>

⁵⁹ For more information see <http://projects.worldbank.org/P144183?lang=en>

⁶⁰ Information taken from <http://projects.worldbank.org/P144183?lang=en> [retrieved 07/05/2019]

the latter reduces pressure on natural resources and sustains SLM practices in the long term.

- Maintenance of ecosystem services and production functions is more likely through ongoing evaluation of SLM practices' cost effectiveness.
- For the gum producing sector in specific, mechanisms for broad community member engagement, including women, youth and marginalised groups, should be identified from the outset, thus allowing for equitable access to- and benefit from project interventions.
- Once communities are organised in associations and are open to innovation, they stand to benefit from extension advice on increasing yields through SLM practices, taking both the ecosystems services and production functions into account. Especially in the maintenance phase, close follow-up, technical and sometimes financial backstopping are critical. The local population has a considerable and continuous need for learning on an extensive range of subjects, from technical to administrative matters.

WFP

Enhancing Resilience of Communities to the Adverse Effects of Climate Change on Food Security in Mauritania (PARSACC)

This project is funded by the Adaptation Fund, with implementation status as 'ongoing' on the Adaptation Fund's website but scheduled for 2014-2018. It is implemented by the WFP. It aims to improve adaptation in the area of food security in Mauritania by assisting the government in improving technical services at the community level, so that village residents can undertake their own analysis of climate change impacts and prepare detailed adaptation plans – including harmonised plans for livestock, land and water management and the overall use of natural resources. The project will also promote climate resilience by protecting threatened resources, such as dunes, community fuel wood forests, and water sources. Finally, villages will be encouraged to explore ways to diversify the sources of livelihood and receive training, coaching, and asset investments to do so.⁶¹

In the project design document it is highlighted that the project builds on a number of previous initiatives and lessons learned, including the particularly important lesson that continuous technical support and monitoring are crucial for the creation of quality physical assets and their maintenance after project completion.

Mauritania Country Strategic Plan (2019-2022)

This country strategic plan is funded by multiple funders including Canada, the EC, France, Germany, Japan, Saudi Arabia, Spain, Sweden, and UK. This plan will enable WFP to reposition itself to support a national adaptive social protection system. WFP will address the causes of vulnerability while supporting country capacities to ensure sustainability and national ownership (WFP, 2018b).

This strategic plan takes into account WFP's experience and lessons learned from previous presence in Mauritania. A 2011–2015 country portfolio evaluation highlighted solid achievements in WFP's support for Malian refugees, while concluding that assistance to Mauritians varied

⁶¹ Information taken from <https://www.adaptation-fund.org/project/enhancing-resilience-of-communities-to-the-adverse-effects-of-climate-change-on-food-security-in-mauritania/> [retrieved 07/05/2019]

across activities and over time; it showed that inadequate funding had influenced WFP's plans and outcomes. The recommendations resulting from the evaluation, along with those from a 2017 regional synthesis of operations evaluations of WFP's capacity development and social protection policies, informed the orientation of this country strategic plan. Lessons learned stress the importance of (WFP, 2018b, p. 8):

- strengthening the design and quality of WFP's preventive, protective and productive assistance with a view to progressively building consistency with the government and partners as part of a coherent shock-responsive safety-net system; this calls for co-ordination with the Tekavoul Social Transfer Programme, El Maouna cash-transfer Programme and with the social registry;
- moving from short-term interventions to agile, long-term systemic solutions - with a view to transferring programme and financial responsibilities to the government;
- concentrating resilience building and multi-year interventions in fewer locations, leveraging local partnerships and promoting participatory planning as well as asset relevance, governance and quality, and
- addressing gaps in early-warning, contingency and emergency response planning.

Bilateral programmes

Germany

German-Mauritanian cooperation is undertaken by GIZ on behalf of the German Federal Ministry for Economic Co-operation and Development (BMZ); it receives financial contributions from the EU. It focuses on two priority areas:

1. Democracy, civil society and public administration
2. Environmental policy and the protection and sustainable management of natural resources

Increasing capacities for adaptation to climate change in rural areas

This project was implemented between 2014 and 2018 and was co-financed by the EU. There are already some general political and strategic orientations on climate change adaptation, but government institutions continue to be insufficiently prepared for the risks and challenges associated with climate change. In rural areas, very few specific climate change adaptation measures have been implemented so far.

