



PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: Full-size Project
TYPE OF TRUST FUND: LDCF

PART I: PROJECT IDENTIFICATION

Project Title:	Reducing vulnerability of natural resource dependent livelihoods in two landscapes at risk of the effects of climate change in Burkina Faso: Boucles du Mouhoun Forest Corridor and Mare d'Oursi Wetlands Basin		
Country(ies):	Burkina Faso	GEF Project ID:	4971
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4598
Other Executing Partner(s):	National Council for Environment and Sustainable Development (CONEDD)	Submission Date:	1 st submission: April 19, 2012 2 nd submission: May 9, 2012 3 rd submission: May24, 2012
GEF Focal Area (s):	Climate Change	Project Duration(Months)	72
Name of parent programme (if applicable): For SFM/REDD+ []	n/a	Agency Fee:	\$700,000

A. FOCAL AREA STRATEGY FRAMEWORK:

Focal Area Objectives*	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
CCA-2 – Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level	Outcome 2.1 Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas	Output 2.1.2: Systems in place to disseminate timely risk information	LDCF	1,000,000	1,102,500
CCA-1 – Reducing Vulnerability: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level	Outcome 1.2: Reduced vulnerability to climate change in development sectors	1.2.1: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability	LDCF	5,400,000	11,160,000
	Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas	1.1.1: Adaptation measures and necessary budget allocations included in relevant frameworks	LDCF	300,000	8,194,500
Project management cost				300,000	950,000
Total project costs				7,000,000	21,407,000

B. PROJECT FRAMEWORK

Project Objective: To reduce local communities' vulnerability to the additional risks posed by climate change and build their resilience with focus on the natural resource management sectors in the Boucles du Mouhoun Forest Corridor and the Mare d'Oursi Wetlands Basin.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
1) Knowledge support platform on climate change impacts and risks	TA	Increased knowledge and understanding of climate variability and change-induced risks in the project targeted areas generated by a customised geo-based agro-ecological and hydrological information system – <i>measured by:</i> - Updated risk and	1.1 A geo-based climatic, agro-ecological and hydrological information system, hosted by SP/CONNED and focusing initially on the BdM Forest Corridor and the MdO Wetlands Basin, is operational by end of project year 1 and it enables the analysis of climate-driven vulnerabilities and the cost-effective planning of specific adaptation interventions in Component 2 for strengthening social and natural assets; the system will include: (i) natural assets available	1,000,000	1,102,500

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
		<p>vulnerability assessments for the BdM Forest Corridor and MdO Wetlands Basin are available by end of project's year 2</p> <ul style="list-style-type: none"> - Knowledge products from the geo-based agro-ecological and hydrological information system (like maps, technical analyses and locally targeted publications) are being actively used by national planners and local commune leaders for NRM planning and budgeting and for guiding the siting and planning of adaptation activities in Component 2 	<p>(water, forests, wetlands) and ancillary information on their use; (ii) identification of critical areas for agro-ecological and hydrological services and their role in livelihoods; (iii) special features such as bushfire incidence, economic activities, population aggregations; and (iv) an overlay with the likely climate change impacts under different modelling scenarios, pointing out to areas of climate risk and vulnerability for communities and essential natural assets, upon which livelihoods depend.</p> <p>1.2 Approx. 30 national and provincial planners, plus 235 local commune leaders and 50 staff from NGOs/CSOs are trained on the use and interpretation of analyses from the geo-based climatic, agro-ecological and hydrological information system with the aim of using them for climate-adaptive development planning and implementation</p>		
2) Vulnerability reduction and strengthening of resilience demonstrated in the management of natural and social assets in the Boucles du Mouhoun Forest Corridor (BdM) and the Oursi Wetlands Basin (MdO)	Inv.	<p>The climate resilience of key agro-ecological and hydrological systems and of natural resource dependent livelihoods in the BdM and MdO are strengthened by focusing on vulnerable natural and social assets in target project sites – <i>this will be evidenced by:</i></p> <ul style="list-style-type: none"> - Surface of wetlands and natural pasture restored - Reduction of livestock overstocking in wetland areas during the dry season - Reduction in wetlands siltation - Surface areas restored or enriched with grassed, herbaceous and wooded vegetation, reducing loss of top soil, protecting river banks and improving infiltration in critical areas - Changes in land use practices that reduce the incidence of undesired fire at the landscape level 	<p><i>Demonstration activities that focus on the strengthening of natural assets will produce the following outputs:</i></p> <p>2.1 Critical wetland areas, covering some 1,600 ha and of ephemeral lakes in the MdO Wetlands Basin, and which support 24,000 livelihoods, become more resilient to desiccation through cost-effective rewetting (where applicable) and the replanting and protection of indigenous grasses and herbaceous vegetation resilient to significant climatic variance; a measure that promotes infiltration, decreases soil transpiration and makes more palatable grasses and water available to livestock during the dry season.</p> <p>2.2 Flood and erosion control is ensured through a “surgical” and climate anticipatory approach, by establishing flood tolerant and erosion resistant grassed and herbaceous swales¹, building check dams at critical points of the BdM Forest Corridor with community participation and enriching riparian forests with multi-use, climate resilient tree and herbaceous species -- this will contribute to the effective protection of river banks (as a complement to other proposed infrastructural solutions upriver), decrease soil transpiration and topsoil loss, it will allow the conveyance of storm water at a slower, controlled rate, reducing siltation levels in the water course and significantly improving infiltration and percolation, while also providing other agro-ecological and hydrological benefits to riverine communities facing an increasingly</p>	5,400,000	11,160,000

¹ A grassed and herbaceous swale is a graded and engineered landscape feature (varying 200m to 1km in width) and appearing a shallow open-channel drainageway stabilized with grass or other herbaceous vegetation. Swales in project sites will be vegetated with flood tolerant, erosion resistant plants. Besides controlling flood and storm water, and improving the base flow in the immediate area of an adjacent water body (e.g. a stream or a river), a swale can also act as a filter medium removing pollutants.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
		<ul style="list-style-type: none"> - People's livelihoods at project sites (as independently assessed) count on a more diversified basis in the face of climate change as a result of demo activities introduced by the project - Regular application of the Adaptation Monitoring and Assessment Tool (AMAT) 	<p>variable climate.</p> <p>2.3 Gazetted forests in the BdM are thus protected against climate induced bushfire: (i) protocols developed for managing climate-driven risks of increased incidence and intensity of bushfires fires in the BdM Forest Corridor; and (ii) demo fire-breaks are built by the project around some 73,000 ha of forests², using a cost-effective and sustainable method with the involvement of riparian communities.</p> <p>2.4 Through locally decided and enforced by-laws, an equitable and climate resilient plan for the use of pasture and water resources in the MdO Wetlands Basin, aimed at avoiding overstocking during the dry season, is implemented with the support from sedentary communities and transhumant groups.</p> <p><i>Demonstration activities that focus on the strengthening of social assets will produce the following outputs:</i></p> <p>2.5 Polyculture and adaptive agro-ecological production systems in communal lands (at least 400 ha³) are demonstrated at project sites (e.g. building on the lessons from first NAPA follow up project for Burkina Faso) as a means to strengthen vulnerable livelihoods and cope with additional climate risks by diversifying income sources and producing food, fuel-wood, fibre and other goods more sustainably for local consumption.</p> <p>2.6 Local commune leaders and resource users (e.g. farmers, freshwater fishermen and -women, livestock herders, foresters, rural women's groups and others) are trained in climate adaptive and anticipatory management of natural and social assets to support implementation of the remainder Outputs in Component 2 and with focus on the diversity of services rendered by sustainable agro-ecological and hydrological systems and their role in local livelihoods.</p>		
3) Climate change adaptation mainstreamed into local and regional development planning and finance	TA	<p>Climate adaptive management of agro-ecological and hydrological systems in the BdM Forest Corridor and the MdO Wetlands Basin are integrated into key sectoral planning and investment frameworks with focus on local and regional levels</p> <ul style="list-style-type: none"> - Sectoral strategies, plans 	<p>3.1 Climate risk management and climate resilient landscape management are integrated into the management (or master) plans for the BdM and MdO through the natural resource management options demonstrated (including wetland restoration, bushfire prevention, natural storm water control, natural increased infiltration measures etc.)</p> <p>3.2 The climate resilient poly-culture model is incorporated into relevant forestry, agricultural</p>	300,000	8,194,500

² The proposal is to include the gazetted forests of Tiogo, Tisse and Kalio, though the final choice remains to be confirmed at PPG phase through a feasibility study. Hence, the hectareage may change at CEO Endorsement stage.

³ Final hectareage also to be determined during the PPG phase through a feasibility study.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Indicative Grant Amount (\$)	Indicative Co-financing (\$)
		and investment projects include specific actions and budgets for adaptation measures - Improved institutional capacity of central and local governments and of communities in targeted sites are strengthened to plan, monitor and enforce the climate resilient integrated landscape management system *	and livestock management strategies, plans and investments for the BdM Forest Corridor and the MdO Wetlands Basin. 3.3 Through learning, sharing, partnerships and wide collaboration frameworks, the project and ongoing rural development programmes and related initiatives in the MdO Wetlands Basin and the BdM Forest Corridor address climate change concerns and options in their planning and implementation		
Project management Cost				300,000	950,000
Total project costs				7,000,000	21,407,000

* May be measured inter alia through the customised application of the UNDP Capacity Development Scorecard.

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)

Sources of Co-financing*	Name of Co-financier	Type of Co-financing**	Amount (\$)
National Government	Ministry of Environment/CONEDD.	In-kind	500,000
National Government	Ministry of Agriculture, Hydraulics and Fisheries Resources (MAHRH) - through the National Land Management Programme Phase II (PNGT2) and the Integrated Water Resource Management Programme (PAGIRE)	Grant	6,000,000
National Government	Various land management, forests and water programmes from multiple sources of funds (e.g. Programme pour la Lutte Contre l'Ensamblage - PLCE, National Agency for the Promotion of Non-Timber Forest Products, National Office for Protected Areas).	Grant	4,000,000
Bilateral Aid Agency (ies)	Austrian Cooperation through the Regional Development Programme (PRD) and through CONEDD.	Grant	1,700,000
Other Multilateral Agency (ies)	Global Facility for Disaster Reduction and Recovery (GFDRR)	Grant	4,500,000
CSO	OCADES/CARITAS (these activities focus on river basin protection, integrated rural development and water supply).	Grant	300,000
CSO	Various, including: ATARAN; Alliance Technique Assistance au Développement; RICH/ITALIA, and; Association pour la Gestion de l'Environnement Durable (these initiatives focus on integrated rural development, disaster risk reduction, sustainable land management).	Grant	300,000
GEF Agency	UNDP (Bureau for Disaster Risk Reduction and core resources)	Grant	1,857,000
GEF Agency	UNDP (core resources)	Grant	150,000
GEF Agency	UNDP (through collaboration with related projects and programmes in the project zones and the UNDP-Japan Africa Adaptation Programme).	Grant	2,100,000
Total Co-financing			21,407,000

D. GEF RESOURCES REQUESTED BY AGENCY (IES), FOCAL AREA(S) AND COUNTRY(IES)¹

GEF AGENCY	TYPE OF TRUST FUND	FOCAL AREA*	Country name/Global	Project amount (a)	Agency Fee (b) ²	Total c=a+b
UNDP	LDCF	Climate Change	Burkina Faso	7,000,000	700,000	7,700,000
Total GEF Resources				7,000,000	700,000	7,700,000

¹ In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

² Please indicate fees related to this project as well as PPGs for which no Agency fee has been requested already.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1. THE GEF FOCAL AREA STRATEGIES:

1. The proposed project is consistent with the two goals of LDCF Strategic Objectives in the following manner. It responds to the Focal Area Objective CCA2 (*Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level*), CCA2-Outcome 2.1 (*Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas*). This is aligned with project Component 1, as it focuses on expanding the knowledge and understanding among relevant groups of stakeholders on specific climate risks affecting the NAPA prioritised project sites. More specifically, the project will develop and apply a comprehensive agro-ecological and hydrological system of information, planning and decision-making on the management of natural and social assets under scenarios of climate change. Through training and other measures the sustainability of the system will be secured. The project also responds to the Focal Area Objective CCA1 (*Reducing Vulnerability: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level*) by aligning the intervention to two Focal Area Outcomes. Through Component 2, the project activities are aligned to CCA1-Outcome 1.2 '*Reduced vulnerability to climate change in development sectors*'. More specifically, it will focus on the natural resource management as a 'development sector' (and as per definitions of 'sector' in the relevant GEF strategy⁴) and address specific vulnerabilities to climate change embedded in the management of natural and social assets. Finally, the project is aligned to CCA1-Outcome 1.1 '*Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas*'. It does so by seeking to improve, through Component 3, landscape-level governance in targeted landscapes in a manner that addresses the additional impacts of climate change in the ability of agro-ecological and hydrological systems to provide services and sustain livelihoods. The cost-effectiveness of proposed measures will be monitored and lessons drawn.

A.1.2. FOR PROJECTS FUNDED FROM LDCF/SCCF: THE LDCF/SCCF ELIGIBILITY CRITERIA AND PRIORITIES:

2. Burkina Faso ratified the UNFCCC in September 1993 and is currently included in the list of Least Developed Countries (LDCs). Furthermore, the following LDCF criteria and priorities are thus met:

- Country ownership: Burkina Faso approved and submitted its National Adaptation Programme of Action (NAPA) in December 2007. This proposal addresses six of the 12 priorities identified in the NAPA—noting that the other priorities are being addressed through other projects. The NAPA was prepared through a comprehensive participatory process, with the full involvement of relevant stakeholders. Accordingly, this project is country-driven and the project's concept is consistent with, and supportive of, national development strategies such as the draft Strategy for Rapid Growth and Sustainable Development, 2011 – 2015 (SRGSD), and the Rural Development Strategy (2003) among others;
- Compliance with LDC Fund policies: The proposed project constitutes a response to urgent and immediate adaptation needs (programme conformity). It is designed to address the additional costs of priority adaptation measures identified in the NAPA (programme design), and it will also create the necessary capacity to sustain impacts after project completion (sustainability). The ratio of LDCF funds to co-financing is consistent with LDCF norms. Notably, the project emphasizes (i) investments at community level to ensure benefits to poor and marginalised communities, and (ii) gender empowerment, through the mainstreaming of gender concerns across all activities;
- Financing: Cost-effectiveness criteria were applied in the choice of adaptation measures and modalities during the NAPA process. During the PPG process, alternative approaches will be considered and the most cost-effective approach determined. During implementation, coordination with related activities will ensure synergies and cost-efficiencies. Finally, the level of co-financing ensures financial cost-effectiveness;
- Institutional synergies and support: The project is to be linked with other concurring projects, programmes and initiatives, including one ongoing project financed by LDCF. It complements rather than duplicates these other related development efforts. The project will be implemented by the National Council for Environment and Sustainable Development (CONEDD), under the Ministry for Environment and Sustainable Development. CONEDD, with support from UNDP, will play a pivotal role in project support and ensuring the coordination

⁴ Adaptation to Climate Change for the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF) ([Link](#))

and synergies with other projects, programmes and initiatives, and it will provide necessary institutional support; and

- *Monitoring and evaluation:* The projects will follow the GEF monitoring and evaluation procedures in addition to UNDP guidance on M&E for adaptation projects. Adaptive management will be a key component on the management approach. Details for monitoring and evaluation will be articulated during the project development phase. In order to better address gender issues, where possible, indicators will be gender disaggregated. Gender marking will apply (refer to Section B3 for further details on this).

