AFB/PPRC.15/7
17 September 2014

Adaptation Fund Board
Project and Programme Review Committee
Fifteenth Meeting
Bonn, Germany, 7-8 October 2014

Agenda Item 6 c)

PROPOSAL FOR BURKINA FASO

Background

1. The Operational Policies and Guidelines (OPG) for Parties to Access Resources from the Adaptation Fund (the Fund), adopted by the Adaptation Fund Board (the Board), state in paragraph 45 that regular adaptation project and programme proposals, i.e. those that request funding exceeding US$ 1 million, would undergo either a one-step, or a two-step approval process. In case of the one-step process, the proponent would directly submit a fully-developed project proposal. In the two-step process, the proponent would first submit a brief project concept, which would be reviewed by the Project and Programme Review Committee (PPRC) and would have to receive the endorsement of the Board. In the second step, the fully-developed project/programme document would be reviewed by the PPRC, and would ultimately require the Board's approval.

2. The Templates approved by the Board (OPG, Annex 4) do not include a separate template for project and programme concepts but provide that these are to be submitted using the project and programme proposal template. The section on Adaptation Fund Project Review Criteria states:

> *For regular projects using the two-step approval process, only the first four criteria will be applied when reviewing the 1st step for regular project concept. In addition, the information provided in the 1st step approval process with respect to the review criteria for the regular project concept could be less detailed than the information in the request for approval template submitted at the 2nd step approval process. Furthermore, a final project document is required for regular projects for the 2nd step approval, in addition to the approval template.*

3. The first four criteria mentioned above are:
   1. Country Eligibility,
   2. Project Eligibility,
   3. Resource Availability, and
   4. Eligibility of NIE/MIE.

4. The fifth criterion, applied when reviewing a fully-developed project document, is:
   5. Implementation Arrangements.

5. It is worth noting that since the twenty-second Board meeting, the Environmental and Social (E&S) Policy of the Fund was approved and consequently compliance with the Policy has been included in the review criteria both for concept documents and fully-developed project documents. The proposals template was revised as well, to include sections requesting demonstration of compliance of the project/programme with the E&S Policy.

6. In its seventeenth meeting, the Board decided (Decision B.17/7) to approve "Instructions for preparing a request for project or programme funding from the Adaptation Fund", contained in the Annex to document AFB/PPRC.8/4, which further outlines applicable review criteria for both concepts and fully-developed proposals. The latest version of this document was launched in conjunction with the revision of the Operational Policies and Guidelines in November 2013.

7. Based on the Board Decision B.9/2, the first call for project and programme proposals was issued and an invitation letter to eligible Parties to submit project and programme proposals to the Fund was sent out on April 8, 2010.

8. According to the Board Decision B.12/10, a project or programme proposal needs to be received by the secretariat no less than nine weeks before a Board meeting, in order to be considered by the Board in that meeting.

9. The following project concept titled “Increasing the adaptation capacity of farmers in the Sahel zone through enhanced management of rain water and sustainable climate smart agricultural production” was submitted by the Sahara and Sahel Observatory (OSS), which is a Regional Implementing Entity of the Adaptation Fund. This is the first submission of the project concept document. It was received by the secretariat in time to be considered in the twenty-fourth Board meeting. The secretariat carried out a technical review of the project proposal, assigned it the diary number BFA/RIE/Agri/2014/1, and completed a review sheet.

10. In accordance with a request to the secretariat made by the Board in its 10th meeting, the secretariat shared this review sheet with OSS, and offered it the opportunity of providing responses before the review sheet was sent to the PPRC.

11. The secretariat is submitting to the PPRC the summary and, pursuant to decision B.17/15, the final technical review of the project, both prepared by the secretariat, along with the final submission of the proposal in the following section.

Project Summary

Burkina Faso – Increasing the adaptation capacity of farmers in the Sahel zone through enhanced management of rain water and sustainable climate smart agricultural production

Implementing Entity: *OSS*
Project/Programme Execution Cost: USD 475,570
Total Project/Programme Cost: USD 5,481,570
Implementing Fee: USD 465,933
Financing Requested: USD 5,947,503

Project Background and Context: The soudano-sahelian zone in Burkina is particularly vulnerable to droughts, floods and increases in temperature reducing crop growth. Agriculture in Burkina is predominately rainfed and cultivated areas span over about 5.7 million hectares marked by the use of rudimentary agricultural techniques in small scale farms. The natural environment is a capital for all the socio-economic activities of the rural households. Hence, the major challenge resides primarily in the appropriate planning and management of the country's existing resources.