This project is supporting the Ministry of Environment and Sustainable Development and the other partner ministries and institutions in integrating the issue of climate change adaptation more comprehensively into the national strategy and planning processes. The project is supporting activities that focus on how the issue of climate change adaptation can be integrated into selected strategies and/or programmes related to rural development. In order for adaptation measures to be implemented in the southern focal regions of Assaba and Brakna, the consulting company Adelphi Consult GmbH is firstly conducting context-specific and gender-sensitive

vulnerability analyses. The results will then be used for developing options for an adapted and climate-sensitive management of natural resources and corresponding extension concepts.⁶²

Co-management of marine, coastal and terrestrial resources

This project is being implemented from 2018 to 2019, and aims to better prepare population groups that depend on marine, coastal and terrestrial resources to deal with the impacts of climate change. The implementation focuses on the two National Parks, Banc d'Arguin and Diawling, and on the dune belt along the country's coast. This primarily serves to protect Nouakchott, and the Guidimakha and Hodh El Gharbi regions in the south. The programme focuses on three areas: supporting information-based decision-making processes, promoting climate-sensitive integrated management of marine and coastal resources and climate-sensitive management of communally used forest, bush and grazing resources. The first area concentrates on supporting the environment ministry at national level, whereas the other two fields of action focus on the sub-national and local level. GOPA/Eco Consult, a consortium of consultancy companies, is providing support in implementing the second field of action.⁶³

6. Niger

Multilateral programmes

Adaptation Fund

Enhancing Resilience of Agriculture to Climate Change to support food security in Niger through modern irrigation techniques⁶⁴

Approved in 2016, with BOAD as the implementing agency, no information could be found on the implementation of this project. The project proposal focuses on about 200 pilot farmers groups in five areas of Niger. Project objectives include strengthening the capacity of stakeholders on resilient irrigation systems and disseminate lessons learned; supporting the development of efficient technologies for sustainable management of water resources; conserve soil and reduce energy costs associated with pumping irrigation water, and supporting the diversification of livelihoods to improve the incomes of farmers.

AfDB & CIF

The Pilot Programme for Climate Resilience

The programme funds a number of activities, including two projects with the AfDB: one, to improve the quality of climate information and forecasting, including making information publicly

⁶² Information taken from <https://www.giz.de/en/worldwide/31465.html> [retrieved 07/05/2019]

⁶³ Information taken from <https://www.giz.de/en/worldwide/62511.html> [retrieved 07/05/2019]

⁶⁴ The project's webpage can be accessed here: <https://www.adaptation-fund.org/project/enhancing-resilience-of-agriculture-to-climate-change-to-support-food-security-in-niger-through-modern-irrigation-techniques-2/> [retrieved 03/05/2019]

available; and, two, mobilising water resources for food production (including building mini-dams and developing pastoral facilities).⁶⁵

EU

GCCA+: Climate Resilience for sustainable agricultural development in Niger⁶⁶

This project is being implemented between 2015 and 2020, and supports activities in more than 30 municipalities in the Dosso and Zinder regions. These activities aim to enhance the capacity of national actors at various levels, to manage food and nutritional security and agricultural development in a more integrated, sustainable and climate-resilient manner. The project's institutional support aspects addresses existing weaknesses in the national system for monitoring and evaluating climate-related interventions and some aspects of the government's 'Nigeriens Nourish Nigeriens Initiative' of 2012.

There are currently five ongoing field projects, including one to support household resilience in the Zinder region, and one to improve climate resilience and food security in the rural communities of Soucoucoutane and Dogonkiria in the south-west.

FAO

Integrating Climate Resilience into Agricultural and Pastoral Production for Food Security in Vulnerable Rural Areas through the Farmers Field School Approach

Funded by the GEF, this project aims to enhance the capacity of Niger's agricultural and pastoral sectors to cope with climate change, and mainstream climate change adaptation practices and strategies into on-going agricultural development policies and programmes. Field based activities are ongoing in the Sahelian band, where most of the more vulnerable communes (identified in Niger's NAPA) are located, and in the Niger valley (south of Niamey), which is critical for national food security (GEF, 2012). The project focuses on three different production systems: dry cereals, vegetable growing mostly practised by women's groups, and mixed crop/livestock systems (GEF, 2012).

UNDP

Implementing NAPA Priority Interventions to Build Capacity of the Agriculture Sector to Climate Change - Niger

Funded through the Canada-UNDP Climate Change Adaptation Facility, project activities began in 2013. Project objectives are to build communities adaptability to cope with additional risks related to climate change in the areas of agriculture and water. Activities include strengthening sustainable agricultural techniques (e.g. organic fertiliser testing); improving institutional capacity (e.g. management tools for regional technical services), and disseminating project experiences to other communities and municipalities.