A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS, IF APPLICABLE, I.E. NAPAS, NAPS, NBSAPS, NATIONAL COMMUNICATIONS, TNAs, NIPS, PRSPs, NPFE, ETC.:

3. **NAPA alignment.** Burkina Faso has prepared its National Adaptation Programme of Action (NAPA, submitted to the UNFCCC in 2007). The preparation of the NAPA was a participatory exercise to identify and prioritise adaptation measures. The NAPA identified the functionality of forests and critical wetlands as a vulnerable, as well as the agriculture, water and livestock sectors. The NAPA also identified the most vulnerable groups to be the poor in rural areas, notably the women, young people and small-scale producers. This proposed project responds directly and comprehensively to those urgent needs identified and expressed in the NAPA. More specifically, the project is aligned with NAPA priorities, first of all in terms of ‘sectors’ – i.e. the project addresses (i) terrestrial ecosystems; (ii) water resources; and (iii) food security sectors, which feature high among the 12 priority actions of the NAPA. Secondly, through demonstration activities on the ground under Component 2, the project addresses in different ways the following priority actions foreseen in the NAPA (noting that priorities 1 and 2 have been addressed through a previous LCDF project): #3 Restoration and management of the Mare d’Oursi (output 2.1); #4 Fodder production and development of fodder stocks for livestock in the Sahelian Region of Burkina Faso (outputs 2.1, 2.4 and 2.5); #5 Rehabilitation, sustainable management of natural vegetation, and valorisation of Non-timber Forest Products in the Eastern region of Burkina Faso, though the focus of the present project is on Boucles du Mouhoun region (outputs 2.2 and 2.3); #6 Control of sand encroachment/mud silting in the river basins of Mouhoun, Nakanbé and Comoé (outputs 2.1 and 2.2); #8 Protection of pastoral-suited regions in the Sahelian and Eastern regions (outputs 2.4 in the BdM, but also 2.1, though the focus of the latter is on the MdO in the North); #10 Promoting community-based fauna management in the Mouhoun region (output 2.5 and 2.6); #11 Implementation of safety zones and backup devices to control pollution of underground and surface water catchment infrastructures (lakes, wells, boreholes) in the cotton belts of Burkina (Mouhoun, South-West, Comoé and the Eastern part of Nakanbé) (outputs 2.2). In this manner, the project is very well aligned with the NAPA and a direct response to the adaptation priorities contained in it.

4. **Alignment with other Strategies, Plans and Reports.** The project strategy and proposed outputs are consistent with national development priorities, and have close substantive and institutional links and complementarities with the primary national development strategies and plans including:

- The Poverty Reduction Strategy Paper (PRSP) which focuses on poverty reduction and recognized the links between natural resource degradation and poverty, and emphasized the need to conserve ecosystems. The PRSP is being updated and in connection with it, the government has prepared a draft Strategy for Rapid Growth and Sustainable Development (SRGSD) for 2011-2015 and the ‘2025-Vision’; both stress importance of climate risk to sustainable development and economic growth, and emphasise the links with natural resource management and ecosystem services.
- The Rural Development Strategy (RDS), where the objective is to ensure sustainable development of the rural sector in view to contributing to the fight against poverty, by consolidating food security, access to water and promoting sustainable development.
- The National Policy for the Environment (2007), which stresses the sound management of natural resources and their contribution to the country’s economic development.
- The Forestry Code (1997, currently being updated), which emphasises the importance of managing forest resources rationally.
- The National Water Policy (2007) and the Action Plan for Integrated Water Resource Management (PAGIRE), which covers two phases, the current one being 2009-2015, and which seeks to increase access to water and sanitation through IWRM, while placing the management of scarce water resources high on the national agenda with a long-term and integrated view. Both the Water Policy and its Action Plan stress the importance of wetlands, especially those of international importance (Ramsar sites) and of river basins in the country’s economic development.

- Burkina Faso's National Biodiversity Strategy and Action Plan (NBSAP 1999), which stresses that the country's biodiversity endowment is limited and it needs therefore to be managed in a sustainable manner. The NBSAP will soon undergo a review to align it with the global Aichi Targets, including the mainstreaming of climate change into the management of biodiversity.

These largely sectoral development plans, policies and reports constitute baseline development strategies which have only superficially taken onboard stresses on natural and social assets that will likely be created by climate change. The project will enable the Government to (1) further develop sector policies by internalizing climate change risks into them; (2) address climate-driven vulnerabilities in the planning and implementation of local development programmes, projects and initiative so as to reverse the loss and degradation of essential natural resources that are essential to people's livelihoods as a measure to adapt to climate change; and (3) build Burkina Faso's overall capacity to face climatic challenges.

B. PROJECT OVERVIEW:

B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:

5. **Context and issue.** Burkina Faso is a landlocked country situated in the heart of West Africa. It has a land surface of 274,000 sq km and a population of 15.3 million, mostly concentrated in the central and southern portions of the country. The climate is tropical, with two very distinct seasons – the rainy and the dry one. The vegetation is dominated by grasslands and savannas, becoming dryer and sparser towards the North. Burkina Faso is one of the least developed countries in the world, with an income per capita of \$550 and a HDI of 0.331, placing it at as 181st among 187 countries.⁵ More than 70% of the population live on less than \$2 per day. The country's economy is heavily dependent on natural resources. At least 35% of the gross domestic product is obtained from the agro-sylvo-pastoral sector (featuring crops such as pearl millet, sorghum, maize and rice, coupled with livestock rearing and exploitation of forest resources).⁶ Subsistence farming occupies more than 80% of the rural population, while cotton and increasingly sugar cane in the south are grown commercially on family and communal plots. More than 82% of the urban and rural population have no access to modern fuels and depend on either firewood or charcoal for cooking. Alternative options for reducing dependence on forests for fuel wood are not available in rural areas, or are too costly to obtain.

6. Based on NAPA priorities, two project zones have been chosen to be the focus of this intervention: the Boucles du Mouhoun Forest Corridor (which is an important part of the Mouhoun-Sourou River basin) and the Oursi Wetlands Basin. (Sites are described in more detail in an Annex to this PIF). The choice of site is particularly relevant because local people in these areas are highly dependent on natural resources for their livelihoods – livelihoods that will be threatened by the exacerbation of the current climatic variability and climate change.

7. In the riparian areas of the Boucles du Mouhoun Forest Corridor (BdM) and the Mare d'Oursi Wetlands Basin (MdO) some 150,000 people are directly dependent on natural assets such water, pasture, forests and fertile soil for a living. Although the use of these resources have undergone a certain degree of degradation over the years, the current regimes pertaining to natural and social assets in project sites have so far managed sustain a stream of services to the majority of resource users. E.g. every year during the dry season, Sahelian lakes in the MdO Wetlands Basin receive 15-20 thousand heads of cattle that find in the lakes and adjacent ponds the only viable source of water and fresh pasture. This pendular movement of livestock and nomadic pastoralists have been going-on for more than three centuries, although livestock numbers have increased significantly in the past 20-30 years. The MdO lakes are also generally resilient to the occasional impact of sandy winds and the natural variations in water levels. The BdM Forest Corridor sustains the legal production of approximately 1.4-1.6 million m³ of wood from some 175,000 ha of gazetted forests – wood that is either sold as firewood locally or transformed into charcoal for sale both in small and large urban centres.⁷ In addition, these same forests avail a number essential NTFP for the use by local communities. Riparian forests in the BdM also play a key role in maintaining soil fertility and avoiding the erosion of river banks, besides sustaining important ecosystems. The Mouhoun River itself sustains several

⁵ Respectively: GNI per capita, Atlas method, current US\$, IMF data 2010 and HDR, 2011.

⁶ The 35% of GEDP derived from the agro-sylvo-pastoral sector includes 20% for agriculture and 15% forestry, fisheries and hunting (MECV, *Politique nationale en matière d'environnement*, 2007).

⁷ In 2011, large scale illegal wood cutting activities have been observed in the northern border of the Deux Balés National Park, reaching possibly one fourth of legal quantities in the Forest Corridor (verbal comment by local forestry officer in Dedougou, Boucles du Mouhoun).

production systems generally based on the availability of surface water all year round: livestock, irrigated crops and freshwater fishing, which are essential for communities' food security for the local economy.

8. Climate change effects such as higher temperatures, marked changes in precipitation and in the rainfall regimes, and a significant decrease in surface runoff will result in increased incidence and intensity of bushfire, water scarcity and significant changes to water flow regimes in key water bodies. The latter may include both flooding and the complete cessation of dry season flows. These impacts will create vulnerabilities that are either climate driven or that will be exacerbated by climate change. The issues that the project proposes to address are summarised in the matrix below:

Vulnerabilities in agro-ecological and hydrological systems		Climate driven or climate exacerbated issues in the management of natural and social assets at project sites	
		MARE D'OURSI BASIN	BOUCLES DU MOUHOUN FOREST CORRIDOR
In natural assets	Water	<ul style="list-style-type: none"> Wetland desiccation Serious water scarcity in the region with sudden drops in the water table Siltation <i>Addressed through Output 2.1</i>	<ul style="list-style-type: none"> Decreased quality and availability of water Sudden drops in the water table Atypical flooding River bank erosion and siltation linked to sudden changes in river flow regimes <i>Addressed through Output 2.2</i>
	Pasture	<ul style="list-style-type: none"> Shrinking wetland grazing grounds leading, in turn, to overgrazing Limited availability of livestock fodder in adjacent areas <i>Addressed through Output 2.1</i>	n/a
	Forests	n/a	<ul style="list-style-type: none"> Increased incidence and intensity of bushfires degrade forests and expose topsoil to erosion <i>Addressed through Output 2.3</i>
In social assets	Livelihoods	<ul style="list-style-type: none"> Livelihoods in peril (food insecure and undiversified) as agriculture becomes unviable, grasses unpalatable to livestock and water too scarce <i>Addressed through Output 2.4</i>	<ul style="list-style-type: none"> Livelihoods in peril as water and forest resources become significantly less available and agricultural systems are not climate resilient <i>Addressed through Output 2.5</i>
	Land use systems	<ul style="list-style-type: none"> Conflicts between transhumant and sedentary communities are exacerbated <i>Addressed through Output 2.4 and 2.6</i>	<ul style="list-style-type: none"> Encroachment, land-use conflicts and poaching are exacerbated in State controlled lands (forests, national parks) <i>Addressed through 2.5 and 2.6</i>

9. **The Climate Problem.** Burkina Faso can be divided into three Climatic Zones: (i) the South-sudanian zone with 900-1200 mm/year and 85-100 rainy days per year; (ii) the North-sudanian zone with 600-900mm of rainfall/year and 50-70 rainy days per year; and (iii) the Sahelian zone with average rainfall between 300-600mm/year and less than 45 rainy days per year. These zones straddle in gradients along the southwest-northwest axe with average yearly temperatures varying from 27°C in the South-sudanian zone to 29°C in Sahelian zone. As it is typical of continental climates, daily and seasonal amplitudes vary significantly, the latter reaching 11°C in the Sahelian zone. The climate is characterized by two extreme seasons: abundant rains, especially in the central and southern regions from May through September, followed by a very dry season from October through April dominated by the effects of the “*harmattan*” (relentless sand-carrying winds from the Sahara). Given the high rates of transpiration and evapo-transpiration, large parts of the country have highly limited water supplies for most of the year. Moreover, the dry areas have been expanding in recent years - the Isohyets have moved almost 200km south in the past 30 years (see [map](#)). Burkina Faso naturally exhibits high levels of spatial and temporal climate variability, particularly in terms of rainfall. The level of rainfall can vary dramatically from year to year, and over quite small distances.

10. One major impact of climate change in Burkina Faso in this decade—and in the upcoming ones—is the exacerbation of the country’s pre-existing climatic variability. Assessments undertaken during the NAPA process and the Initial National Communication (INC) demonstrated that the regions of Sahel (North), Middle-West, Mouhoun, Cascade and Middle-North are likely to be worst affected. These parts of the country are all located in the Sahelo-Soudanian climatic zone, where the annual rainfall ranges between 200 to 750 mm. On average,

temperatures across the country are anticipated to rise by 0.8°C by 2025 and by 1.7°C by 2050. This is to be accompanied by seasonal changes, with December, January, August and September showing the greatest temperature increases. In terms of rainfall, according to the NAPA, average rainfall will fall by 3.4% by 2025 and by 7.3 % by 2050.⁸ More importantly, the distribution of rains is likely to change greatly, with certain months experiencing far less rain in some regions, and other regions experiencing significant increases. Also, in 2025, projections point out to a decline in the annual volume of water flows in the Comoé and Mouhoun Rivers compared to the normal flow of 1961-1990. In contrast, the annual volumes of water from smaller rivers belonging to the Nakanbé and Niger basins are likely to increase because of climate driven reduced runoff infiltration. This will in turn be exacerbated by an expected increase in the degradation of the vegetative cover.