The objective of the project is to increase the adaptation capacity of farmers and herders in the Sahel zone through the introduction of techniques based on collecting rain water during the rainy season and improved infiltration to grow crops and feed animals, and through the development of marketing infrastructures in the villages and their protection against flooding.

The project presents four specific components:

- Component 1: Establishment of productive and climate change resilient agro-sylvopastoral production systems;
- Component 2: Investment in resilient infrastructure;
- Component 3: Building resilience for climate adaptation;
- Component 4: Knowledge generation and management.

Component 1: Establishment of productive and climate change resilient agro-sylvopastoral production systems (USD 2,726,000)

This component addresses the increased scarcity of rainwater in the region and introduces techniques based on collecting rain water during the rainy season and improved rainwater infiltration to grow crops and feed and water livestock as well as to provide a natural habitat for flora and fauna and promote the development of the villages. The project will fund the equipment of 4 pilot farms and the development of 1800 ha of grove perimeter for 15 land group and of 38 pluvial gardens. The techniques introduced have been tested and applied by the NGO terre verte for more than 10 years on their pilot in Guie. Experiences show that the introduction of grove perimeters, of pluvial gardens and of village bullis makes the agricultural production more resilient to the expected climate changes. Furthermore these techniques help to increase the agricultural production and thereby also increase the adaptation capacity of the farmers and herders.

Component 2: Investment in resilient infrastructure (USD 1,130,000)

The second component aims at promoting the economic development of the targeted villages through improved access to markets. The project will develop 45 kilometers of path in the 4 intervention zones and 7 bullis in 7 villages of the intervention zones. This will help farmers and herders to better market the surplus generated and thus have more income and an increased adaptation capacity. The combined technique of bordering the paths with trees and building bullies to channel rainwater will make the paths more resilient to the expected increasing risk of flooding, since the bullies help to channel the water and the trees improve the infiltration of the water.

Component 3: Participatory training and development of sustainable, innovative, productive and resilient agricultural production systems (USD 500,000)

This component aims to train farmers in new techniques that allow the establishment of a sustainable agriculture adapted to the context of climate variability such as the composting technique, Zaï hole technique, crop rotation and rational grazing. The component also aims to create knowledge exchange and the creation of new knowledge through wide participation and encouraging and monitoring new cultivation methods. Hence, 600 farmers and breeders will participate in farmer field schools to share knowledge on more resilient and productive agricultural production techniques.

Component 4: Environmental Monitoring (USD 650,000)

This component aims on the one hand to monitor and document the observed climate changes and their impact in order to create a better understanding of the ongoing processes and the expected future changes. On the other hand this component serves to monitor and evaluate the project activities and to document and to disseminate lessons learned. The project will support the establishment of a monitoring and evaluation system comprising three observatories in the three project regions (Nord; Plateau Central, Centre Nord°). The project will also support the set-up of meteorological stations and the definition of a minimum set of indicators, together with a protocol on how to collect these indicators and a training on the collection, storage and treatment of the data collected. The data will be collected among others to generate the baseline, a mid-term evaluation and a final evaluation of the project as well as to undertake an environmental and social impact assessment.

ADAPTATION FUND BOARD SECRETARIAT TECHNICAL REVIEW OF PROJECT/PROGRAMME PROPOSAL

PROJECT/PROGRAMME CATEGORY: Regular-sized Project Concept

Country/Region: **Burkina Faso**
Project Title: **Increasing the adaptation capacity of farmers in the Sahel zone through enhanced management of rain water and sustainable climate smart agricultural production**
AF Project ID: **BFA/RIE/Agri/2014/1**
IE Project ID: Requested Financing from Adaptation Fund (US Dollars): **5,947,503**
Reviewer and contact person: **Daouda Ndiaye** Co-reviewer(s): **Jaime Cavelier**
IE Contact Person: **Seydou Kaboré**

Review Criteria	Questions	Comments on 20 August 2014	Comments on 10 Sept. 2014
Country Eligibility	1. Is the country party to the Kyoto Protocol?	Yes.	
	2. Is the country a developing country particularly vulnerable to the adverse effects of climate change?	Yes. The soudano-sahelian zone in Burkina is particularly vulnerable to droughts, floods and increases in temperature reducing crop growth.	
Project Eligibility	1. Has the designated government authority for the Adaptation Fund endorsed the project/programme?	Yes. Letter dated 4 August 2014.	