⁶⁵ The project's webpage can be accessed here: <https://www.climateinvestmentfunds.org/country/niger> [retrieved 30/04/2019]

⁶⁶ The project's webpage can be accessed here: <http://gcca.eu/programmes/climate-resilience-sustainable-agricultural-development-niger> [retrieved 30/04/2019]

By 2015, seven information campaigns had been organised on climate resilient seeds; 70 seed multipliers (21 women) trained and supervised in seed production techniques; 36 rural rainfall observers trained on coding meteorological information using mobile phones; and eight community radio stations given equipment for broadcasting meteorological information (UNDP & CCAF, 2015b). Income-generation activities include training 1,236 people in market gardening techniques, increasing the revenue from 32 hectares of small gardening sites operated by 1,705 beneficiaries, and 1,336 people (1,094 women) introduced to other income-generating activities, particularly small processing units of agricultural products (UNDP & CCAF, 2015b).

Emerging lessons learned from the project include:

- The private sector can meet certain adaptation needs at the local level: mobile phones used to disseminate agro-meteorological information could increase the adaptation capacity of vulnerable farmers, and
- Socio-cultural norms may accentuate vulnerability to climate change: in Niger, land is generally owned by men; consequently, women have limited access for practising subsistence agriculture. This norm is a challenge for climate change adaptation measures, and the project is working with local authorities to provide women with land rights (UNDP & CCAF, 2015b).

UNDP is also undertaking a number of other climate change projects in Niger: a snapshot of these is provided in Table 4 below:

Table 4: UNDP projects in Niger

Project Name	Implementation Dates	Objectives	Results
Strengthening the Resilience of the Agricultural Sector in the Face of Climate Change - PANA⁶⁷.	2010-2016	Working in seven communes, the project aims to strengthen the resilience of food production systems and food-insecure communities, strengthen the capacity of the agriculture sector including information and extension services, and build institutional capacity to address climate change risks and management in the water sector.	Distribution and popularisation of drought-resistant seeds; and, installation of rain gauges.
Scaling up community-based adaptation in Niger⁶⁸	2014-	Strengthen the responsiveness and adaptive capacity of administrative and technical support services at the commune-level and achieve more climate resilient economies in the Maradi region of Niger. The project will directly benefit 3,300 households and a number of indirect beneficiaries through the development of shared resources e.g. developing the Koris tributaries of the Niger river.	No results could be found during the course of this review.

The Scaling-up community-based adaptation programme is part of a larger UNDP programme including activities in 10 countries and building on a previously completed first phase of activities. A 2009 overview document of the first phase includes lessons learned, for example: adaptation is more than technical solutions, as it often asks people to change their behaviour and traditional/cultural practices. In Niger, a technical solution to more frequent droughts is switching to a faster-growing variety of millet, however, this would require a cultural transformation (UNFCCC, 2009). Consequently, it is important to understand that people may be reticent to change, that transitions require respect for local culture, and ultimately communities themselves decide whether or not to make changes (UNFCCC, 2009).

⁶⁷ The project's webpage can be accessed here: http://www.ne.undp.org/content/niger/fr/home/operations/projects/environment_and_energy/fichePana.html# [retrieved 07/05/2019]

⁶⁸ The project's webpage can be accessed here: <https://www.adaptation-undp.org/projects/lcdf-cba-niger> [retrieved 07/05/2019]

World Bank

Climate Smart Agriculture Support Project

Running until 2022, this project's objectives are to enhance adaptation to climate risks; improve agricultural productivity among the targeted communities, and - in the event of an eligible crisis or emergency - to provide immediate and effective response to said eligible crisis or emergency (Amadou, 2019). In February 2019, the project had reached 125,000 direct beneficiaries against an end target of 500,000 (including 32% women, against an end target of 40%) (Amadou, 2019). Project activities include land reclamation, sustainable land management activities, targeted distribution of agricultural inputs (e-vouchers), extension activities, farmers' training (including Farmer Field Schools), and matching funded sub-projects (Amadou, 2019).

The World Bank has given the project an overall risk rating of 'substantial' (Amadou, 2019). There has been a number of issues with project implementation, including delays in finalising the environmental and social management plans for the sub-projects, delays in the procurement process, and low level of investment in transformational activities such as irrigation (Amadou, 2019). In terms of results, the project has increased agricultural productivity in targeted areas through CSA practices by 12% against a target of 50% (compared to control plots); increased the adoption of new agricultural and management practices promoted by the project by 2.8% against an end target of 25%; and, achieved the adoption of sustainable land management practices on 8,390 hectares against an end target of 100,000 hectares (Amadou, 2019). It has supported the preparation of climate smart investment plans in 15 communes, against a target of 44 (Amadou, 2019).