11. It is worth noting that authoritative sources on climate change projections are divided about whether Burkina Faso will experience more or less rainfall in the near future. According to 13 out of 20 IPCG Global Circulation Models (GCM), a 4% increase in mean rainfall is expected for the period 2030 to 2049, when compared with the historical evidence from 1980 to 1999, as presented in the Climate Change Knowledge Portal. This applies both to the Boucles du Mouhoun and the Oursi Wetlands Basin sites (see table). In addition, a Japanese High Resolution GCM displayed in the mentioned Portal actually points out to a 12% increase in mean rainfall for these two sites (ibid). See below:

	IPCC GCMs			Japanese High Resolution GCM (20 km.)
	Change (2030 - 2049 vs. 1980-1999)		# Models Projecting Same Change	Change
	Oursi	Mouhoun	Both sites	(2091 - 2100 vs. 1981 - 1990)
Mean Annual Precipitation:	4%	4%	13 out of 20	12%
DJF Precipitation:	3%	5%	12 out of 20	--
MAM Precipitation:	-2%	-4%	10 out of 20	--
JJA Precipitation:	-4%	-3%	12 out of 20	--
SON Precipitation:	9%	8%	11 out of 20	--
Runoff:	0%	-3%	6 out of 12	--
Mean Annual Temperature:	2 (°C)	2 (°C)	--	2 (°C)
DJF Temperature:	1 (°C)	1 (°C)	--	--
JJA Temperature:	2 (°C)	2 (°C)	--	--

Source: WB Climate Portal. <http://sdwebx.worldbank.org/climateportal/>

12. Another element worth considering is the effect of oceanic forcing in Sahel rainfall with interannual to interdecadal variations. Climate models suggest that a warm or positive North Atlantic Oscillation (NAO) increases summer rainfall in the Western Sahel and Sahara desert, while a cool or negative NAO is linked to dry periods. Long lasting periods of 20 to 40 years succeed each other with either cooler or warmer sea surface water in the North Atlantic (with a difference of about 1.7 degrees Celsius between extremes). Fluctuating sea surface temperatures result in long lasting episodes of alternating wet and dry seasons. These cycles are natural and have been occurring for at least the last 3000 years. Although natural, the oceanic forcing brings on an additional element of complexity to Burkina Faso's climate change predictions. This new data has also blurred the analysis of climate change in the region. The persistence of drought in recent decades in West Africa (e.g. in the 1980's and 1990's) has lead many laymen to believe that decreased rainfall would necessarily be the overriding tendency of climate change in the region, even though the phenomenon could well have been associated with the oceanic forcing.

13. This serves to say that, with respect to precipitation and associate variables (rainfall, surface runoff), there is a reasonable degree of uncertainty in the data linked to climate change predictions, which should be treated with caution. Considering these uncertainties, the NAPA outlines three key tendencies: (i) temperatures increases at rates higher than global averages; (ii) unpredictable changes in rainfall distribution – in terms of volume, but also the start, end and duration of the rainy season; and (iii) an increase in extreme climatic events, such as drought and storm.

⁸ It should be noted that different models used to produce NAPA predictions yielded different results for rainfall, with some models forecasting increases in rainfall.

14. **Key vulnerabilities in agro-ecological and hydrological systems.** Generally speaking, the impacts of climate change on agro-ecological system involving wetlands, such as the MdO Wetlands Basin, and riverine ecosystems, such as the BdM Forest Corridor, are complex. The cascading effects of climate-induced changes on the trophic community and physical element of these systems can be difficult to predict. Yet, certain patterns will likely be observed.

15. Wetlands may e.g. decrease in size under warmer conditions or due to changes to inflow. The recharge of lakes and wetlands in the MdO site depend almost exclusively on rainfall and surface and runoff. Ephemeral (vernal) wetlands are particularly vulnerable to climate change. This is the case of Tin Eidar, Ganadia, Yom Boli and Beldia in the MdO Wetlands Basin. Even the permanence of both the actual Mare d'Oursi, the largest lake, and of Lake Darkoye, the second largest, may be at risk from climate induced phenomena. Natural grazing grounds will be significantly diminished and livestock watering made difficult under climate change scenarios. The sustainability of even extensive nomadic pastoralism, which is the predominant land-use in the MdO, may be in peril.

16. For river ecosystems, including gallery forests, higher ambient temperatures lead e.g. to greater metabolic costs for a number of different living organisms. This will negatively affect biomass production, impacting tree growth, but also populations of fresh water fish. Climate change will very likely lead to possible changes in species density, distribution and community relationships. Species' ranges may shift and so will the composition of forests, which in the BdM Forest Corridor are a mix of natural and managed landscapes. Phenology, such as spawning and migration may be altered. Life history traits for a number of different freshwater species are affected by water quality and chemistry and seasonal flow regimes. These will likely be altered by climate change driven changes in precipitation and runoff.

17. It is worth noting that for both sites, hydrological systems are likely to be some of the most affected by climate change. Experts also point out that, even within a scenario of increased rainfall, the water scarcity problem in project sites—and in Burkina Faso in general—is still likely to be exacerbated, due to the other predicted climatic patterns (decreased surface runoff, increased temperatures and change in rainfall seasonal distribution). Altogether, changes to current and historical rainfall patterns will lead to changes in the hydrological regime, leading to significant changes in water availability. More importantly, as a result of climate change, the water table in both in the BdM Forest Corridor and in the MdO Wetlands Basin will experience more frequent and sudden drops. Drastic reductions in water availability at critical times (e.g. in the dry season or in drought years) and at critical locations (e.g. in the more populous areas or where livestock congregates) will have a direct and catastrophic impact on livelihoods of communities in the two project sites. Changes in hydrological systems may also include increased siltation and river bank erosion, especially in a meandering river, such as the Mouhoun. These changes will be either driven by climate change or exacerbated by it.

18. In the MdO Wetlands Basin, the availability of pasture is directly linked to water availability and to stocking levels. As, seen, water availability will be strongly influenced by climatic change and increased variability. Overstocking and overgrazing are a common seasonal problem in the mentioned project site. Since the expansion of pastoral land is limited both by other land-uses and access to water, a common coping strategy applied by pastoralists is to increase livestock population on shrinking pastoral land—and preferably onto lands that are closer to water sources. The problem is that increases in livestock populations in the MdO Wetlands Basin often surpass the carrying capacity of the area's resource base. While this avoids understocking and provides security to herdsmen and -women, an obvious negative result is a marked decrease in land productivity and loss of natural assets. At times, this situation leads to localised conflicts between transhumant and sedentary communities, especially during the drought periods, when grazing grounds and water resources are particularly scarce. While these problems are not, in and on themselves, climate change related, experiences with the current climatic variability indicate that these conflicts will necessarily be exacerbated by climate change, driven not just by the already mentioned changes in hydrology, but also in the phenology of grass species. The natural vegetation in the MdO area is a mixture of annual grasses and forbs (*Cenchrus biflorus*, *Schoenefeldia gracilis*, *Panicum laetum*, *Zornia glochidiata* DC.), as well as trees and shrubs, most of them spiny (*Acacia* sp. *Ziziphus mauritiana*, *Balanites aegyptiaca*). These plants represent some 90% of the diet for livestock. However, although generally resilient, not all of these plants will withstand the more pronounced climatic variability that is expected from climate change. According to a botanical criteria e.g., the northern limit of *Cenchrus biflorus* defines the southern boundary of the Sahara. Should this boundary move further south due to the expected effects from climate change (water scarcity, increased temperature, marked changes in

rain seasonality), the impacts on grazing grounds in the MdO may be catastrophic, leading to the a break-down in livelihoods and in the fragile balance that characterises the group relations in these northern Sahelian societies.

19. Among other predictable impacts, climate change is also expected to result in a marked increase in the incidence and intensity of bushfires in Burkina Faso. The degree of these effects is however difficult to predict vis-a-vis climatic variables. In Burkina Faso's savanna biome, fire regimes are closely related to the amount of standing herbaceous phytomass that varies in quantity and composition over space and time, e.g. according to topography, land use, pressure of herbivores and climatic variability. Finer resolution modelling would be needed to identify the most vulnerable forests. Yet, higher temperatures and increased evapotranspiration across typical landscapes of Burkina Faso will certainly create the conditions for bush-fires to spread out of control and impact larger areas. While people in the BdM Forest Corridor use fire for improving soil fertility and enhancing the regeneration of pasture, if out of season, out of control and too frequent, fire can have catastrophic impacts on livelihoods, notably because of the importance of pastoral and wild resources for the rural societies in question. A recent and comprehensive study on savanna fire regimes with focus on western Burkina Faso (the approximate location of the BdM Forest Corridor), has shown that changes in land use and climatic variability are likely to have an effect on the fire regimes.⁹ However, we do not know enough about how fine-tuned to particular fire regimes specific sites are. The study further notes that protected areas with higher density of wooded vegetation are more prone to fire.¹⁰ With the current pressures to these protected sites from agricultural encroachments and the expansion of cultivated lands adjacent to the forests, fires may more often than not become out of control and spread to settlements and agricultural landscapes. It may also undesirably destroy entire forest patches with significant economic loss, besides introducing untimely ecological disturbances. This would warrant a more precautionary and climate-adapted approach to fire regimes and fire management across the BdM landscape in scenarios of climate change to avoid catastrophic effects of fire in different agro-ecological systems.

20. In sum, agro-ecological and hydrological systems display a number of climatic vulnerabilities linked to natural and social assets such as water, pasture, forests, livelihoods and land use systems. Under the current regime, the BdM Forest Corridor and in the MdO Wetlands Basin are being managed and utilised to satisfy the most immediate needs of riparian communities. They provide food, fresh water, fibre and fuel. During periods of drought, the Mouhoun River and Lakes Oursi and Darkoye are the only sources of freshwater in a very large perimeter. Livelihoods and societal relations in both zones are deeply dependent on the continued stream of services that agro-ecological and hydrological systems provide. With the foreseeable impacts of climate change, these systems will start to break-down and degrade beyond a level that can sustain livelihoods. This is the baseline management of natural and social assets for this proposed project.

21. **Point of departure (GEF programmes and investments).** This project will depart from achievements in other GEF project dealing with different aspects of NRM, capacity and adaptation. Although relevant, they do not form part of the financial baseline for this project.

- (1) The first national adaptation intervention the GEF approved for Burkina Faso, after concluding its NAPA, was the UNDP/GEF-LDCF project *Generating Global Environmental Benefits from Improved Local Planning and Decision-making Systems in Burkina Faso*. The project started its implementation in 2009 and it reached peak-implementation in 2011. It aims at enhancing Burkina Faso's resilience and adaptation capacity to climate change risks in the agro-sylvo-pastoral sector.¹¹ By focusing on a number of villages in different climatic regions of the country, the project is testing best adaptation practices through a community-centred approach with the aim of adopting and disseminating them.
- (2) UNDP is the lead agency in Burkina Faso for the GEF financed *SLM Country Partnership Programme (CPP)*. The umbrella coordinating project in the National Sub-programme for Coordination and Institutional

⁹ J.-L. Devineau et al. *Savanna fire regimes assessment with MODIS fire data: Their relationship to land cover and plant species distribution in western Burkina Faso (West Africa)*. Journal of Arid Environments 74 (2010) 1092e1101.

¹⁰ Ibid.

¹¹ The choice of adaptation sectors and focus of the previous LDCF project (agro-sylvo-pastoral) and of this one (agro-ecological and hydrological systems) have apparent similarities and could suggest that there would be an overlap. This is however not the case, as they differ in two fundamental aspects. First, the previous LDCF project had a clear focus on productive systems, while this one is looking at agro-ecological and hydrological systems as a proxy for ecosystem services and their underlying functions in climate change adaptation. Second, this project focuses on the vulnerabilities of natural assets such as water, fire and wetland's pasture and their role in local people's livelihoods. The previous project departed from livelihoods and from the mix in productive systems that characterized them in different localities throughout the country in an attempt to learn lessons. The two projects complement each other, but are essentially different.

Development on Sustainable Land Management (SLM) has been set up and is making progress since 2009 in establishing a comprehensive monitoring system for SLM covering the entire country.

- (3) Under the above mentioned UNDP/GEF CPP, a key sub-project is being implemented in Boucle de Mouhoun region. *Partnership for sustainable land management in Boucle du Mouhoun*. The project addresses the degradation of banks of the Sourou and Mouhoun Rivers, noting that this degradation is mainly linked to intensive cotton production, competition for land use and the lack of alternatives for farmers, herders, and communities. The project focuses on both land-use planning, coordination and partnerships for SLM on the ground (working at three sites in the Boucles du Mouhoun Region) and on building institutional and policy support for it, by addressing inadequate knowledge about and application of relevant legal frameworks for SLM.
- (4) A new UNDP/GEF project *Protected Area Buffer Zone Management in Burkina Faso* with focus on the Boucles du Mouhoun Forest Corridor was approved in 2011. It promotes conservation of biodiversity, although limited to 5 sites only and covering 160,000 ha of protected areas and their buffer zones. The focus will be on a 'model for community co-management of PAs that builds on 'stewardship'.
- (5) Other relevant GEF interventions include the IFAD/GEF *CPP Burkina Faso: Sub-programme of the Northern Region-under Partnership Programme for Sustainable Land Management*, starting up soon; and the WB/GEF *Sahel Integrated Lowland Ecosystem Management (SILEM)*, which was recently concluded.

22. **Other Adaptation initiatives (non-GEF).** Furthermore, a few existing and future initiatives in Burkina Faso, which already take climate change adaptation into consideration, concur to the project's objective in different ways. Two of these initiatives will contribute with co-financing to the proposed LDCF project. These are:

- The **AAP/BKF** – Burkina Faso is participating in the UNPD-Japan Africa Adaptation Programme (AAP), which focuses on planning mechanisms, institutions, policies, financial options and the knowledge base that will be needed to respond to climate change in the years to come. At the national level, the focus is on (i) establishing a dynamic, long-term planning mechanisms to cope with the inherent uncertainties of climate variability and climate change; (ii) strengthening leadership capacity and institutional frameworks to manage climate change risks and exploit related opportunities in an integrated manner at local and national levels; (iii) implementing climate-resilient policies and measures in NAPA priority sectors; and (iv) developing capacity to mobilise financial resources to meet national adaptation costs at national and local levels. The AAP/BKF contribution to adaptation efforts represents \$2.9 million, of which an amount to be later confirmed can serve as co-financing for this project.
- **PANA-BKF UNDP/DANIDA** – The Danish funded project *Adaptation to climate change for the improvement of human security in Burkina Faso* includes a component for civil society that is run by IUCN. The project has been successful in bringing NGOs and CSOs into the implementation of relevant measures that contribute to adaptation to climate change through a behavioural approach. Key beneficiaries are stakeholders at the decentralised level. Total funding for this contributing project is estimated at \$500K. An amount to be later confirmed can serve as co-financing for this project.
- **GCCA** – The *Global Climate Change Alliance* is in the EU pipeline for the period 2012-2016. The project, estimated at \$8 million, aims to strengthen the capacities of West African countries and regional stakeholder to formulate and implement policies and strategies for integrating climate change into plans and development programmes.

23. **The development baseline for this project.** Under the project's baseline state, a range of activities relating to the management of water, forests, pasture, fire and land, would be undertaken, coupled with activities that strengthen livelihoods. Those would have positive impacts on the management of natural and social assets, including through relevant interventions in the BdM Forest Corridor and the MdO Wetlands Basin. Many of these activities are supported by donor financed projects, programmes and initiatives. They provide a solid baseline finance upon which the proposed LDCF investment will take place. In some cases, these programmes and initiatives provide the required co-financing to the present project. A sample of these baseline interventions includes the following:

- **UNDP COGEL** – The UNDP financed project *Consolidation of the Local Environmental Governance* was approved in October 2011 and it counts on \$4.0 million in UNDP core funds (TRAC) plus \$630K from government. Operating at both national and sub-national levels, the project focus on strengthening relevant

structures and community based organisations to integrate a practical approach to sustainable development and natural resource management as a means to roll-out the National Strategy for Accelerated Growth.