	2. Does the project / programme support concrete adaptation actions to assist the country in addressing adaptive capacity to the adverse effects of climate change and build in climate resilience?	Not demonstrated. More information is needed on the following: - The expected increase in water storage capacity, overall duration of water availability throughout the year for the pluvial gardens and grove perimeters; **CR1** - One of the expected outputs is the development of 1800 ha of grove perimeter for 15 land groups, while the 3 existing pilot farms total 807 ha. Please clarify if it is the one to be created in Barga that will cover 1,000 ha or if other pilot farms are to be created. Also, please clarify the number of land groups for each pilot farm; **CR2** - The total superficies of the expected 38 pluvial gardens. Please clarify if the 18 ha mentioned in the document represent the total area or the area of one garden. Also, please explain how the gardens will be exploited and which categories of fruits/vegetables will be grown; **CR3** - The adaptation reasoning of the development of 45 km of roads is not demonstrated. It seems to be more related to needs of the agricultural and rural sector to build roads for improvement of access to markets; **CR4** - The nature of the observatories under component 4 is not specified; also, the use and location of meteorological stations is not explained in the document. **CR5** Also, the main outputs of this project relate to the development of infrastructure (i.e. grove perimeters, pluvial gardens, bullies and roads) and hardly relate to incorporating different types of crops. In the context of adaptation to climate change, please explain if different biological resources have been considered in the pilot farms or somewhere else in the country. This may be particularly useful when considering plants with increased water use efficiency and heat tolerance. **CR6**	**CR1**: Addressed. **CR2**: Partially addressed. It is still not clear which portion of the 1,800 ha is new or existing. See CR9 for more comments. **CR3**: Addressed. **CR4**: Not addressed. **CR5**: Partially addressed. It is not clear how such observatories will be created and which institution will be involved in managing them. Finally, the link of such observatories and meteorological stations with the project are unclear. **CR6**: Not addressed. Although the focus is on increasing production, considering plants with increased water use efficiency and heat tolerance does not necessarily contradict that objective.

		Lastly, with the isohyets moving almost 200 km south with the concomitant increase in the dry areas in the past 30 years, please clarify if the project has assessed the risks of the development of the agro-sylvo-pastoral production systems and infrastructure to become insufficient in a short time. **CR7**	**CR7**: Addressed.
	3. Does the project / programme provide economic, social and environmental benefits, particularly to vulnerable communities, including gender considerations, while avoiding or mitigating negative impacts, in compliance with the Environmental and Social Policy of the Fund?	Yes. However, the target number of households for the farm to be created in Barga is not provided, and the overall target number of beneficiaries is not provided with sex-disaggregated data. **CR8**	**CR8**: Addressed. However, data are not provided by gender groups.
	4. Is the project / programme cost effective?	Not demonstrated. The costs for establishing a grove perimeter is 500 euros and the total target area is 1,800 ha, which would cost 900,000 euros although only one grove perimeter is expected to be developed through this project. The requested budget of 2,726,000 USD for component 1 is not justified. The costs of establishing the pluvial gardens need also to be provided. Also, a brief description of alternatives to the solutions presented in the project should be presented to demonstrate its cost effectiveness. **CR9**	**CR9**: Not addressed. The cost of the grove perimeters is US$ 1,970,000 covering 1,800 ha. However the same question remains. The costs for establishing a grove perimeter is 500 euros and the total target area is 1,800 ha, which would cost 900,000 euros. Please explain the difference of US$ 1,000,000. Also, it is not clear if the 1,800 ha are additional to the existing grove perimeters in the farms of Guiè, Filly and Goèma which coincidentally cover the same surface (600, 480 and 360, respectively).