Niger Community Action Project for Climate Resilience

The project's development objective is to improve the resilience of populations and production systems to climate change and variability in targeted communes. Its key focus is improving the resilience of agro-sylvo-pastoral systems. In 2018, the project was restructured to ensure sustainability of project activities (World Bank, 2019a). Restructuring will support the design and establishment of integrated multi-service platforms at the commune level (maisons du paysan) to support the government's national food security programme – the 'Nigeriens Nourish Nigeriens Initiative' (Lotayef, 2018).

Running from 2012, the project is scheduled to finish in May 2019 and has reached approximately 3 million people (World Bank, 2019a). In 2017, the project increased crop yield in intervention areas compared to control plots by 83% and by 44% in 2018, against an end target of 30% (World Bank, 2019a). A 2019 Implementation Status and Results Report states that whilst the numbers have declined this year, the overall averages are on an upward trend (World Bank, 2019a). Issues with the project include poor management of seed inputs (World Bank, 2019a).

WFP⁶⁹

The WFP supports a number of programmes in Niger, including climate sensitive livelihoods and asset creation. Beneficiaries create assets through activities including regenerating land and

⁶⁹ Only brief details are available on the WFP's Niger webpage: <https://www1.wfp.org/countries/niger> [retrieved 06/05/2019]

rehabilitating ponds. Climate risk management and shock preparedness measures, including early warning climate insurance, will be expanded to build long-term resilience.

Bilateral programmes

France

Niger is one of the 15 countries supported through the AFD's Adapt'Action programme.⁷⁰ In 2017, an AFD identification mission to Niger analysed its specific vulnerabilities to climate change, identified priority sectors and prepared potential areas for action. Overall components of the Adapt'Action programme are: 1) support climate governance to successfully implement NDCs; 2) support the mainstreaming of adaptation issues into sectorial public policies, and 3) support the preparation of structural projects and programmes (AFD, 2018). No Niger specific information could be found during the course of this review.

7. Regional programmes

There are a number of regional programmes related to climate change that cover the G5 Sahel countries. Some include all five countries and others only one or two, they can also include other Sahel countries. This section provides a snapshot of some of these programmes, although few lessons learned were available. A number of donor countries and organisations are prioritising the Sahel region in future programming strategies and linking this to climate-resilient development (for example, the Strategy for Norway's efforts in the Sahel region 2018-2020 was released in September 2018). The EU announced in December 2018 that it was further stepping up its support to the G5 Sahel by committing an additional EUR125 million to support the priority areas identified by the G5 Sahel in its 'Programme d'Investissements Prioritaire' (EC, 2018). However, as these programmes are not yet in place they are not covered in this review.

Multilateral programmes

African Union

The Climate Commission for the Sahel Region

At the twenty-second session of the Conference of the Parties (COP22) to the UNFCCC in 2016, three climate commissions were created to facilitate implementation of the Paris Agreement throughout Africa. In the African Union, the Climate Commission for the Sahel Region, made up of 17 countries, is chaired by Niger. The first Conference of Heads of State and Government of the Climate Commission for the Sahel Region was held on 25 February 2019. Its partners and international organisations also attended, with the aim of defining projects to reduce the impact of climate change mainly in the agricultural and rural sector. Funding for these initiatives is set out

⁷⁰ AFD launched Adapt'Action following the Paris Climate Agreement to support countries with technical assistance for the institutional, methodological and operational implementation of their climate change commitments. More information is available on the project's webpage: <https://www.afd.fr/en/adaptaction> [retrieved 09/05/2019].

in the Climate Investment Plan for the Sahel Region. The first stage is to mobilise USD1.2 billion in 2019. France supports this initiative, in particular advocating for agro-ecology practices.⁷¹

No further information could be found on this initiative or the projects defined during the first conference.

Great Green Wall initiative

The Great Green Wall (GGW) of the Sahara and the Sahel Initiative is a pan-African initiative launched in 2007 by the African Union and UN Convention to Combat Desertification (UNCCD). The GGW is a large-scale adaptation project that has been “advocated as a means of reducing desertification in the Sahel through the planting of a broad continuous band of trees from Senegal to Djibouti. Initially proposed in the 1980s, the plan has received renewed impetus in light of the potential of climate change to accelerate desertification” (O’Connor & Ford, 2014, p. 7142). According to its website, 15% of the needed 8,000km is underway, and by 2030, the GGW project aims to restore 100 million hectares of currently degraded land, sequester 250 million tonnes of carbon and create 10 million jobs in rural areas.⁷² Results so far include 3 million hectares of land rehabilitated through local ‘Zai’ practices in Burkina Faso, and 5 million hectares of land restored in Niger delivering an additional 500,000 tonnes of grain per year.