- **UNDP/UNCDF ACRIC** - *Support to Rural Communities and Inter-Community Initiatives*. Funded by UNDP, UNCDF and the Governments Germany and Burkina Faso and active since 2009, the project aims at developing local planning tools, building local governance capacity and initiating local dynamic economies. The project is active both in the Boucles du Mouhoun and in the Northern Region. It is implemented by the Ministry of Territorial Administration and Decentralisation. The ACRIC project amount of \$4 million can be considered as co-financing to this project.
- **UNDP PTMF** – *Multi-Functional Platforms, Burkina Faso*. The programme’s focus is to reduce poverty in the rural and peri-urban areas of Burkina Faso by promoting access, especially by women, to the modern energy services which are essential for economic growth and wellbeing. A multi-functional platform (MFP) is a diesel engine placed in the heart of villages in Burkina Faso and under the care of organised women. The MFP powers devices such as water pumps, grain mills and generators. This has proven to be a powerful way to promote local economic and social development. As many as 235 village communities in Burkina Faso, mostly in the Boucles du Mouhoun region, have already benefitted from MFPs. The programme, which is reaching its end in 2012, has a current baseline estimated cost of \$1.2 million from the Bill & Melinda Gates Foundation.
- **PNGT2** – *National Land Management Programme*¹² (WB co-financed under its *Community Based Rural Development Project*). The current phase of the Programme started in 2008 and it is supporting rural communes in planning and implementing local development activities in a participatory and sustainable manner. The WB Project contributes to the second phase of the National Programme for Decentralized Rural Development. It has three main components: A) Strengthened capacity for decentralized rural development; B) Local Development Financing; and C) Rural Land Tenure Reform. Behind the project’s implementation is a massive investment of \$103 million, of which \$73 million were committed by the WB. Some 3000 villages were covered by the implementation of more than 18,000 micro projects and various capacity building activities. In essence, the project deals with the management of natural resources, livelihoods and productive systems. Climate change is not a key consideration in the project’s current design. Hence the project is not currently addressing adaptation needs. As per initial discussions with the Ministry of Agriculture, Hydraulics and Fisheries Resources (MAHRH), the portion of the PNGT2 finance that will be targeted to the sites of this project in the next four years was estimated at \$4 million and it is indicated as potential co-financing to it, as it fits well with key interventions in Component 2.
- **Various land management, forests and water programmes from multiple sources of funds**, among them: (1) AfDB-PLCE - *Silt Control in the Niger River Basin / Niger River Basin Authority, Burkinabé Component*. The project is regional and it is financed by the African Development Bank (AfDB). Having started in 2005, it has produced a number of interesting results, including the development of protocols and on-the ground action for avoiding and remediating river and lake siltation, the fixation of 5,000 ha of dunes in Burkina Faso alone and the strengthening of the technical, managerial and financial capacities of local communities to ensure proper ownership and the sustainability of the various development works. The Burkinabé Component of the AfDB-PLCE was estimated at \$7.1 million, though much of the funding has already been spent into consolidated investments in capacity development and activities on the ground. An estimated \$2.0-2.5 million could possibly be counted as co-financing for this project. (2) The National Office for Protected Areas (OFINAP) and the National Agency for the Promotion of Non-Timber Forest Products (APFLN) are implementing a number of relevant programmes and projects linked to the protection of forests, including, but not exclusively, in protected areas. Those include the Deux Balés National Park, which is an important part of the BdM Forest Corridor. Their contribution of OFINAP and APFLN to the baseline of current LDCF project has been estimated at \$1.5-2.0 million.
- **PRD/SP-CONEDD** – *Support to the Permanent Secretariat for the National Council for Environment and Sustainable Development* (SP-CONEDD). The Secretariat is proposed as the national agency for this project. It receives funding from the Austrian Cooperation through the Regional Development Programme (PRD) for a number of livelihoods and environmental management activities. Regional Development Programme for the Boucle du Mouhoun (PRD/BMH) is particularly relevant as a baseline programme for this project, as significant investments are being made in local communes in the project zone. The programme also financed a number of hydrological studies in the Mouhoun-Sourou River basin (i.e. approaching the object of the study as a single

¹² *Programme National de Gestion des Terroirs* (www.pngt.gov.bf). The word ‘terroir’ yields inexact translations in English. Yet, the focus of the project is on rural development.

basin, though within the boundaries of the Boucles du Mouhoun administrative region). The focus is on the problem of river bank erosion and siltation. Proposed solutions are primarily infrastructural, though decisions on investments are not yet made. The overall investment has been estimated at \$4 million, of which approximately \$1.7 million could count as co-financing to the present project.

- **AMESD** – The EU funded regional programme *Environmental Monitoring for Sustainable Development in Africa*, which aims at strengthening operational capacity for technologies for land use surveying and remote observation with a view to promoting environmental and climatological applications. For West Africa, ECOWAS adopted the theme of water resource management and the management of crops and pastures. The project was entrusted to the Niamey-based Regional Centre for Training and Application of Agrometeorology and Operational Hydrology (AGRHYMET). This represents a baseline investment of approx. \$27 million. Of this, \$2 million will count as baseline for this project.
- **PAGIRE** – *Integrated Water Resource Management Plan of Action* comprehends both the approach to IWRM in Burkina Faso, as well as a long-term and phased investment programme. It was launched in 2003 and with a current horizon till 2015 and it is piloted by the National Directorate for Water Resources (DNRE under MAHRH). DANIDA is a key contributor to PAGIRE, which also attracted a number of other partners and donors. The driving force has been a major overhaul in the water resource management sector. From a funding point of view, PAGIRE counts on eight distinct groups of ‘Actions’: (1) enabling environment; (2) information system on water resources and their use; (3) programme management arrangements; (4) research and development; (5) human resources; (6) information communication, awareness and programme pledging; (7) institutional frameworks; (8) urgent measures. Availability of water, a theme under this project, is absolutely central to the PAGIRE, whose total funding envelope for the period 2003-2015 is approx. \$30 million and thus considered as part of the baseline. Climate change is mentioned in PAGIRE key policy and investment documents, but primarily as an aim to expand knowledge on possible impacts on water resources (more specifically under Action 4.1.2 Improve knowledge on the impacts of climate change on water resources). Neither an analysis of climate change impacts on water resource management for the time horizon of the Action Plan, nor actions that could be categorised as climate change adaptation were explicitly embedded into the PAGIRE. An amount of \$2 million is proposed as co-financing through MAHRH, together with PNGT2.
- **CORDEX** – *Co-ordinated Regional climate Downscaling Experiment* is a new programme sponsored by the World Climate Research Programme. The aim is to organize an international coordinated framework to produce an improved generation of regional climate change projections world-wide for input into impact and adaptation studies within the AR5 timeline and beyond. CORDEX will produce an ensemble of multiple dynamical and statistical downscaling models considering multiple forcing GCMs from the CMIP5 archive. Initially a 50 km grid spacing has been selected, favouring engagement of wider community. Multiple common domains covering all (or most) land areas in the World have been selected (with initial focus on Africa). Statistical downscaling has been conducted on 9 locations in Burkina Faso based on 30 years observed climate data and for the period of 2050 to 2100. At this stage, it is not possible to evaluate the financial contribution of CORDEX to the baseline.
- **GFCDR and UNDP DRR** – Two projects, (i) Global Facility for Disaster Reduction and Recovery’s (GFDRR) *Mainstreaming Disaster Reduction in Burkina Faso* and (ii) UNDP’s *Strengthening National Capacities for disaster management and crisis mitigation in Burkina Faso*, are relevant for the baseline of this project. Both are concerned with disaster risks, which may or may not be linked to climate change. Both project focus on the development of national capacity to manage such risks and to mitigate the effects of a crisis before and after it is installed. Flooding is an unusual type of disaster for Burkina Faso, but which brought devastating consequences to the country in 2010. It also affected the Mouhoun river basin among others. Both projects represent a development baseline of \$6.4 million vis-a-vis the proposed LDCF project.
- **Various NGO driven livelihood programmes** are under implementation both in the BdM Forest Corridor and in the MdO Wetlands Basin. These programmes work very closely with local communities and strengthen their capacity to cope and be lifted out of poverty in many different ways. The most relevant NGO driven programmes for this project include those by OCADES/CARITAS (focusing on river basin protection, integrated rural development and water supply); plus initiatives focused on integrated rural development, disaster risk reduction, sustainable land management by Alliance Technique Assistance au Développement (ATARAN), RICH/ITALIA, Association pour la Gestion de l’Environnement Durable, and NATURAMA. The latter is especially active in the MdO and the Sourou Valley in the management of Ramsar sites (the latter is located north from the BdM Forest Corridor). These interventions have been estimated at \$600-800K; part of this is slated to co-finance the project.

- **FIP/REDD+ Burkina Faso-AfDB** – The *Forest Investment Programme* (FIP) is one of the three funds created by Multi-lateral Development Banks (MDB) within the context of the Climate Investment Fund (CIF), to support efforts to reduce deforestation and forest degradation in eight developing countries.¹³ With the African Development as the lead MDB, Burkina Faso is currently negotiating a FIP with the Bank and other partners, UNDP being one of them. The FIP aims at promoting sustainable forest management that leads to emission reductions and the protection of carbon reservoirs. It achieves its objectives by providing scaled-up financing for readiness reforms and public and private investments. A possible coordination mechanism for the new programme is the existing NAPA Steering Committee (adding REDD+ to its attributions and acronym). There are no definite investment amount agreed upon at this stage. Yet, the AfDB is planning an investment of \$30 million. As it is typical of REDD programmes, there is a long term perspective (20, up to 30 years, though to be more closely defined for the FIP in question). There is potential to link investments from the FIP to activities under Output 2.2 (in particular those related to forest enrichment in the BdM) and Output 2.3 (climate adaptive fire management) with the aim of up-scaling these investments. For the purpose of baseline accounting and considering that the FIP is still under negotiation, an amount of \$5 million can be accounted as part of the baseline project.¹⁴
- Other relevant programmes, but whose baseline amount and contribution will still need to be more closely estimated during the project preparation phase¹⁵, include the following:
 - National Livestock raising and improvement programme (ZEPESA)
 - Food Security Programme, including land rehabilitation (PAPSA, with support from the World Bank)
 - National strategy to prevent and manage man-wildlife conflicts (proposed)
 - Measures to improve the protection of fauna (APF)
 - Programme d'Appui au Développement Agricole au Burkina Faso (PADAB2)
 - Approval of the Oursi Wetlands Management Plan
 - Designation of Oursi as a Ramsar site and as an Important Bird Area

24. Together, all of the above programmes, projects and initiatives constitute **'the baseline project'** and sum up a solid investment of some **\$71-80 million**. They represent the current response to Burkina Faso's development challenges with respect to the management of natural and social assets in the two project zones. Yet, they do not necessarily take the impacts of climate change into consideration, although some do.

25. In terms of institutional measures and reforms, policy responses and the development of capacity for enabling climate change adaptation, Burkina Faso has made significant progress. Also, some on-the-ground experiences with adaptation are emerging but remain limited in scope and number. Generally, the current baseline response to Burkina Faso's climate challenges have not yet considered the full-blown potentially negative impacts of climate change on the provision of services from agro-ecological and hydrological systems and the impact that this is will have on to people's livelihoods. This is particularly important because Burkina Faso is affected by high levels of poverty; it has a relatively undiversified economy, highly dependent on the primary sector, and a low level of integration into regional and global economies. As seen, key natural and social assets are vulnerable to climate change. The economy is also highly vulnerable to climate change.

26. **The preferred long-term solution.** Although agro-ecological and hydrological systems in project sites hang on fragile balance due to a gradual degradation that the systems are experiencing, these same systems are currently resilient. Furthermore, in spite of widespread poverty, it can be said that communities in both project sites are currently maintaining their livelihoods within a coping range. However, with the effects climate change, both the agro-ecological and hydrological systems and people's livelihoods will reach a tipping point. If left unchecked, climate change will lead to a rapid—and perhaps irreversible—collapse of agro-ecological and hydrological systems in project zones. With climate change, the vast array of services rendered by these systems will break-down and so will the viability of livelihoods that they sustain. The preferred solution proposed by project is to reduce the vulnerability of Burkina Faso to anthropogenic climate change with focus on the management of natural and social assets in the BdM and MdO sites. In tandem with vulnerability reduction measures, the project will also strengthen

¹³ The other funds are related to climate resilience and renewable energy.

¹⁴ Part of this amount may be later be negotiated as co-financing to this project, though it would be premature to do it at this stage, as the FIP/REDD+ Burkina Faso-AfDB is still under negotiations.

¹⁵ For the sake of calculations, initiatives under 'other relevant programmes' were estimated as contributing with \$1-10 million to the baseline.

the resilience of both these livelihoods and of agro-ecological and hydrological systems to withstand additional climate stressors.