	5. Is the project / programme consistent with national or sub-national sustainable development strategies, national or sub-national development plans, poverty reduction strategies, national communications and adaptation programs of action and other relevant instruments?	Yes. However, the document does not show how national and local technical government institutions are involved in this project, to ensure inclusiveness, scale up and linkages national sectoral plans. **CR10**	**CR10**: Addressed. However, the role of government institutions in the project will need to be more detailed in the full proposal.
	6. Does the project / programme meet the relevant national technical standards, where applicable, in compliance with the Environmental and Social Policy of the Fund??	Not demonstrated. More information is needed on the relevant standards that would apply for specific sets of activities under the project. **CR11**	**CR11**: Addressed.
	7. Is there duplication of project / programme with other funding sources?	No.	
	8. Does the project / programme have a learning and knowledge management component to capture and feedback lessons?	Not adequately. Component 3 and 4 focus on training and sharing lessons towards the target farmers in the selected farms. **CR12**	**CR12**: Not addressed in the proposal.
	9. Has a consultative process taken place, and has it involved all key stakeholders, and vulnerable groups, including gender considerations?	Partially. There was a consultative process in the pilot farm of Guie, one of the four pilot areas. The document does not provide any information on the number and category of stakeholders consulted during project identification. **CR13**	**CR13**: Not addressed in the proposal.
	10. Is the requested financing justified on the basis of full cost of adaptation reasoning?	Not demonstrated. The document does not explain how the proposed project differ from business as usual agricultural project and how it complement existing government, municipal and NGO efforts in the agricultural sector, to climate-proof current investments and increase its resilience to observed and expected climate risks. **CR14**	**CR14**: Not addressed in the proposal.

		As it is, the project does not differ from a regular agricultural project in a dry landscape, with an investment in infrastructures for water management.	
	11. Is the project / program aligned with AF's results framework?	Yes.	
	12. Has the sustainability of the project/programme outcomes been taken into account when designing the project?	Partially demonstrated. The document does not specify how the roads will be maintained by village committees through the community fund. The proponents should clarify if the costs of maintenance have been assessed and the modalities of the fund resource mobilization. Also, it is not clear how such committees are organized, including their sources of income, operation costs and position within the country's decentralized administration. **CR15** The financial sustainability of the project is based on the assumption that the surplus generated by the project will provides the means to the beneficiaries to do the maintenance works required. Maintenance of the proposed infrastructure is very expensive. The proponent needs to further demonstrate the financial sustainability of the project taking into account the points made above and clarify the role of the State government in the project's implementation. **CR16**	**CR15**: Addressed. However, response needs to be included in the relevant section of the proposal. **CR16**: Partially addressed. The role of the State government, if any, particularly to ensure proper scaling up of the project's outcomes, is not explained.
	13. Does the project / programme provide an overview of environmental and social impacts / risks identified?	Yes. However please clarify if EIAs will be needed for the building of roads, bullies, etc. **CR17**	**CR17**: Addressed.
Resource Availability	1. Is the requested project / programme funding within the cap of the country?	Yes.	

	2. Is the Implementing Entity Management Fee at or below 8.5 per cent of the total project/programme budget before the fee?	Yes. 8.5%	
	3. Are the Project/Programme Execution Costs at or below 9.5 per cent of the total project/programme budget (including the fee)?	Yes. 8.68%.	
Eligibility of IE	4. Is the project/programme submitted through an eligible Implementing Entity that has been accredited by the Board?	Yes. OSS is an accredited RIE.	
Implementation Arrangements	1. Is there adequate arrangement for project / programme management?	n/a (Not required at Project Concept stage).	
	2. Are there measures for financial and project/programme risk management?	n/a (Not required at Project Concept stage).	
	3. Are there measures in place for the management of for environmental and social risks, in line with the Environmental and Social Policy of the Fund?	n/a (Not required at Project Concept stage).	
	4. Is a budget on the Implementing Entity Management Fee use included?	n/a (Not required at Project Concept stage).	
	5. Is an explanation and a breakdown of the execution costs included?	n/a (Not required at Project Concept stage).	
	6. Is a detailed budget including budget notes included?	n/a (Not required at Project Concept stage).	
	7. Are arrangements for monitoring and evaluation clearly defined, including budgeted M&E plans and sex-disaggregated data, targets and indicators?	n/a (Not required at Project Concept stage).	

	8. Does the M&E Framework include a break-down of how implementing entity IE fees will be utilized in the supervision of the M&E function?	n/a (Not required at Project Concept stage).	
	9. Does the project/programme's results framework align with the AF's results framework? Does it include at least one core outcome indicator from the Fund's results framework?	n/a (Not required at Project Concept stage).	
	10. Is a disbursement schedule with time-bound milestones included?	n/a (Not required at Project Concept stage).	