Although the project is already being implemented (in a piecemeal fashion), with major land reclamation within Senegal and Niger, the plan has suffered from a lack of funding and political will. There has also been opposition to the project at local and international levels with arguments that the initiative has “marginalized local people in decision making, is focusing on turning currently productive agricultural land to tree monocultures, will further stress the water system and may result in a loss of traditional livelihoods” (O’Connor & Ford, 2014, p. 7145). O’Connor and Ford (2014) argue that if the GGW project is to be effective there should be an enhanced focus on the planting of shrubs as opposed to trees.

EU

Action Against Desertification

Funded by the EU and implemented by FAO between 2014 and February 2019, this project’s objective is to support communities, civil society, and the governments of six countries in Africa to sustainably manage and restore their drylands and fragile ecosystems affected by desertification, land degradation and drought.⁷³ The project contributes to the Great Green Wall (GGW) for the Sahara and the Sahel initiative (GGWSSI), and supports activities in Burkina Faso, Niger, Ethiopia, the Gambia, Nigeria and Senegal. In Burkina Faso, the project has achieved the following:

- 1,150 households in beneficiary communities of farmers and herders participated directly, with 47% of participants being women;
- 3,185 hectares of degraded land were replanted for agro-sylvo-pastoralism, and

⁷¹ Information taken from <https://www.diplomatie.gouv.fr/en/country-files/africa/climate-issues/> [retrieved 07/05/2019]

⁷² Information taken from <https://www.greatgreenwall.org/> [retrieved 08/05/2019]

⁷³ The project’s webpage can be accessed here: https://ec.europa.eu/europeaid/case-studies/making-land-fertile-again_en [retrieved 07/05/2019]

- 45 villages were involved in the restoration of 81 sites.

Niger River Basin programmes

Programme for Integrated Development and Adaptation to Climate Change in the Niger Basin

Funded by the GCF, AfDB, ADF, EU, and the Global Environment Fund this project will run from 2019 to 2024. . Countries of operation include Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Guinea, Mali, Niger and Nigeria. Project components include: 1) reducing the silting process of the Niger River; enhancing the adaptability of populations, and 2) improving natural resource management and integrated ecosystem management; the protection of biodiversity, and the restoration of soil fertility (GCF, 2018). Activities are integrated into the Niger Basin Authority's Climate Resilience Investment Plan (GCF, 2018). In addition to adaptation activities, the project also includes some mitigation activities.

Project activities include: strengthening sustainable land management and forest management in targeted areas in the basin; strengthening climate information and early warning systems - including strengthening decision-making tools at the basin and country level; strengthening capacity for implementing integrated water resources management at the national and regional levels; strengthening climate resilient hydro-agricultural infrastructure by rehabilitating/constructing 134 small multi-purpose dams and the development of 19,000 hectares of irrigated land in targeted areas in the basin, and constructing/developing water points for cattle and development of transhumance pathways (GCF, 2018).

Support for the Niger Basin Authority (NBA)

Funded by Germany and running from 2019 to 2021 the project supports the NBA, which advises its nine member states (Niger, Burkina Faso, Côte d'Ivoire, Guinea, Cameroon, Mali, Benin, Nigeria and Chad) on the sustainable development of transboundary water resources in the Niger Basin, and successfully manages the necessary processes. The project helps the NBA to complete the legal framework for transnational co-operation, to improve development planning for water resources at the catchment area level, and to foster communication between authorities on issues such as flood protection.

The NBA has successfully guided the preparation of the regional development plan. It has identified 350 development measures in the form of projects with cross-border impacts, including 246 climate-relevant projects. The parliaments of the nine member states have ratified the Water Charter as a legally binding foundation and set of regulations for transnational co-operation. So far, three implementation mechanisms for the water charters for environmental protection, notification procedures, and a cost-benefit balance have been developed and approved by NBA Council of Ministers on behalf of BMZ.⁷⁴

Niger River Basin Management Project for Africa

This project is implemented by the World Bank and runs from 2015-2019 with the aim to strengthen the institutional framework for regional cooperation in water resources in the Niger River Basin. There are two components to the project, the first component being strengthening

⁷⁴ Information taken from <https://www.giz.de/en/worldwide/14938.html> [retrieved 07/05/2019]

the Niger Basin authority for sustainably delivering its mandate. This component will support the institutional and financial strengthening of the NBA to enhance its capacity to implement its mandates. It will also support the implementation of the water charter, focusing on the process of adoption and operationalisation of the Niger Basin water charter's annex two on water management regulation for the large regulating dams. The second component will facilitate sound decision-making, support an exemplary preparation process for the Fomi multipurpose development project, and, in parallel, build the capacity of the NBA through its hands-on involvement in this complex project.⁷⁵

In a project implementation report from December 2018, it was reported that progress indicators remain moderately unsatisfactory but progress has been made, albeit slowly (World Bank, 2018b).