27. Yet, three sets of barriers stand in the way of advancing towards the preferred long-term solution. These can be summarized in three key points as follows:

Barriers	Elaboration
<p>Knowledge and understanding of climate variability and change-induced risks in the project targeted areas remain limited; existing knowledge products do not include sound analysis and are not reaching relevant stakeholders.</p>	<p>There are obvious challenges linked to the translation of climate models into concrete guidance that can be applied in sectoral or landscape level planning. Models, especially for the West Saharan region, bear a certain degree of uncertainty, not least also due to the effects of the natural oceanic forcing in the region’s climate. Furthermore, the finer the scale, the higher is the degree of uncertainty in the results of the modelling. This begs the question as to whether it is at all helpful to apply fine scale climatic models for landscape level planning—and more specifically to the project zones, covering some 34,000 sq km, as the BdM Forest Corridor landscape, or some 26,000 sq km, which is the entire MdO Wetlands Basin. Although these landscapes are large, for the purpose of climate modelling, this is small scale. In addition, there is the risk of models being over-interpreted and misinterpreted. Yet, the core of the issue for the two project zones is not so much to know specifically what the climate will be like in the upcoming decades, but to be able to plan on the basis of some key parameters that have been identified with respect to climate change, namely increased temperatures, decreased water availability and decreased surface runoff. Planners are grappling with more questions on the expected level of desiccation in wetlands, both in the Oursi Basin and in the Sourou Valley, which feeds into the Mouhoun River; or on the level siltation that these wetlands can withstand before they dry out. It would be useful to know how many meters the water table is likely to drop in both the Oursi and Mouhoun basins as a result of climate change and exacerbated climatic variability; or the likely frequency of atypical flooding in the Mouhoun River or of fire incidence in its riparian forests, also as a result of climate change. The accuracy of any such predictions could be questioned though, due to the inherent uncertainty that permeate climate change predictions for West Africa overall. While climate change will affect the availability of pasture and livestock watering potential in highly vulnerable areas such as the MdO zone, the key questions relate therefore to controlling overstocking and overgrazing to stay within safe coping ranges in a climatically uncertain future. What is therefore missing in the baseline scenario is the availability more hands-on tools for climate adaptive planning that can specifically be applied to the project zone. This requires not just climate modelling knowledge products, but above all, analytical products with a practical application combining climate predictions with landscape, resources and land use features as well as socio-economic data. The relevant data and information that could be brought to bear to address climatic vulnerability at the local level is scattered and managed by few individuals. They lack consolidation and analysis. The quality of existing analysis leaves to be desired. Furthermore, having the tools and analyses available is not in and on itself enough. Practical application requires relevant stakeholders to have the capacity to use information and analysis. Currently, the capacity both at the national and local levels is very incipient.</p>
<p>The vulnerability of key agro-ecological and hydrological systems of the BdM and MdO is only partially known and not adequately addressed by the various development interventions in the project zone.</p>	<p>Existing baseline interventions in the project zones face a major barrier in terms of addressing specific climatic vulnerabilities linked to natural and social assets. They currently address developmental issues, either through livelihoods approaches or through infrastructural approaches. As it stands, they are not sufficiently considering the impacts that the exacerbation of climatic variability will have on these livelihoods. Given that Burkina Faso’s economy is heavily dependent on natural resources, which is particularly true in areas such as the BdM and the MdO, there is an obvious link between the people’s livelihoods and the availability of services rendered by agro-ecological and hydrological systems in the two project zones. Yet, the specific impacts of climate change on these services remain to be addressed. The BdM Forest Corridor e.g. is a vast area and it encapsulates many realities and varied land-uses. Water and forests are the most essential assets that sustain the local economy. Specific climate adaptive interventions are needed for addressing climate-driven issues such as decreased water availability and exacerbated river bank erosion in the Mouhoun River, as well as increasing fire hazards in the area’s forests. For the MdO, generalised resource scarcity typical of the area’s harsher climate, will make the additional stressors on livelihoods brought by climate change an unbearable element, unless there are changes in NRM and land-use patterns. In both project</p>

Barriers	Elaboration
	zones, the key barrier it to find a balance that will allow agro-ecological and hydrological systems to continue to render essential services that sustain livelihoods in a climate change scenario. Currently there are no practical experiences with it that can demonstrate how this balance can be achieved through making agro-ecological and hydrological systems more resilient. Climate adaptive—and adapted—techniques are needed to have a transformational effect on livelihoods.
Climate change risk, vulnerabilities and resilience are not sufficiently mainstreamed into local and regional development planning and finance is to guide on-the-ground development.	At the level of overarching policies there has been several advances in Burkina Faso with respect to including climate risk in policy guidance. The AAP has been working consistently in this direction and making steady progress. It takes time to formulate new policies. Several sectoral policies (i.e. those with an overarching character vis-a-vis a sector) have a lifetime of 8-10 years. Even with state of the art analysis available on the possible impacts of climate change into different sectors, mainstreaming climate change risk, vulnerabilities and resilience into them is not a straight forward process. The work on sectoral mainstreaming needs therefore to find more operational ways of influencing policies and action on the ground. Local and regional development planning and financing frameworks offer a window of opportunity in this respect. However, this is untried terrain in Burkina Faso, so there are some barriers. Investment plans for the Boucles du Mouhoun Region cover a number of aspects of the local economy. Yet, the climate-driven risks to development advances in the region within the adopted planning horizon are not fully incorporated into the planning. For example, a management plan for the Mare d'Oursi lake has been produced. The plan does mention climate change as a risk to the sustainability of current livelihoods in the area, but it is not specific enough to cater for the likely effects. This lack of specificity with respect to climate change in local and regional development planning and finance is a major barrier to achieving the preferred long-term solution.

B. 2. INCREMENTAL /ADDITIONAL COST REASONING: DESCRIBE THE INCREMENTAL (GEF TRUST FUND) OR ADDITIONAL (LDCF/SCCF) ACTIVITIES REQUESTED FOR GEF/LDCF/SCCF FINANCING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS (GEF TRUST FUND) OR ASSOCIATED ADAPTATION BENEFITS (LDCF/SCCF) TO BE DELIVERED BY THE PROJECT:

28. The Government of Burkina Faso is requesting GEF support through the Least Developed Countries Fund for Adaptation for this project to remove the existing barriers to improving services and functions delivered by ecosystems in Burkina Faso in the face of a changing climate and increased climatic variability. The focus is on Boucles du Mouhoun Forest Corridor and the Oursi Wetlands Basin. The LDCF budget will be used to pay for the adaptation increment which will primarily support and supplement baseline projects and programmes at the sectoral level on water supply and coastal management. The additional cost reasoning approach can be summarised as follows:

Component / Outcome 1) Knowledge support platform on climate change impacts and risks.

This outcome will contribute to the GEF/SCCF/LDCF's Outcome 2.1 Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas

Baseline for Component 1

Existing efforts to expand the knowledge and understanding of climate variability and change-induced risks at country level include the following programmes, projects and interventions:

- **PRD/SP-CONEDD** is playing a pivotal role in strengthening the capacity of SP-CONEDD to be a leading national institution to focus on climate change by expanding its capacity to run programmes on the ground and raise the bar in terms of the general knowledge and understanding of climate variability and change-induced risks among key stakeholders. More specifically for the Boucles du Mouhoun region, critical knowledge, data and analysis have been produced under the Programme with respect to the subject matter of this project. As an example, the Austrian Cooperation commended a series of detailed feasibility studies, which identified vulnerable river bank areas in the Mouhoun-Sourou river basin. As a result of these studies, detailed mapping covering the Mouhoun and Sorou river basin has

been produced, pinpointing the most vulnerable areas for river bank erosion and siltation. Although extensive meteorological and hydrological data corroborated the analysis, it stopped short of considering the possible effects of climate change on siltation, river flow, surface run off, infiltration rates and water table level.

- **AMESD** is a new programme which is greatly strengthening the capacity of AGRHYMET to serve its clients in the West Africa region. Although the capacity for assessing the services of agro-ecological and hydrological systems in Burkina Faso is in principle in place, or it is gradually being increased, no specific product or analyses exist covering project sites, which could aid climate-resilient planning.
- **PAGIRE** is supporting the development and implementation of Master Plans at the level of hydrographic basins and sub-basins, PAGIRE foresees under Action #2 the development of an entire System of Information on Water Resources, covering both the monitoring of both quantitative and qualitative aspects of water supply, water works throughout the country, demand monitoring, monitoring of wetlands, data exchange with basin authorities, among other features. Although robust, this system has not yet made progress in incorporating climate data into the system.
- **CORDEX** can potentially contribute significantly to fine-scale climate modelling for project sites. This will be useful. However, the actual analysis of the impact of climate variables under different scenarios on natural and social assets would need to be carried out.

The above-listed baseline interventions have a direct bearing on the knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas. Their contribution is significant and the impact will likely be felt in many years to come, as these programmes are dealing with issues of capacity at systemic and institutional levels. SP-CONEDD has been greatly reinforced by the PRD financed by the Austrian Cooperation (as well as other initiatives). As for AMESD it has a regional scope, so only some of the programme's activities have benefitted development planners and practitioners in Burkina Faso. Potential for an expanded collaboration exists though. The same applies to DGRE with respect to the water resource information system under PAGIRE, through which expanded collaboration could be sought. As for CORDEX, in collaboration with Climate Data Analysis Group, regional downscaling was conducted and results are available for 9 locations in Burkina Faso. Altogether, the mentioned programmes, projects and initiatives constitute a solid baseline for the proposed Component 1 of the project. However, there are intrinsic limits in scope, time-frame and funding in all of listed baseline interventions. This makes them insufficient in terms of developing a robust information and analysis system that combines timely climate risk and vulnerability information with information related to the management of natural and social assets. Hence, in the baseline scenario, relevant data and information that could be brought to bear to address climatic vulnerability at the local level will remain scattered and managed by few individuals in different institutions. These are not necessarily collaborating on data exchange and coordination for adaptation. Existing climate modelling and analysis will not be adequately consolidated with landscape, resources and land use features as well as socio-economic data. Capacity to do so will also remain incipient under the business as usual scenario.

- The estimated amount of **'the baseline project' for Component 1 is \$9 million.**

Additionality of Component 1

In the alternative scenario enabled by the GEF managed LDCF funding, systems will be in place to disseminate timely risk information and key stakeholders will be trained. As a result, they will count on increased knowledge and understanding of climate variability and change-induced risks in the project targeted areas generated by a customised geo-based agro-ecological and hydrological information system.

More specifically, the project will help establish an adaptive system for managing evolving risks and uncertainty linked to climate change, which is specifically tailor made for the project zones. Two key outputs are planned under Component 1:

First (**Output 1.1**), the project will work throughout its year 1 to tender out to an organisation or consulting outfit the tasks of developing a geo-based climatic, agro-ecological and hydrological information system. It will have a specific focus on the BdM Forest Corridor and the MdO Wetlands Basin, at least during the initial stage. SP/CONEDD will be responsible for hosting, although their capacity for developing the system managing the system will need to be developed and harnessed throughout the project. This applies

in particular to the analytical capacity, as some of the key products from the system will be analytical (i.e. more than just maps). The sustainability of maintaining and possibly expanding the system to cover other parts of the country will be ensured through its design in an implicit manner and by clearly attributing responsibilities for availing data to different institutions. The key purpose is to enable the analysis of climate-driven vulnerabilities and the cost-effective planning of specific adaptation interventions in Component 2 for strengthening social and natural assets. The system will combine the following types of data and information: (i) natural assets available (water, forests, wetlands) and ancillary information on their use; (ii) identification of critical areas for agro-ecological and hydrological services and their role in livelihoods; (iii) special features such as bushfire incidence, economic activities, population aggregations; and (iv) an overlay with the likely climate change impacts under different modelling scenarios. For climate scenarios, water resources and bush fire incidence, the system may count on contributions from specialised institutions, such as AGRHYMET. The National Institute for Statistics and Demography detains key geographic data. DGRE will provide data on water resources. The relevant regional, provincial and local governments will be the main beneficiaries of the system, but will also participate in the task of feeding the system with information and corroborating the analyses produced by it. For every partnership in connection with the system, agreements may be signed for formalising the modes of collaboration.

Second (**Output 1.2**), the project will train beneficiaries of the analyses from the geo-based climatic, agro-ecological and hydrological information system. The aim is to capacitate them in using the system for climate-adaptive development planning and implementation. It is proposed that some 20 national and provincial planners, plus 60 local commune leaders and 30 staff from NGOs will be trained, although this number will be more precisely defined at CEO Endorsement stage.

Both the geo-based climatic, agro-ecological and hydrological information system and the associated training proposed under Component 1 are additional to the current baseline project because they will address a specific need for compiling and consolidating information for enabling an adequate planning, monitoring and evaluation of concrete, on-the-ground adaptation measures to be implemented in the two project zones. Such a system currently does not exist and establishing it would go beyond the current capacity embedded in baseline interventions. Without LDCF, achieving the goal of increasing the knowledge and understanding of climate variability and change-induced risks in the project targeted areas would not be possible.

Outcome 2) Vulnerability reduction and strengthening of resilience demonstrated in the management of natural and social assets in the Boucles du Mouhoun Forest Corridor (BdM) and the Oursi Wetlands Basin (MdO).

This outcome will contribute to the GEF/SCCF/LDCF's Outcome 1.2: Reduced vulnerability to climate change in development sectors

Baseline for Component 2

At the level of project sites, the issues of livelihoods and natural resource management are being addressed by the following programmes, projects and interventions:

- **UNDP/UNCDF ACRIC** in strengthening livelihoods in a number of different sites, in particular throughout the Boucles du Mouhoun region. Through one of the project's component opportunities are being created for poor people in the region by supporting both small businesses and increasing access to microfinance. Another component focuses on social sectors (health, education infrastructure), but also institutional support at the decentralised level. The project is making important capital investments in production through micro-credit support. Although 'sustainable development' is at the heart of the programme, a closer analysis of its design indicates that the project is not explicitly addressing climate change, nor does it take climate stressors into consideration through the planned and implemented activities in the Boucles du Mouhoun Region.
- **UNDP PTMF** is playing a pivotal role in the strengthening local livelihoods both in localities in the BdM Forest Corridor and in the MdO Wetlands Basin. The mastery of techniques that, although simple, can be transformational in the local context builds a very strong baseline upon which additional climate-driven stressors can be addressed. The focus on women and their economic empowerment is crucial for the sustainability of the programme and for addressing gender developmental issues. It does

so by creating surpluses – of energy, water and ultimately free-time. It adds value to local products, e.g. by producing oils with a reasonably high market value from local seeds. Giving people the power to steer their own development through the PTMF’s approach underpins the concept of decentralization and increased village-level autonomy that has been shaping the country’s policies towards livelihoods since the early 1990s. For these and other reasons, the PTMF is hailed as a major success in Burkina Faso. Although the expansion of livelihoods options and the creation of surplus can often be construed as an adaptation measure, the UNDP PTMF programme is not directly addressing other adaptation needs at the local level. The programme is, for example, contributing to making additional water available in villages, but the diesel engine that is fitted on the platform does not substitute other, sturdier engines that are needed for constantly supplying water to the entire village. Also, with sudden drops in the water table, it is possible that the platform will lose its water pumping function.