Technical Summary	The soudano-sahelian zone in Burkina is particularly vulnerable to droughts, floods and increases in temperature reducing crop growth. The objective of the project is to increase the adaptation capacity of farmers and herders in the Sahel zone through the introduction of techniques based on collecting rain water during the rainy season and improved infiltration to grow crops and feed animals, and through the development of marketing infrastructures in the villages and their protection against flooding. It comprises four components. The first component will introduce grove perimeters, pluvial gardens and village bullis as ways to address the increased scarcity of rainwater in the region by collecting rain water during the rainy season and improving rainwater infiltration. The second component aims to promote the economic development of villages through improved access to markets through combined technique of bordering the roads with trees and building bullies to channel rainwater. The third and the fourth component are dedicated to generating knowledge and lessons learned and to monitor climate change and its impact and evaluate the project activities. The initial technical review found that the proposal presented many gaps in its design, related *inter alia* to the adaptation reasoning of its activities, its cost effectiveness, linkage with the national government services, learning and knowledge management component, or sustainability. Although the revised proposal has adequately addressed some of the clarification requests made during the initial review, there are still some key issues that are pending and for which the following observations are made:

	(i) The proponents should clarify which portion of the 1,800 ha of grove perimeter to be developed is new or existing. It is not clear if the 1,800 ha are additional to the existing grove perimeters in the farms of Guiè, Filly and Goèma which coincidentally cover the same surface (600, 480 and 360, respectively); (ii) Although the focus of the project is in increasing agricultural production, the proposal should consider the use of plants with increased water use efficiency and heat tolerance as additional adaptation options; (iii) The cost of the grove perimeters covering 1,800 ha which in the proposal is estimated at US$ 1,970,000 should be justified. The document estimates the costs for establishing a grove perimeter is 500 euros per ha, and the total target area is 1,800 ha, which would cost 900,000 euros. The difference of US$ 1,000,000 needs to be explained; (iv) The consultation process should be described in more details, including information on the number and category of stakeholders consulted during project identification; (v) The learning and knowledge management component(s) should be strengthened in order to better capture and feedback lessons, at local and national levels, and among the relevant stakeholders, including local and national sectoral governments, NGOs, Universities, local communities and the private sector; (vi) The proposal should explain how the proposed project differ from business as usual agricultural project and how it complements existing government, municipal and NGO efforts in the agricultural sector, to climate-proof current investments and increase its resilience to observed and expected climate risks. For example, the adaptation reasoning of the development of 45 km of roads aiming at improving access to markets, is not demonstrated; (vii) The role of the State government, if any, particularly to ensure proper scaling up of the project's outcomes, is not explained. Also, it is not clear how the environmental monitoring observatories will be created and which institution will be involved in managing them. Lastly, the relevance of the observatories and meteorological stations to the project's objectives is unclear.
Date:	11 September 2014

ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular Project
Country/ies:	Burkina Faso
Title of Project/Programme:	Increasing the adaptation capacity of farmers in the Sahel zone through enhanced management of rain water and sustainable climate smart agricultural production
Type of Implementing Entity:	Regional Implementing Entity
Implementing Entity:	Observatoire du Sahara et du Sahel (OSS) Sahara and Sahel Observatory
Executing Entity/ies:	TERRE VERTE NGO
Amount of Financing Requested:	5 947 503 U.S Dollars

Project / Programme Background and Context:

Burkina Faso, a landlocked country in the heart of West Africa, covers about 274,000 sq km with a total population of 16.968 million (2011) and an annual population growth rate of 2.8 % (World Bank, 2013).

Burkina Faso is one of the least developed countries with an annual income of $670 per capita (world Bank, 2013) and an HDI of 0.343 (183st among 187 countries, 2012). 72.6 % of the population lives up with less than $2 per day (2009).

For instance, the MDGs could not be achieved by 2015 as poverty still hits 43.9% of the population at the national level (2009). Given the high social vulnerability to Climate change[1], the rural areas in Burkina Faso are the most affected, with a poverty rate of 50.7% against 19.9% in urban areas[2].

Agriculture accounts for 40 % of the gross domestic product (GDP) and employs more than 90 % of the active population. It ensures 60 % of the total exports of the country.