Sahel Alliance

Launched in July 2017, the Sahel Alliance⁷⁶ currently comprises 12 members: Denmark, France, Germany, Italy, Luxembourg, the Netherlands, Spain, the UK, the EU, UNDP, AfDB, and the World Bank. The new initiative plans to pioneer an integrated approach to address development and security challenges in the region (Baltissen et al., 2018). It aims to co-ordinate and deliver aid more rapidly and effectively in the five countries of the Sahel. Its action focuses in particular on the outermost, cross-border and most fragile areas of the Sahel. Since its launch, the Sahel Alliance has identified six priority areas for action: 1) Youth employment; 2) Rural development, agriculture and food security; 3) Climate, including access to energy, green energy and water; 4) Governance; 5) Support for the return of basic services throughout the territory, including through decentralisation, and 6) Security (EC, 2018).

EUR6 billion is being made available to member countries of the G5 Sahel for the implementation of over 500 projects between 2018 and 2022. All these projects were presented to Sahel Heads of State during the G5 Sahel Summit in Niamey, Niger on 6 February 2018. They will be implemented rapidly, particularly in the most vulnerable areas, as the objective of the Sahel Alliance is to have an immediate impact on populations (World Bank, 2018i). For example, the Restoring Stable Communities around Lake Chad is being implemented by the EU and France between 2018 and 2021, and aims to contribute to economic recovery and reinforce climate change resilience and social cohesion in the most impacted areas of the Lake Chad basin.⁷⁷

Regional Support Project for Sahel Pastoralism

Implemented by the World Bank in the G5 Sahel countries, this project is targeting pastoralist populations. In particular, these are the most vulnerable, young people, and women in the first instance, with the goal of improving and perpetuating their livelihood. It should directly benefit more than 2 million people, including at least 30% of women, whose livelihood depends mainly on pastoral activities. The secondary beneficiaries will be the public and private providers of livestock services, particularly professional organisations, and veterinarians, as well as the

⁷⁵ Information taken from <http://projects.worldbank.org/P149714?lang=en> [retrieved 08/05/2019]

⁷⁶ See <https://www.alliance-sahel.org/en/>

⁷⁷ The project's webpage can be accessed here: <https://www.alliance-sahel.org/en/projects/lake-chad-inclusive-economic-and-social-recovery-resilac/> [retrieved 07/05/2019]

national and regional bodies concerned. In the field, the project will have five components, namely: animal health; natural resource management; market access; pastoral crisis management, and support for institutions.⁷⁸

West African Development Bank (BOAD)

Promoting Climate-Smart Agriculture in West Africa

The Regional Project aims to reduce the vulnerability of farmers and pastoralists to increase climatic risk, which undermines the level of food security, income generation, and the supporting ecosystem services of poor communities. Approved in July 2018 and running for 3.5 years, it is funded by the Adaptation Fund and implemented by BOAD with support from ECOWAS Regional Agency for Agriculture and Food (RAAF), in collaboration with Directorates in Charge of Environment, Agriculture, and Livestock in the five countries of operation (Benin, Burkina Faso, Ghana, Niger and Togo).⁷⁹

The specific objectives of the project are to:

1. Strengthen knowledge and technical capacity through regional and local interactions for the promotion of agriculture practices resilient to the adverse effects of climate change;
2. Scaling up best practices related to climate change adaptation in agriculture and pastoralism at local and regional level, and
3. Share knowledge and disseminate lessons learned on resilient agricultural best practices related to climate-smart agriculture.

World Bank

The Sahel Adaptive Social Protection Programme (ASPP)

This programme was launched in March 2014 (extended until 2025) to support the design and implementation of adaptive social protection programmes and systems in six Sahel countries (Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal). The 'adaptive' approach integrates basic social protection with disaster risk management and adaptation to climate change. The trust fund has major contributions from DFID, AFD, and a forthcoming contribution from BMZ (World Bank, 2019c).