- **PNGT2** is making a significant contribution to landscape level governance, both due the amounts being invested throughout the country for tackling pervasive rural development issues, but also because the long-term and phased approach. In the same manner as the PTMF, fostering economic activities and creating surplus is a major development lever at the local level. The Programme makes a strong contribution to the baseline. However, as explained, climatic challenges are not being addressed through the PNGT2.
- **AfDB-PLCE** is tackling the issue of siltation and dune fixation through a regional approach. The protocols that the project has developed involving communities in the fight against dune erosion and siltation of essential water courses are extremely useful and have been tested at project sites in the MdO Basin (e.g. in the Oudalan Commune, Oursi Province). Climate change effects are expected to exacerbate siltation and dune movement. The project has not addressed the additional climate stressors.
- **OFINAP and APFLN** are very active in the project zones. Both the BdM and the MdO harbour important protected areas, for which the responsibility is shared between the General Directorate for Nature Conservation (DGCN) and OFINAP. More specifically, OFINAP is managing the Deux Balés National Park (80,638 ha with the buffer zone) in the southern end of the BdM Forest Corridor, while DGCN manages gazetted forests within the Corridor (174,115 ha) and the large estate of the Réserve Partiel du Sahel (1.6 million ha), which overlaps the MdO Basin. Both the conservation of biological diversity and the sustainable use of natural resources—the core of the mandate of OFINAP, APFLN and also of DGCN—are of the utmost importance in the reduction of vulnerability to climate change in the management of natural assets in the project zones. It is also highly relevant for landscape-level governance for improving the services rendered by agro-ecological and hydrological systems. Still, the current programmes of work of these three institutions, which include protected area management planning, active surveillance for the protection of biological assets, fire management and enforcement against poaching, are not decisively addressing additional climatic challenges that the forests in the BdM and the wetlands in the MdO will face.
- **PRD/SP-CONEDD** includes the Regional Development Programme for the Boucle du Mouhoun (PRD/BMH), under which plans were outlined for engineered works in the Mouhoun and Sourou Basin aimed at protecting the banks. Proposals combine both infrastructural reinforcements made of concrete for the most critical zones, but also gabions and solutions involving the use of surrounding vegetation—though not ‘ecosystem-based’. These works may get funded in 2012/13 and they are particularly relevant for Output 2.2, through which complementarity of approaches will be sought.
- **PAGIRE** is making significant progress in implementing action on the ground on IWRM in both the Mouhoun Basin as in the Mare d’Oursi Basin. A Master Plan for the Mouhoun Basin has been prepared by the Programme for Harnessing Water Resources in Western Region (VREO).¹⁶ It includes actions on river bank protection in close collaboration with the PRD/BMH. Actions are also under implementation for protecting fragile aquatic ecosystems, including in the Oursi Basin and Sourou Valley.
- **NGO driven livelihood programmes** have an essential role to play in “translating” the challenges of climate change to local communities and in assisting them in overcoming these challenges through behavioural approaches (e.g. awareness and alternative livelihoods). Several NGOs would like to embrace climate change into their programmes of work, many of them with a gender angle that is also important to be addressed. Some NGOs are in fact actively developing and implementing adaptation

¹⁶ Programme de Valorisation des Ressources en Eau de l’Ouest

programmes—e.g. OCADES in the BdM and NATURAMA in the MdO. Although the scope is limited, their activities are there highly relevant for this project’s baseline.

- **FIP/REDD+ Burkina Faso-AfDB** will likely plan specific investments in the BdM region with respect to forests. If this will be the case, there is scope for collaborating in the realm of Outputs 2.2, 2.3 and 2.5.
- **Other relevant programmes** were also cited as being part of the baseline under Component 2 for different reasons. They deal with agriculture, food security, livestock management, disaster response, among other issues. Some are active in the project zones. Although undoubtedly important, their contribution to the baseline project remains an estimate and to be more fully described during project preparation.

In sum, business-as-usual development efforts are generally addressing problems in the project zones (BdM and MdO) but not taking fully into account the pervasive effects of climate change. In the baseline response, climate driven and climate exacerbated vulnerabilities linked to natural assets (water, pasture, forests) and social assets (livelihoods and land use systems), are therefore not being sufficiently addressed. Among baseline projects and programmes, there are not enough efforts being dedicated to developing capacity to adapt to climate change and very little practical experiences with adaptation. In addition, among baseline interventions there is virtually no evidence on the effectiveness—and cost effectiveness—of different techniques for managing the mentioned vulnerable assets with the purpose of climate-proofing them. The same lack of evidence applies to the comparability of different adaptation approaches (e.g. infrastructural, behavioural and ecosystem-based). Livelihoods in the project zones are therefore vulnerable to climate change. Considering that land use systems bear a certain degree of maladaptation (referring to the current tendencies towards the gradual degradation of agro-ecological and hydrological systems which is not climate driven), baseline efforts will likely increase vulnerability or not be able to sufficiently reduce it. This scenario needs to change.

- The estimated amount of **‘the baseline project’ for Component 2** ranges between **\$45-54 million**.

Additionality of Component 2

In the alternative scenario enabled by the GEF managed LDCF funding, the climatic vulnerability of key agro-ecological and hydrological systems will be reduced and their resilience strengthened by adaptation measures in the Boucles du Mouhoun Forest Corridor (BdM) and the Oursi Wetlands Basin (MdO). The aim is to demonstrate adaptation options in these two landscapes at risk of the effects of climate change.

More specifically, the project will introduce, through actions on-the-ground, a suite of techniques that will systematically help people adapt to climate change. The focus will be on agro-ecological and hydrological systems, the services that they render and upon which livelihoods depend. These techniques will include wetlands rewetting, riverine swales, check-dams, adaptive fire management, polyculture among others. The project will work towards demonstrating those as adaptation options. Currently they have a clear additional character vis-a-vis existing and planned interventions, which are not adequately dealing with climatic vulnerabilities in the BdM and MdO. The different techniques to be demonstrated are presented in two groups: they would either deal with strengthening *natural* or *social* assets against the additional risks posed by climate change in the two mentioned zones. The boundaries between social and natural assets are sometimes blurred, given rural people’s intrinsic dependence on natural resources for their livelihoods. The key goal is to infuse resilience in the management of water, pasture, forests, livelihoods and land use systems. Their assimilation by local communities will address the issues outlined in the matrix on page 8 of this PIF.

In the MdO Wetlands Basin and based on detailed studies on the area’s topography, hydrology and vegetation, the project will implement wetland rewetting and replanting and protection of indigenous grasses and herbaceous vegetation (**Output 2.1**). The aim is avoiding seasonal desiccation of these wetlands, making more water available, but also making more animal fodder available during dry spells. The retention of water in the wetlands is expected to be aided by grasses and herbaceous vegetation. A particular study that focused on the MdO showed the benefits of protecting indigenous vegetation,

including its effects on infiltration rates.¹⁷ Evidence on the benefits and co-benefits of restoring wetlands, including in desert and semi-desert zones (as is the case in the MdO) is abundant and it includes case studies from throughout the world.¹⁸ However, research does point out to the inherent challenges of rewetting wetlands in drier areas – one of the challenges being costs, the other the sheer availability of additional water. Great care will be taken to avoid the lowering of the water table locally. Environmental parameters such as water table depth, infiltration and sedimentation rates, soil temperature and transpiration will therefore be closely monitored. Great care will also be applied in choice of plants that will be used in re-vegetation. The project will evaluate the cost-effectiveness of the proposed wetlands restoration measures and monitor their sustainability during the project's lifetime and beyond. Comparing trends in key parameters in both managed and unmanaged sites vis-a-vis climatic variables should be able to provide evidence on effectiveness and sustainability of the proposed action as an adaptation measure. However, reaching evidence-based conclusions on this may take several years and only possible after the life-time of the project.

Coupled with wetlands restoration measures, the project will facilitate the preparation of an equitable and climate resilient plan for the use of pasture and water resources in the MdO Wetlands Basin (**Output 2.4**). Without such plan, measures to restore wetlands and their functionality for people's livelihoods in the face of climate change would have little or no effect. The plan will aim to avoid overgrazing and overstocking during the dry season by regulating access to water and pasture resources. Yet, the plan would not be enforceable, if it is not collectively agreed upon with local sedentary communities and transhumant groups. The project will competitively select and engage a capable national CSO to work with local communities and transhumant groups in the MdO Wetlands Basin. The CSO's role will be to facilitate the preparation and negotiation of the plan, until it becomes a by-law agreed upon by concerned resource users.

Both the wetlands restoration measures and the implementation of the climate resilient plan to avoid overstocking in the MdO Wetlands Basin will provide a more predictable supply of water to livestock and crops in the face of climate change – being therefore additional measures with respect to the baseline situation. Grazing areas will also be expanded. By protecting and regenerating native vegetation, increasing the mean water volume in the wetlands and controlling overgrazing, the project will, through activities under Output 2.1 and 2.4, make more water and pasture available. This will reduce the vulnerability of local livelihoods and increase their resilience in the face of climate change. These measures will thereby address climate driven and climate exacerbated issues in the management of natural and social assets at project sites.

In the BdM Forest Corridor, the project will work together with PRD/BMH to identify key areas where the protection of river banks can be best carried out using flood tolerant and erosion resistant grassed and herbaceous swales and check dams. This will be coupled with measures to enrich riparian forests. (**Output 2.2**) Great care and professional advice will be applied in the selection of species for reforestation. Preference will be given to multi-use, climate resilient tree and herbaceous species. The aim is to decrease soil transpiration and topsoil loss and to allow the conveyance of storm water at a slower, controlled rate. Reforestation measures are expected to improve infiltration and percolation rates around the riverine areas where swales and check dams are engineered. The desired effect is the maintenance of the base flow in the water course, counteracting both the effects of storm surges, which may be driven by changes in the rainfall regime, and of water scarcity, which may be driven by drought. Both are expected effects of climate change in Burkina Faso. An added benefit of proposed measures in Output 2.2, is also the reduction in siltation levels in the water course, besides other agro-ecological and hydrological benefits. The availability of useful trees and the improved availability of water are hugely important for riverine communities facing an increasingly variable climate.

Also in the BdM Forest Corridor, measures for controlling the increased frequency and intensity of bush fire in the face of climate change will be adopted (**Output 2.3**). This will imply on the ground implementation demo fire-breaks in gazetted forests covering some 73,000 ha. However, the most

¹⁷ Grouzis M.(1988): *Effects of Grazing on Plant Productivity and Rain Use Efficiency in Sahelian Grasslands, (Northern Burkina Faso)*. Institut Français de Recherche Scientifique pour le Développement en Coopération (ORSTOM), presented at the Third International Rangeland Congress.

¹⁸ A key source is: UNEP 2010: *Dead planet, living planet: Biodiversity and ecosystem restoration for sustainable development*. See [link](#).

important elements is the development of protocols for managing climate-driven risks in bushfire management practices, which can be applied in the entire BdM Forest Corridor. The demo fire breaks will be implemented using a cost-effective and sustainable method with the involvement of riparian communities. Three gazetted forests were selected as the demos: Tiogo, Tisse and Kalio. This final choice will be confirmed at PPG phase on the basis of a study to determine the level of vulnerability of specific forests and the most cost-effective methods of opening fire-breaks.

The combination of different techniques in the BdM Forest Corridor, including climate adaptive bushfire control, the protection of river banks and the enrichment of forests, meets the principle of additionality. They address additional climate stressors on the river and forests in the project zone. These stressors include decreased quality and availability of water, sudden drops in the water table, atypical flooding due to storm surge and climate-exacerbated river bank erosion. Addressing these climatic stressors is not being currently done through baseline interventions. Proposed interventions in Outputs 2.2 and 2.3 will reduce specific climatic vulnerability relating to water, forests and people's livelihoods. It will gradually work to strengthen resilience in both the natural and social assets that are concerned.

In both project zones (BdM and MdO), the project will demonstrate the value of poly-culture and adaptive agro-ecological production systems for local people's livelihoods (**Output 2.5**). The on-going UNDP/GEF-LDCF project *Generating Global Environmental Benefits from Improved Local Planning and Decision-making Systems in Burkina Faso* focuses on the agro-sylvo-pastoral sector. Several lessons are being learned about the feasibility and cost-effectiveness of community-based adaptation measures in different parts of the country, including some on polyculture and its suitability to different agro-climatic settings. Polyculture involves the mixing of food crops with trees, but may also encapsulate production systems involving crop rotation, multi-cropping, intercropping, use of beneficial weeds, and alley cropping. Polyculture can be easily combined with animal rearing, offering farmers an additional source of protein. This may in turn reduce the pressure on hunting resources. One of the main advantages of polyculture (vis-a-vis monoculture) is the marked decrease in plant disease susceptibility, reducing therefore the use of pesticides. Biological pest control is also an option to be explored. The use of leguminous trees ensures increased nitrogen fixation and will be applied. Coupled with other techniques, such as soil no till, mulching and sheet mulching, polyculture may significantly reduce the need for artificial fertilisers. The technique will be designed to demonstrate how income sources can be diversified in the specific agro-ecological conditions at project sites. The focus will be on producing not just food, but also fuel-wood, fibre and other goods more sustainably for local consumption and sale. These measures, together with other co-adjutant techniques that can be part of the poly-culture 'technique package' (such as improved granaries, recycling of post-harvest biomass waste etc.), are expected to reduce local communities' vulnerabilities to climate change through a livelihoods approach. This is not yet being tried by baseline interventions concerned with agriculture, forestry and land degradation. To the extent that climate change is expected to greatly reduce livelihoods' options, the application of polyculture, even on a demonstration scale, is therefore additional.

Finally, under component 2, the project will also train commune leaders and resource users the mastery of new techniques to be applied to ensure their sustainability in time (**Output 2.6**). The latter group will include farmers, freshwater fishermen and -women, livestock herders, foresters, rural women's groups and others. The training will with focus on the diversity of services rendered by sustainable agro-ecological and hydrological systems and their role in local livelihoods. It will seek to demonstrate the impact that climate change will have on these services and what local communities and local government can do to address it. The training is also additional and would not be delivered without the LDCF intervention.

Outcome 3) Climate change adaptation mainstreamed into local and regional development planning and finance.

This outcome will contribute to the GEF/SCCF/LDCF's Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas

Baseline for Component 3

At the baseline, efforts to incorporate adaptation in broader development frameworks at country level and in targeted vulnerable areas include the following programmes, projects and interventions:

- **UNDP COGEL** is a new project, which offers ample opportunities to infuse climate risk, resilience and adaptive livelihoods into local environmental governance. It has a strong training component. COGEL operates at both the national and sub-national levels. It will however not duplicate what is being proposed under Component 3, which is specifically oriented towards the application of relevant sectoral plans at the project zone's level.
- **PRDs under SP-CONEDD** are a key conduit for mainstreaming climate change adaptation into local and regional development planning and finance. SP/CONEDD is a leading institution in charge of promoting environment and sustainable development policies and regulation. Its **role under Component 3** will be to identify, **together with other** stakeholders, climate change adaptation mainstreaming opportunities in the project zones with respect to planning and finance.
- **PAGIRE** has made important progress with respect to developing a body of policies and operational tools related to IWRM. At the scale of hydrographic basins there are specific tools for planning and programming water resource management. These are the Master Plans for the Development and Management of Water Resources (SDAGE) and the Sub-Basins Water Resource Management Master Plans (SAGE). Yet, there is room for a much stronger integration of climate change impacts and adaptation measures into SDAGEs and SAGEs, in particular those for Mouhoun-Sourou and Oursi Basins.
- **GFCDR and UNDP DRR** are projects that apply policy mainstreaming as a means to ensure that disaster management and disaster risk reduction get incorporated into the country's overall response to disaster and crisis events. Climate change is but one of the elements that is taken into consideration in the approach (e.g. regarding the increased likelihood of such events in the future). Yet, the vulnerabilities that this project proposes to address do not necessarily fall into the 'disaster' category, although some may exacerbate the impact of a disaster situation with a climatic background. Hence, the mainstreaming efforts engendered by the GFCDR and UNDP DRR projects are an important part of the development baseline for Component 3, but insufficient to address all of the relevant vulnerabilities in natural and social assets targeted by the project through mainstreaming into local and regional development planning and finance.