[1]

[2] BURKINA FASO Banque Africaine de Développement Document, Fonds Africain de Développement 2012: Burkina Faso Document de stratégie pays 2012-2016

Agriculture in Burkina is predominately rainfed and cultivated areas span over about 5.7 million hectares marked by the use of rudimentary agricultural techniques in small scale farms.

Subsistence farming prevails while cotton (and increasingly sugar cane in the south) are growing commercially. Crop production is more diversified in the Sudanian zone (southwest) with variety of roots and tubers, cashews and sugarcane.

Water Resources of Burkina Faso are almost exclusively dependent on rains that provide a considerable recharge of groundwater aquifers and replenish various degrees of surface water lakes. In an average year, the country receives about 207 billion m3 of water distributed in volumes flowed (4.16%), infiltration (15.66%) and evaporation (80.18%).

Burkina Faso leans more on irrigated agriculture around dams and commercial crops like cotton in the south. The proposed project is one of the rare projects targeting rainfed agriculture where Government's in Burkina Faso has little involvement.
However, with the recent creation a Direction of Land Restoration, Conservation and Readaptation in the Agriculture and Food Security Department, TERRE VERTE (GREEN EARTH) started to work the Government on the future of the rainfed agriculture.

Climate change scenarios

Due to its geographical position, the climate in Burkina Faso is tropical and of the Sudano-Sahelian type. It is mainly characterized by an alternation between a short rainy season and a long dry season. The continentality of the country and its position on the edge of Sahara predispose the climate elements to a strong diurnal and annual variability. Three climatic zones are traditionally distinguished: i) the Sahelian zone to the north with an average annual rainfall of less than 600 mm; ii) the northern Sudanian zone in the center with an average annual rainfall between 600 and 900 mm and iii) the southern Sudanian zone to the south with an average annual rainfall exceeding 900 mm, with a rainy season of about 6 months. The vegetation is dominated by grasslands and savannas, becoming dryer and sparser towards the North.

Yearly temperatures vary from 27°C in the South-sudanian zone to 29°C in Sahelian zone. Two extreme major seasons usually occur: a season with abundant rains,(May - September), followed by a very dry season (October - April) .
Recent studies showed that isohyets have moved almost 200 km south and dry areas have expanded for the past 30 years (see the following map).

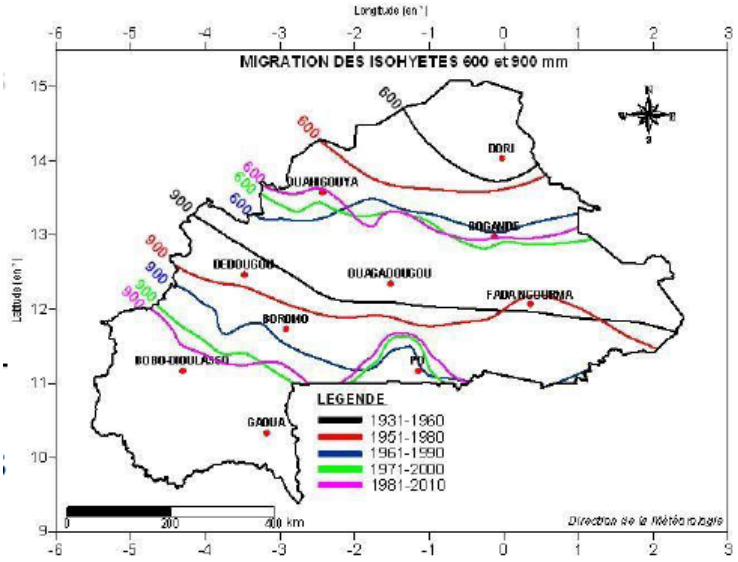

Figure : Migration isohyètes de 1999-2009. Adaptée des données de la Direction de la Météo, 2010 (source : REEB III, 2010)

Assessments undertaken during the NAPA process and the Initial National Communication (INC) demonstrated that the "Sahelian" and the "Sudan-Sahelian" climatic zones,--where the annual rainfall ranges between 300 to 900 mm-- are the most affected. 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[3].

Moreover, the distribution of rains is most likely to change, with certain months that will experience far less rain in some regions and significant increase in other regions. . A decline in the annual volume of water flows in the Comoé and Mouhoun Rivers is expected by 2025, compared to the 1961-1990 average. On the other hand, the annual volumes of water in the small rivers are likely to increase in the Nakanbé and Niger basin.