The envisioned adaptive social protection systems in the Sahel would consist of a combination of policies and programmes to help poor and vulnerable households build resilience, reduce the impact of climatic change and other shocks, and foster access to income earning opportunities. This work programme is being implemented through regional and stand-alone country level activities. The trust fund supports technical assistance, capacity building, and pilots, with the majority of resources disbursed as direct grants to governments. It is expected that those grants

⁷⁸ Information taken from <https://www.alliance-sahel.org/en/projects/regional-sahel-pastoralism-support-project-praps/> [retrieved 07/05/2019]

⁷⁹ Information taken from <https://www.adaptation-fund.org/project/promoting-climate-smart-agriculture-west-africa-benin-burkina-faso-ghana-niger-togo/> [retrieved 07/05/2019]

will contribute to building institutions and procedures for setting up adaptive social protection systems and create relevant policy evidence.⁸⁰

Senegal River Basin Climate Change Resilience Development Project

This World Bank implemented, GEF-funded project runs until 2021, and is the second phase of a ten-year programme to enhance regional integration amongst the countries of the Senegal River Basin (Guinea, Mali, Mauritania and Senegal) for multi-purpose water resources development to foster improved community livelihoods.⁸¹ The project aims to improve water availability for agriculture, support aquaculture and fisheries management, promote hydropower, reduce malaria, and pilot innovative approaches to adapt to climate change.⁸²

Project results to date include: 5,369 hectares provided with new/improved irrigation services; 36 km of canals cleared from vegetation and sediments; 4,000 hectares protected from flooding; 527 hectares reforested; 2,845,000 treated malaria nets distributed; 78% of targeted children sleeping under a treated bed net; 97% of targeted population treated against schistosomiasis; 4% increase in fish sales, and 300% increase in fish production in the project targeted areas (Lajaunie, 2018).

Co-operation in International Waters in Africa (CIWA) programme

The CIWA programme assists riparian governments in Sub-Saharan Africa in unlocking the potential for sustainable, climate-resilient growth by addressing constraints to co-operative water resources management and development. Managed by the World Bank, CIWA is a multi-donor trust fund representing a partnership between the World Bank and the governments of Denmark, the EU, Norway, Sweden, the Netherlands, and the UK. CIWA funds a variety of organisations – governments, river basin organisations, regional economic communities, civil society organisations, and African regional or national organisations – to address the constraints of co-operative transboundary water management.⁸³

The CIWA programme that contributes to cross-border water management in the Niger, the Nile, the Volta, and Lake Chad. It also supports L'Organisation pour la Mise en Valeur du Fleuve Sénégal (OMVS) - an intergovernmental organisation responsible for management of the Senegal River.

Regional Sahel Pastoralism Support Project for Africa (PRAPS)

This project is being implemented for just over 5 years (2015-2021) by the World Bank. It aims to improve access to essential productive assets, services, and markets for pastoralists and agro-pastoralists in selected trans-border areas and along transhumance axes across six Sahel

⁸⁰ Information taken from <http://www.worldbank.org/en/programs/sahel-adaptive-social-protection-program-trust-fund> [retrieved 08/05/2019]

⁸¹ The project's webpage can be accessed here: <http://projects.worldbank.org/P131323/senegal-river-basin-multi-purpose-water-resources-development-project-2?lang=en&tab=overview> [retrieved 07/05/2019]

⁸² An article providing an overview of the project can be accessed here: <http://www.worldbank.org/en/news/press-release/2013/12/05/world-bank-group-approves-new-push-to-alleviate-water-scarcity-in-senegal-river-basin-and-wider-sahel> [retrieved 07/05/2019]

⁸³ Information taken from <http://www.worldbank.org/en/programs/cooperation-in-international-waters-in-africa> [retrieved 30/04/2019]

countries, and strengthens country capacities to respond promptly and effectively to pastoral crises or emergencies. The objective will be achieved through a combination of strategic investments, capacity building, and policy dialogue. The main beneficiaries of PRAPS will be pastoralists and agro-pastoralists in Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal. The proposed project is expected to benefit 2,070,000 people directly (200,000 in Burkina Faso, 400,000 in Chad, 440,000 in Mali, 400,000 in Mauritania, 400,000 in Niger, and 230,000 in Senegal) whose livelihoods rely mainly on pastoral activities, including but not limited to livestock keeping or marketing. Target groups include women and youth. CILSS (the Permanent Inter-State Committee for Drought Control in the Sahel) will be a major institutional beneficiary of this project, alongside CRSA (Centre Régional de Santé Animale, the ECOWAS Regional Animal Health Center, based in Bamako) and other regional coordinating partners at the technical level. Under the harmonised approach of the Alliance Globale pour la Résilience (Global Alliance for Resilience, AGIR) partnership, the goals of PRAPS and other development partners are expected to align to strengthen coordination and monitoring capacities within the Sahel (World Bank, 2019d).