In spite of the solid baseline for this component, existing institutional and policy frameworks and key sectoral planning and investment frameworks have only partially taken climate change considerations into account. There have been several efforts in this respect and commendable progress was made in the past few years, including though adaptation specific interventions that address the climate agenda in the development of national capacities at institutional and systemic levels. Yet, on-the-ground interventions from Component 2 would definitely lack a more decisive policy and investment support to become sustainable. Although willing to collaborate, none of the above-mentioned programmes, projects and initiatives would be able to expand the scope of their intervention with current resources. Hence, they would not specifically influence sectoral strategies, plans and investments in the BdM and MdO zones towards climate-proofing.

- The estimated cost of **'the baseline project' for Component 3** is **\$18 million**.

Additionality of Component 3

In the alternative scenario enabled by the GEF managed LDCF funding, adaptation measures and necessary budget allocations will be included in relevant frameworks. This will make an essential contribution both to reducing systemic climatic vulnerabilities and to supporting concrete adaptation measures that will be implemented under Component 2. These measures are not just supportive of on on-the-ground measures demonstrated through Component 2. They are additional – i.e. they would not happen through baseline efforts, which respond to the specific objectives of the concerned baseline projects, programmes and initiatives.

More specifically, the project will ensure that climate adaptive management of agro-ecological and hydrological systems in the BdM Forest Corridor and the MdO Wetlands Basin are integrated into key sectoral planning and investment frameworks with focus on local and regional levels. Sectoral strategies, plans and investment projects will include specific actions and budgets for adaptation measures. Key sectors in focus will include the water, livestock, forests, protected area management and rural development

in general. The idea is not so much to change national level policies, but more to focus on implementation strategies and plan that will have an impact at site level. Indicatively, the project the work under Component 3 would focus on decentralised-level planning in the provinces of Oudalan (where the MdO Wetlands Basin is located), and of Mouhoun, Sanguie, Balé, Nyala and Sourou (where some of the target forests of the BdM Forest Corridor are located). Three outputs are planned under Component 2.

First (**Output 3.1**), adaptation options that will be demonstrated through Component 2 will be integrated into the management (or master) plans for the relevant provinces and communes in BdM and MdO, so as to ensure that these plans become climate-proof. The focus is on landscape management and on natural resource management practices. Activities under this first output will cater for the introduction of elements such as climate risk and climate resilience in the planning. The following adaptation measures will be on focus: wetland restoration, bushfire prevention, natural control of storm water, measures to increase infiltration in areas around water bodies such as the Mouhoun River, its tributaries and streams in the BdM Forest Corridor, and as the lakes of the MdO Basin.

Second (**Output 3.2**), the project will focus on mainstreaming climate change adaptation into policy and planning with respect to the livelihood strengthening measures also demonstrated through Component 2. More specifically, the project will ensure that the polyculture model becomes part and parcel of the relevant forestry, agricultural and livestock management strategies, plans and, in particular, the investments for the BdM Forest Corridor and the MdO Wetlands Basin.

Finally, the last output focuses on learning, sharing, partnerships and wide collaboration frameworks (**Output 3.3**). This may include the iterative participation of CONEDD (including all its members) and project staff into the Adaptation Learning Mechanism (ALM). With respect to partnerships and collaboration, this will involve efforts to formalise agreements with on-going rural development programmes and related initiatives in the MdO Wetlands Basin and the BdM Forest Corridor. The aim is to coordinate site-level and policy interventions, as well as to ensure that these related initiatives address climate change concerns and options in their planning and implementation. Activities may also include also specific capacity building measures with focus on institutions involved in landscape level planning both at the national level and in the provinces of Oudalan, Mouhoun, Sanguie, Balé, Nyala and Sourou.

29. Immediate Adaptation benefits.

OUTCOMES	ADAPTATION BENEFITS
1) Increased knowledge and understanding of climate variability and change-induced risks in the project targeted areas generated by a customised geo-based agro-ecological and hydrological information system	<ul style="list-style-type: none"> ▪ Burkina Faso will count on a tailor made geo-based system specifically for analysing climate risk and climatic vulnerabilities linked to the management of natural and social systems. ▪ National capacity for dealing with climate risk and addressing climate driven/exacerbated vulnerabilities will be enhanced, not just through the development and use of the system, but also through the training of national and provincial planners in the application of products from the system.
2) The climate resilience of key agro-ecological and hydrological systems and of natural resource dependent livelihoods the BdM and MdO are strengthened by focusing on vulnerable natural and social assets in target project sites	<ul style="list-style-type: none"> ▪ Capacity of local stakeholders in the project zones to perceive climate risk and to implement and cost adaptation measures in natural resource management activities and livelihoods development will be significantly enhanced, in particular with respect to the management of wetlands, forests, pasture, fire, hydrological systems and agro-sylvo-pastoral production systems.
3) Climate adaptive management of agro-ecological and hydrological systems in the BdM Forest Corridor and the MdO Wetlands Basin are integrated into key sectoral planning and investment frameworks with focus on local and regional levels	<ul style="list-style-type: none"> ▪ National capacity for mainstreaming climate change adaptation into sectoral planning and investment frameworks with focus on local and regional levels will be increased. ▪ Collaboration frameworks and partnerships for adaptation with respect to the BdM Forest Corridor and the MdO Wetlands Basin will be consolidated. ▪ Overall adaptation learning will be enhanced by the dissemination of the project's experience.

30. The project responds to a NAPA priority through its specific focus on strengthening natural and social assets that are vulnerable to climate change. The project will focus on the management of forests, soil, fire, natural pasture and wetlands as key ‘**natural assets**’ that render essential services to people and provide the basis for their economic activities. People’s ability to use these systems sustainably is their best ‘**social asset**’. These services depend on complex agro-ecological and hydrological cycles that combine both natural and anthropogenic processes. They include provision of food, water, fibre, fuel, regulation of the micro-climate and hydrological flows, erosion control, maintenance of soil fertility and soil formation—to name a few. The break-down of these services as a result of climate change impacts, including an exacerbation of pre-existing climatic variability, would put resource dependent livelihoods in the Boucles du Mouhoun Forest Corridor (BdM) and the Oursi Wetlands Basin (MdO) in peril. The project aims to catalyse a systematic process of adapting the use of natural assets to climate risk. This will be done through an expansion of people’s social assets (their capacity to sustainably manage natural resources) and a strengthening of natural assets.

B.3. DESCRIBE THE SOCIOECONOMIC BENEFITS TO BE DELIVERED BY THE PROJECT AT THE NATIONAL AND LOCAL LEVELS, INCLUDING CONSIDERATION OF GENDER DIMENSIONS, AND HOW THESE WILL SUPPORT THE ACHIEVEMENT OF GLOBAL ENVIRONMENT BENEFITS(GEF TRUST FUND) OR ADAPTATION BENEFITS (LDCF/SCCF). AS A BACKGROUND INFORMATION, READ [MAINSTREAMING GENDER AT THE GEF](#):

31. At least 150,000 people are dependent on forestry, freshwater fishing, livestock rearing, agriculture and small game hunting for their livelihoods in both in the BdM Forest Corridor and in the MdO Wetlands Basin.¹⁹ The LDCF portion of the project will finance the additional costs of maintaining natural assets and related agro-ecological and hydrological services essential to local livelihoods in the face of climate change, including increased climatic variability. In doing so, the overall project will also generate socio-economic benefits at the national and local levels. More specifically, the project will ensure a transition to a much more rational use of natural assets and the long-term maintenance of a stream of agro-ecological and hydrological services associated with it, including through adequate landscape-level planning frameworks. The livelihoods-focused outputs 2.5 and 2.6 will bring immediate socio-economic benefits to farmers involved in the introduction of polyculture and adaptive agro-ecological production systems in communal lands. Yet, due to the demonstration character of the activities, these benefits are likely to be of limited scope. Else, the project strategy is slated to bring longer-term socio-economic benefit to involved communities, as opposed to the more short-sighted ones based on the rapid depletion of natural assets with a view to personal gain.

32. Medium to long-term societal benefits catalysed by the project will include increased land productivity and yields for both cash (e.g. cotton) and food crops (the staples being sorghum, maize, millet, groundnuts and cowpea), increased fish catch, availability of water resources to livestock throughout the year in places where water is scarce, expanded grazing grounds, increased tourism revenue (where applicable), more varied and expanded availability of forest resources, reduced fire risks, among others. Considering that resource depleting strategies may make economic sense in the short run under certain circumstances, it will be key for the project’s success to not just enforce the pursuit of long-term benefits, but also to create incentives for the realisation of these benefits. Under increasingly variable climate scenarios, short-sighted practices that degrade agro-ecological and hydrological systems will make less economic sense and the benefits of maintaining and enhancing resilience will be and increasingly cost-effective adaptation strategy that not only maintains, but also increases socio-economic benefits.

33. With respect to the gender element, it is worth noting that women are a very important group under this project; so is their role in the management and protection of natural assets (water, forests, fish and wildlife). Furthermore, women, children and the elderly are frequently amongst the more vulnerable of the poor. In the face of climate change, their vulnerability will likely be exacerbated. Hence, women will not only be a key beneficiary of adaptation measures under this project, but they will also play a protagonist role in promoting the mainstreaming of adaptation measures in the local economy. Furthermore, as previously explained, project indicators will be broken-down by gender where applicable and gender concerns incorporated in the planning of specific activities.

¹⁹ This considers the communes and villages within the Corridor and the Basin.

B.4 INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVES FROM BEING ACHIEVED, AND IF POSSIBLE, PROPOSE MEASURES THAT ADDRESS THESE RISKS TO BE FURTHER DEVELOPED DURING THE PROJECT DESIGN:

Risk	Rating	Management Strategy
The geo-based climatic, agro-ecological and hydrological information system may not be sustained beyond the lifetime of the project.	L	Through the careful design of activities under Component 1, adequate institutional arrangements will be made and an agreement signed with a responsible institution for the continued and regular monitoring of water and ecological conditions in the project sites and their input into the system. Detailed TOR will be prepared and financial provision made in the budget to ensure the continuation and regularity of services through the institutionalising the system at SP/CONEDD. In terms of climate data, the choice of service provider will be of a capable and financially sound centre of excellence, whose capacity will be duly assessed and scrutinised. In case the chosen responsible party is a foreign institution, partnerships agreement with one or more national centres of excellence will be made to ensure the development of national capacity and the maintenance of the system beyond the lifetime of the project.
Local communities and relevant groups of stakeholders (e.g. municipal authorities, community groups, NGOs, public entities) are not receptive to changing traditional practices that threaten the provision of agro-ecological and hydrological services and persist in using unsustainable methods.	M	Project success will depend on the participation and commitment of all the relevant stakeholders including “the right mix” of local and national agencies, NGOs and community groups. The government has expressed its commitment to ensuring full community participation in project activities that relate to livelihoods and the management of natural assets. They also committed to creating adequate incentives for resource stewardship to communities e.g. through participatory planning and decision-making mechanisms and financial and technical support for communities to self-regulate access to and sustainable use of resources. Ultimately, success in engaging local communities will depend on whether the project can produce tangible socio-economic benefits to resource users in its effort to produce adaptation benefits. The project will invest, where possible and through implementing partners, in awareness raising campaigns, building local capacities, introducing alternative technologies and production methods. The project will work with other projects and programmes active at project site level on a plethora of sustainable livelihoods activities. The aim is to enhance demonstration of benefits (income, employment, etc.) from sustainably using natural assets and maintaining agro-ecological and hydrological services through protection of wetlands, forest lands, rivers and associated resources.
Land use and tenure conflicts and conflicts among different interest groups (hunters, ranchers, transhumants, fuel wood collectors, etc.) may exacerbate current threat driven pressures on natural assets (e.g. demand for farm land, brush fires, grazing and fuel wood collection, etc.).	L	It is assumed that baseline projects will, by and large, be dealing with current levels of pressure on agro-ecological and hydrological systems. Yet, these pressures may be exacerbated, including as a result of measures that this LDCF may attempt to introduce, e.g. to avoid overstocking or overgrazing, or to regulate the excessive extraction of forest wood, water abstraction etc. First, the project will deal with this risk, first by collaborating closely with other relevant initiatives (including baseline and co-financing), so that non-climatic stressors (e.g. overutilization of natural assets) are being minimally controlled. Secondly, the project will also introduce conflict resolution measures as part of the community consultation mechanisms to be established for participatory management of natural and social assets. The underlying agenda is to preempt conflict that could otherwise undermine project success and work towards consensus. A careful analysis of the stakes and of stakeholders with respect to long and short term benefits of different models of resource use and their implications for the provision of agro-ecological and hydrological services will be part of the project strategy.

B.5. IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:

34. The project will be executed by the National Council for the Environment and Sustainable Development through its Permanent Secretary (SP/CONEDD). The Council already includes in its membership a number of national entities engaged in matters related to the environment, natural resource management, energy and climate and climate change. Execution will imply coordinating action on the ground

and in the capital, engaging partners and service provider, including those that will be directly tasked with implementation, while also closely monitoring the project and reporting according to procedures. In addition, a number of other national institutions will play a pivotal role in the project due to their mandate in the management of resources like water, land, forests, livestock, etc. These are primarily the Ministry of Environment and Sustainable Development; the Ministry of Agriculture, Hydraulics and Fisheries Resources (MAHRH); and the Ministry of Animal Resources. It also includes several directorates under the aforementioned ministries. These national entities will play an important activity coordination role together with local, provincial and regional government institutions. Decentralised government structures are in fact a key beneficiary of this project—and participant in it. The National Office of Protected Areas (OFINAP), the National Agency for the Promotion of NTFP (APFNL) also will be engaged, in particular due to their role either in the management of protected areas (such as the Deux Balés National Park and the Réserve Partiel du Sahel, both in the project zones) or of forest resources. In addition, national and international civil society organizations will be actively engaged in the project. These will e.g. include the local NGO NATURAMA / Friends of the Earth Association, Organisation Catholique pour le Développement et la Solidarité (OCADES), ATARAN; Alliance Technique Assistance au Développement; RICH/ITALIA, and; Association pour la Gestion de l'Environnement Durable, among others. Some of these NGOs/CSOs may, where relevant, provide co-financing to the project. Furthermore, a key principle in the proposed project is the engagement of local stakeholders in the sustainable management of natural and social assets as an adaptation measure. These stakeholders include e.g. local authorities, community groups, NGOs, producer associations, as they can bring the project's activities closer to immediate resource users. In this manner, herdsman/women, local leaders and existing community organizations, women's groups, producers and farmers' associations, will be engaged and strengthened in their capacity to implement climate change adaptation measures.