Vulnerability to climate change

Burkina Faso is classified as a Least Developed Country (LDC),as it is recognized by the United Nations Framework Convention on Climate Change (UNFCCC) as one of the most vulnerable countries to the impacts of climate change. These vulnerabilities touches/affects many sectors, livelihoods and assets within each country and the region in general.

The natural environment in Burkina Faso is a capital for all the socio-economic activities of the rural households. Hence, the major challenge resides primarily in the appropriate planning and management of the country's existing resources. Rapid population growth,

[3] Ministry of Environment and Quality of Life of Burkina Faso 2007: National Action Programme for adaptation to climate variability and climate change in Burkina Faso

a mismatch between the use of natural resources and their rate of renewal, as well as a little consideration of the environment in sectoral plans and programs resulted in the deterioration of natural resources (soil, water, biomass and biodiversity). As a result, Burkina Faso witnesses a i) a decrease in biomass and forest cover, ii) a loss of soil fertility and increase of desertification, iii) a depletion of water resources. These effects are at the origin of localized food deficits resulting from unsustainable use of natural resources.

The anticipated climate changes are likely to exacerbate those challenges of the water resources, agriculture and forestry sectors. Burkina Faso has suffered from the adverse effects of climate. The most important of these climatic shocks are droughts due to insufficient rainfall and its uneven distribution, flooding from exceptional heavy rains, heat waves and heavy layers of dust. Climate change is also expected to result in a marked increase in the incidence and intensity of bushfires in Burkina Faso. Higher temperatures and increased evapotranspiration across typical landscapes of Burkina Faso will create the conditions for bush-fires to spread out of control and impact larger areas.

The NAPA of Burkina Faso is based on the assessment of vulnerability and adaptive capacity to climate variability and climate change. It highlights, on the one hand, the four most vulnerable key sectors and shows on the other hand that the most vulnerable groups are among the rural poor.

The most venerable sectors are water resources, agriculture, livestock and forestry / biodiversity because they depend directly on rainfall and temperature. Of particular concern is the agricultural sector which is an important component of the economy and forms the basis of many rural livelihoods. Droughts, floods and increases in temperature reduce the ability to grow crops and affects other aspects of the value chain e.g. drying/storage and transport to market. More than 82% of the Burkinabe population depends on agro-forestry-pastoral activities for their subsistence and the failure of the crop production or the impact of livestock losses seriously affect the whole country.

The most vulnerable groups are composed of the rural households who depend directly on crops and livestock. They are severely affected by the adverse effects of climate change, with a more negative impact on low-income urban households. Given their low resilience to climate hazards, the rural households have a social vulnerability to climate change that could threaten their food self-sufficiency. It could also increase their dependence on wood energy and consequently resulting in forest degradation and deforestation.

The project zones of intervention

Based on NAPA priorities, four project zones have been chosen to be the focus of this intervention, which are situated in the North Soudanian and the Sahel zone, which is particularly vulnerable to the effects of climate change. 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 management of rainfed water is the main device without which, every heavy rain can turn the paths into river draining, the water that should seep into the fields, dikes and ponds.

Climatic zone	Regions	Provinces	Sites
Sahelian	North	Yatenga	Filly
			Barga
North Soudanian	Plateau Central	Oubritenga	Guiè
	Centre Nord	Sanmatenga	Goèma

The choice of site is particularly relevant because the 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.

The project will cover 57 villages and 62,000 inhabitants who will be affected by the project direct and indirect benefits (tracks, High Intensity Labor Force, bullis ...). The number of direct beneficiaries (pilot farms and home gardens, ...) is estimated to 700 households (approximately 4,200 beneficiaries).

In the present time, there is a very little intervention of NGOs in the Guiè and GOEMA areas. On the contrary, their is more focused on the two other regions of Filly and Braga. The intervention concerns mainly the sector of off-season irrigated agriculture while Terre Verte concerns mainly rainfed agricultureas the sustainable management of rain water is the key to prevent water loss and and ensure an effective use of water resources..
Sharing the same focus and concern of the “Terre Verte” organization in terms of rain water management, the Burkina Faso government has created “ la Direction de la Restauration, de la Conservation et de la Récupération des sols “ of the ministry of Agriculture and Food Security.