WMO

Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin

This project is funded by the Adaptation Fund and implemented by the WMO, with executing assistance from the Volta Basin Authority (VBA) and Global Water Partnership West Africa (GWP-WAF). It was approved in December 2018 to run for four years. The main objective of the project is to assist six countries (Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo) in the implementation of co-ordinated and joint measures to improve their existing management plans at regional, national and local levels. It will also build on the lessons learned from past and current projects related to disaster risk reduction and climate adaptation. As droughts and floods are a common feature in the Volta basin region, integrated water resources management, risk maps, and development of early warning systems must be implemented to increase resilience to floods and droughts to ensure socio-economic sustainable development. Equilibrated management of the water resources will be sought to make better use of the water surplus during floods to be stored in view of drought events. Furthermore, at local scale, agricultural production will be tailored to these challenges with provision of knowledge and early warnings that will enable farmers to adapt their production methods.⁸⁴

Climate Services for Increased Resilience in the Sahel

This project is being implemented in Burkina Faso, Senegal and Niger, and funded by the Norwegian Refugee Council (NRC) and USAID/The Office of U.S. Foreign Disaster Assistance (OFDA). It is implemented by the WMO, who collaborate with African Center of Meteorological Application for Development (ACMAD), FAO, National Oceanic and Atmospheric Administration (NOAA), and NRC.⁸⁵

⁸⁴ Information taken from <https://www.adaptation-fund.org/project/integrating-flood-drought-management-early-warning-climate-change-adaptation-volta-basin-benin-burkina-faso-cote-divoire-ghana-mali-togo/> [retrieved 07/05/2019]

⁸⁵ Information taken from <https://public.wmo.int/en/projects/climate-services-increased-resilience-sahel> [retrieved 07/05/2019]

The overall aim of the project is to enable society to better manage the risks and opportunities arising from climate change and natural variability, especially those that are most vulnerable to climate-related hazards. This is to be achieved by developing and incorporating science-based climate information and prediction into planning, policy and practice. It works at the national and regional levels.

The project began in 2016 and was scheduled to run until August 2018, but is still classified as 'ongoing' on the WMO website. The project built on existing institutions at national and regional level, enhancing their respective capacities, improving the collaboration among them, and building on successful examples of similar initiatives implemented in the region. Further documentation (in French) is available (<https://www.wmo.int/gfcs/sahel-project>).

Bilateral programmes

UK

BRACED – Livestock Mobility: Strengthening the resilience of pastoralists and agro-pastoralists

The Livestock Mobility project focuses on securing and equipping livestock corridors for the trans-border movement of livestock. This will enable Sahel pastoralists and agro-pastoralists to manage climate variability, reach refuge areas during severe droughts, and ensure access to markets and value chains. Countries of operation include Burkina Faso, Mali, Mauritania, Niger and Senegal, and the lead organisation is the French NGO Acting for Life.

The project has three principal outcomes:

1. Strategic livestock corridors are mapped, protected and equipped (water points, transit campsites and grazing reserves), as well as managed by users and institutional actors (decentralised authorities, state services).
2. Key services (fodder supplements and animal health) are provided to pastoralists and agro-pastoralists along the corridors, and innovative services for mobile herders are tested through action research.
3. Appropriate lobbying tools demonstrating the economic, social and environmental contributions of trans-border livestock mobility in West Africa are disseminated, allowing communities and key stakeholders to advocate for trans-border livestock mobility at local, national and sub-regional levels.

Three years of BRACED project implementation and research has provided evidence that in the context of scattered resources and unpredictable seasonal and inter-annual climate variability, livestock mobility constitutes a basic livelihood strategy. Evidence shows that mobility is a major factor in the resilience of not only pastoral and agro-pastoral households, but also local host communities along their routes of passage.

BRACED phase 1 impact indicator analysis shows improved food security for beneficiaries (measured in TLU – tropical livestock units for pastoralist households) and a reduction of households living below the poverty threshold. In year 4, the project will focus on strengthening

support for work with governments at the national and decentralised levels, as well as on access to markets.⁸⁶

US

Resilience in the Sahel Enhanced (RISE)

The RISE programme was conceived in 2012, in response to a historic pattern of severe droughts in the Sahel. The project focuses on targeted agro-pastoral and marginal agriculture livelihood zones in Niger and Burkina Faso (USAID, 2018). A second phase was launched in 2018. The programme seeks to address the root causes of persistent vulnerability and build resilience to shocks: in its second phase, there is a strong focus on agriculture, food security and strengthening market systems in targeted agricultural value chains, including enhancing access to finance and the policy-enabling environment (USAID, 2018).

Relevant lessons learned from phase one include:

- Women's roles and leadership is critical in tackling some of the biggest challenges facing the Sahel. Therefore, a greater focus on enhancing women's capabilities and encouraging supportive attitudes from men is needed; and
- A greater engagement with governance and state institutions is needed to build sustainability of results. Specific identified needs include building local capacity to manage and co-ordinate donor support, building functional linkages between local and higher levels of government, and enhancing resource mobilisation (USAID, 2018).

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