B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

35. The project will establish collaboration and synergetic relationships with other project, programmes and initiatives, in particular those that constitute the baseline for its components or that will provide co-financing to the project. This will lead to a greater coordination of aid to Burkina Faso and a better fit between the proposed project and the existing and future interventions. In particular, UNDP will consult with FAO on the development of its adaptation project in preparation for Burkina Faso in view of coordination, collaboration and synergies.

36. The project will actively coordinate activities with other GEF-financed projects. These involve primarily the following UNDP/GEF projects: (1) The LDCF-financed *Generating Global Environmental Benefits from Improved Local Planning and Decision-making Systems in Burkina Faso*, where the focus is on learning lessons; (2) the projects under the *SLM Country Partnership Programme (CPP)*, including the *Partnership for sustainable land management in Boucle du Mouhoun*; where coordination of on-the ground activities in the BdM Forest Corridor is paramount; and (3) the Biodiversity project *Protected Area Buffer Zone Management in Burkina Faso* due to its interventions on forest management in the Boucles du Mouhoun Forest Corridor.

37. For the programmes implemented by SP/CONEDD, the Secretariat will ensure the coordination of activities between those and the project. This includes primarily the AAP/BKF, the Regional Development Programme for the Boucle du Mouhoun (PRD/BMH) and the PANA-BKF UNDP/DANIDA. With the AAP/BKF and the PANA-BKF UNDP/DANIDA, collaboration and synergies is mostly relevant for the activities proposed under Component 1 and 3 with respect to expanding the national knowledge span on climate change, as well as on the strengthening systemic and institutional capacities for dealing with climatic impacts. For the PRD/BMH, collaboration is primarily relevant for activities relating to water resource management and forestry in the BdM. More specifically on the AAP-BKF and PANA-BKF UNDP/DANIDA, which have a clear focus on adaptation complementary to this project, this is how collaboration will be rolled out:

- ✓ The AAP/BKF focuses on policy level change and on strengthening leadership capacity and institutional frameworks to manage climate change risks. A study was conducted to assess regional as well as local development planning and finance mechanisms, in view of mainstreaming of adaptation of climate change. Practical mainstreaming experiences only covered a few communes though, but the methodology will be particularly useful for Component 3 activities. Furthermore, a NAPA programmatic study under the AAP

intends to soon assess vulnerability of ecological and hydrological systems and people's livelihoods. Still, the activities of the AAP/BKF have not been specific enough to address the need for mainstreaming climate change into planning and financing frameworks in the project zones. This is where the proposed project will be particularly complementary to the AAP/BKF. The AAP/BKF has also been instrumental in strengthening 'systemic' and 'institutional' capacities in the country to tackle climate challenges with respect to strategic planning for adaptation in the medium and long term – and to some extent also, capacities at the 'individual' level. In Burkina Faso, the AAP focuses on multi sectors vulnerability analysis using an inter-ministerial approach. More specifically, memoranda of collaboration have been signed amongst Ministry of Environment and several research institutions and the Directorate of Meteorology. This project will build on these established partnerships. The focus on policy level change and the transformational approach adopted by the AAP will ensure that key stakeholders in the country will gradually be able to apply long-term planning mechanisms to cope with the inherent uncertainties of climate variability and climate change. The programme is quite prolific and has produced a number of interesting reports. It is also helping SP-CONEDD leverage funds for adaptation from a variety of sources.

- ✓ The PANA-BKF UNDP/DANIDA has equally been instrumental in advancing the adaptation agenda in Burkina Faso, but with a clear focus on climate change awareness-raising activities targeting decision makers at national, regional and local levels. The general knowledge and understanding of climate variability and change-induced risks among national, regional and local government actors are key elements for mainstreaming. Capacity building activities also includes civil society organisations in project sites where the on-going UNDP/GEF-LDCF project intervenes. At national level, 13 administration regions were covered. The PANA-BKF UNDP/DANIDA is not covering the same communes in project zones that this project plans to target, but best practices and lessons will be particularly useful with respect to Component 3.

38. Due to their sectorial or local developmental focus, the project will collaborate with UNDP COGEL, UNDP/UNCDF ACRIC, AfDB-PLCE, PAGIRE, PNGT2, UNDP PTMF, the programmes of work for OFINAP and APFLN, as well as the FIP/REDD+ Burkina Faso-AfDB – the latter, when the programme becomes operational. Programmes like the PAGIRE, PNGT2 and the FIP are undoubtedly relevant for the project's activities that relate to water, land-use and forests. Collaboration with these will be sought on the ground and as much as possible formalised through agreements on joint activities and interventions. For the livelihoods oriented programmes, such as the UNDP/UNCDF ACRIC, UNDP PTMF and the UNDP COGEL, the project will seek complementarity and collaboration with respect to activities in project sites where they coincide geographically. The programmes of work of OFINAP and APFLN are highly relevant and complementary to those of the project with respect to land and natural resource governance activities. The project will actively collaborate with both entities, as well as with DGCN, in the implementation of management plans for the sites. For programmes such as the AfDB-PLCE possible collaboration frameworks are mostly in terms of lessons-learning and assimilation of successful techniques for sand-dune fixation and for addressing river siltation—both are recurrent problems in the MdO and BdM landscapes, which will likely be exacerbated by climate change and threaten the water bodies.

39. With respect to programmes such as AMESD and GCCA, the focus of collaboration will be on training of Burkinabé government officials at national and local levels for gauging climate change risks and impacts and for developing ways of integrating adaptation and resilience into development frameworks. CORDEX may be engaged in assisting with Output 1.1 (the geo-based system). In addition, the GCCA may be able to facilitate training of Burkinabé government officials at national and local levels for (i) gauging climate change risks and impacts; and (ii) for developing ways of integrating adaptation and resilience into development frameworks. Still, this has not yet been planned for relevant communes in the BdM and the MdO zones.

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

40. UNDP has a long-standing history of supporting climate change adaptation, natural resource and land use management in the world, Africa and in Burkina Faso. UNDP approaches the issues of natural resource and land use management from a land governance point of view. The agency's goal is to capacitate beneficiary countries to maintain and enhance the beneficial services provided by natural assets such as land, water, forests and wetlands to secure livelihoods, fight poverty and promote development. By providing policy advice, and by developing and implementing programmes that demonstrate sound land and resource use governance, UNDP is making a difference

in this respect. UNDP's work on climate resilience is equally relevant. The ultimate goal of UNDP's is to build countries' capacity to face climatic challenges. This implies reducing vulnerability and risk linked to climate change and improving people's resilience with respect to the impacts of climate change. UNDP has significant experience from several parts of the world and across Africa supporting similar projects. UNDP supported the implementation of almost all the NAPA process in West Africa. UNDP is now supporting LDCF project implementation in as many as 20 countries in the sub-region.

41. In Burkina Faso, UNDP has a very large programme of projects focusing on governance, decentralisation, local development, gender, environment and energy and HIV-AIDS. The UNDP Country Programme counts on several partnerships within and outside the UN System which are thoroughly described in the Country Programme Document (CPD). The entire CPD foresees investments of at least \$40.6 million over four year. The Country Office in Ouagadougou works actively with the government other donors to build national capacity in all of the mentioned domains. More specifically, the cluster Environment & Poverty Reduction is currently managing some 25 projects, including those financed by GEF (approved and in preparation – see next paragraph). Among the non-GEF ones are flagship programmes such as the UNDP/UNCDF ACRIC, UNDP PTMF and the UNDP COGEL. The contribution of these programmes to local livelihoods and national capacity development for climate change management is important. The AAP/Burkina Faso and the PANA-BKF UNDP/DANIDA are specifically contributing to climate change adaptation outcomes in the country. They are an important part of the baseline for this proposed project. Besides core resources, UNDP Burkina Faso also manages funds from the EU, Danida, Bill & Melinda Gates Foundation, JICA, GEF and others.

42. In terms of GEF financed projects, Burkina Faso has a fairly large programme including all of the focal areas. The current UNDP/GEF portfolio includes seven projects and it is valued at \$16 million in GEF investment plus more than \$110 million in co-financing. UNDP supported both the development of the First UNFCCC National Communication and the NAPA for Burkina Faso. It will be soon supporting the development a NAPA update. Support has also been provided to the implementation of the first NAPA follow-up project (*Strengthening Adaptation Capacities and Reducing the Vulnerability to Climate Change in Burkina Faso*). The Biodiversity and Land Degradation portfolios are particularly robust. UNDP is the lead agency for the *SLM Country Partnership Programme (CPP)*, under which three projects are supported by UNDP. Within the Biodiversity focal there are regional flagship project such as the WAP (*Enhancing the effectiveness and catalyzing the sustainability of the W-Arly-Pendjari (WAP) protected area system*). The UNDP Burkina Faso Country Office is the lead for the WAP project and also for the EU-financed sister project to the GEF WAP, the 'PAPE' (*Programme d'Appui aux Parcs de l'Entente - Composante 2: Interventions dans les aires protégées PAPE/PNUD*). There is also a new Biodiversity medium-size project focusing on protected areas in the Boucles du Mouhoun (*SPWA-Protected Area Buffer Zone Management in Burkina Faso*). In sum UNDP Burkina Faso has vast experience in the management of GEF projects with a long track record of successful project implementation.

43. The Poverty & Environment Cluster in the UNDP Country Office in Burkina Faso counts on four dedicated environment programme officer, two of which are senior, plus support from operations and the Country Offices senior management staff. UNDP maintains well-developed working relationships with the key stakeholders for this project. This team is supported by UNDP/GEF Regional Coordination Unit (including a French speaking Regional Technical Advisor and support staff assisting with M&E, delivery oversight among other tasks). UNDP's country-level coordination experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation.

C.1 INDICATE THE CO-FINANCING AMOUNT THE GEF AGENCY IS BRINGING TO THE PROJECT:

44. UNDP will provide \$2.5-2.6 million in co-financing to this project in the form of grants. The source is UNDP's core funds (TRAC). In addition, UNDP and the government will help leverage the rest of the co-financing necessary for meeting the minimum targets proposed under this PIF and likely surpassing them.

C.2 HOW DOES THE PROJECT FIT INTO THE GEF AGENCY'S PROGRAMME (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:

45. Three key strategy documents provide a chapeau for the project's fit within the UN's and UNDP's Programmes in Burkina Faso: respectively the United Nations Development Assistance Framework (UDAF) and the


Country Programme Document (CPD) and its accompanying Action Plan (CPAP). As for the first, this project will make a key contribution to UNDAF's Outcome #1 "*Accelerated, sustainable and pro-poor economic growth*" covering the period 2011-2015. This responds to the national priority of consolidating economic growth and accelerating its rhythm. The entire UN System's response to the climatic challenges in Burkina Faso is enshrined in this important programmatic outcome. UNDP is a lead agency for delivering on it within the system. With respect to the CPAP, which also covers the period 2011-2015, the project fits well CPAP's Expected Outcome 1.4 "*National structures and local communities practice an integrated approach to sustainable development and natural resource management, taking into consideration the effects of climate change through adaptation and mitigation*". Both UNDAF and CPAP identify natural resource and environment degradation as a major threat to development.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

- A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):**
 (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this template. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (Month, day, year)
Mr. Mamadou Honadia	GEF Operational Focal Point	Ministry of Environment and Sustainable Development	April, 16, 2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	Signature	Date (Month, day, year)	Project Contact Person	Tel.	Email Address
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ANNEX TO THE PIF. SITE DESCRIPTIONS: BOUCLES DU MOUHOUN FOREST CORRIDOR (BDM) AND MARE D'OURSIS WETLANDS BASIN (MDO)

<p>Boucles du Mouhoun Forest Corridor</p>	<p>The Corridor is a vast and diverse landscape straddling five provinces on both sides of the river.²⁰ Located in north-western Burkina Faso, the entire landscape covers some 34,000 km². The climate is Sahelian-Sudanian with rainfall of between 600 and more than 1000 mm with a clear north-south gradient. The Forest Corridor is under the strong influence of the Mouhoun river, which is Burkina's largest. The meanders of the rivers of the Mouhoun basin and the flat topography create numerous wetlands, especially during the rainy season. This unique geographic setting generates a variety of microclimates and a diversity of ecosystems (aquatic, terrestrial and transitional), many of which harbour an exceptionally rich flora and fauna (including some 300 elephants). The meandering river is also rich in ictiological resources which are a significant source of protein for the surrounding communities. Since colonial times, an almost continuous chain of twelve gazetted forests border the Mouhoun river on either side.²¹ These forests play a protective role vis-a-vis floodplains and riverine landscapes. Together with the Deux Balés National Park, the protected estate in the zone tallies 327,000 ha. This 'fluvial corridor' stretches from the northern bend of the Mouhoun River (where it meets the Sourou River) all the way south to the Deux Balés National Park. It is of critical importance to the migrations of large mammals that cut across the entire region and beyond (e.g. elephants, antelopes). The Sourou River Valley (<i>La Vallée du Sourou</i> - an affluent of the Mouhoun, north of the area considered as the Forest Corridor) is a Ramsar site (1BF015) and the Lake Sourou an Important Bird Area (IBA BF003). A gap of patched agricultural lands separates the Boucles du Mouhoun Forest Corridor from the Sourou Wetlands. Approximately 120,000 inhabitants are estimated to live in local communes covered by the Forest Corridor, mostly outside of formal protected areas. Provinces of the Boucles du Mouhoun administrative region are in turn known as the country's grain basket. The region's productivity and economic contribution has recently diminished due, in large part, to lack of agricultural investments and adequate infrastructure. The north-western part of the Boucle du Mouhoun region is also the site of one the country's largest irrigation schemes and agro-industrial complex.</p>
<p>Mare d'Oursi Wetlands Basin</p>	<p>The entire Oursi Basin covers approximately 26,000 sq km and includes several permanent and seasonal lakes and wetlands, the largest of which are Oursi and Darkoye, in the Réserve Partielle du Sahel, north of the town of Gorom-Gorom. Given the scarcity of rainfall, the area is vitally important to conservation and development of surrounding communities and nomadic groups, providing food, energy and water to people and animals. The Lake Oursi-Lake Darkoye Complex is an Important Bird Area (IBA BF002), while La Mare d'Oursi is a Ramsar site (1BF001). More than 17,500 people live in and around the Lake Oursi-Lake Darkoye IBA and Ramsar site alone, an some 24,000 live in the communes within the Basin. In recent years, population growth has led to intense competition for resources and to the proliferation of unsustainable practices. Due to the flat orography of the terrain and the soil structure, the recharge of lakes and wetlands depend almost exclusively on rainfall and surface and runoff.</p>

²⁰ Mouhoun, Balés, Sanguié, Nyala, Sourou and Tuy.

²¹ Gazetted forests include: Laba, Baporo, Sorobouly, Kalio, Nossebou, Tisse, Tiogo, Ououalou (also named Ouro in some maps), Kari, Toroba, Sâ (also named Say in some maps) and Source du Mouhoun (also named Sourou in some maps).

MAP