It should be noted that rainfed agriculture is practiced by the whole rural population in Burkina Faso.

Guiè

The pilot farm is located in the department of Dapelogo in the province of Oubritenga, Plateau-Central region.

This region belongs to the Sudanian area, with annual rainfall ranging between 700 and 800 mm spread over four to five months between May and October.

The pilot farm covers 10 villages all located in the Plateau Centrale region, including the village of Guiè. The population is estimated to more than 12,000 (2006 national survey) with more than 50% women.

The agricultural system is highly dependent on the rain for all the farmers. These are family farmers with some animals for breeding.

The pilot farm of Guiè has already put up 6 grove perimeters with a total surface of 600 ha for 179 families.

Filly

The pilot farm of Filly is located in the north of the country, Yatenga Province. It covers 9 villages with a population estimated to more than 10.000 inhabitants. More than 50% are women. This zone includes farmers and cattle breeders (Peuhls) especially for family farming. The agriculture is also based on the rain, which can be very irregular from one year to another.

Filly already has three grove perimeters which allow the beneficiaries to grow their crops in a secure place. The total area of these three perimeters is equal to 480 ha, for 72 families.

Goèma

Located in the east-central region, the pilot farm of Goèma covers 25 villages with a population estimated to be more than 30.000 inhabitants. The population is highly dependent on natural resources in their everyday living and agriculture also depends on the rain for almost all the farmers. There is a grove perimeter of 360 ha in Goèma, for 28 families.

Barga

The pilot farm of Barga is a project of creating a new pilot farm like Guiè, Filly and Goèma. It will be located in the Sahelian zone of the country, Yatenga province, with 13 villages whose population are mostly farmers and breeders. The population is estimated at 19.870 (2006 national survey) with 53% of women and 47% of men.

The grove perimeter is about 360 ha and will benefit to 130 families. As breeding is very important in this area, a particular attention will be given to livestock by the new pilot farm (for example, the setting up of emergency grazing areas for the livestock during dry seasons).

The consultation carried out as part of a "Territorial policies for sustainable development Sustainable Agriculture Option" studyis fairly representative of the 4 geographic areas throughout the Mossi Plateau. Indeed, discussions were held with families in rainfed gardens (277) and with CVD and municipal authorities for the other works such us bullis, paths, bocage perimeters.

Project / Programme Objectives

The main problem the project is aiming to solve is the increasing water scarcity in the Sahel zone, which is creating food insecurity, loss of biodiversity and leads to increasing poverty of the local populations who depend on the natural resources to meet their subsistence needs and generate their income.

The main objective of the project is to increase the adaptation capacity of farmers and herders in the Sahel zone through the introduction of techniques based on collecting rain water during the rainy season and improved infiltration to grow crops and feed animals, and through the development of marketing infrastructures in the villages and their protection against flooding.

Since the traditional techniques of shifting cultivation are no longer adapted to the current context of the Sahel the project aims on the one hand to train farmers in new techniques that allow the establishment of a sustainable agriculture adapted to the context of climate variability and on the other hand to develop together with the farmers innovative agricultural production systems, which are well adapted to the observed climatic changes.

The introduced techniques are not only more resilient to climate change but also aim to increase the agricultural production of the farmers, so that a surplus can be sold on the market and monetary income is generated. In order to promote the marketing of the products paths to the main villages are built. The paths are bordered with trees to be more resistant to climate changes such as flooding.

The project also aims to set up reforestation by creating hedges and planting trees around and in the fields, in a place where wood is becoming rare due to excessive wood cutting.

Project / Programme Components and Financing:

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US$)
1. Establishment of productive and climate change resilient agro-sylvo-pastoral production systems	1.1. Establishment of the pilot farm of Barga 1.2. Equipment of the 4 pilot farms with dockyard vehicles; clearing equipment for surveying transects (tractor, shredder, garage for tractors) 1.3. Development of 1800 ha of grove perimeter for 15 land group 1.4. Development of 38 pluvial gardens	More productive agricultural production systems, which are more resilient to the expected climate changes such as irregular rainfall patterns and the risk of flooding and drought, generate reliable income and increase the adaptation capacity of farmers.	2 726 000
2. Investment in resilient infrastructure	2.1. 45 kilometers of path developed in the 4 intervention zones 2.2. 7 bullis developed in 7 villages of the intervention zones	The adaptation capacity of farmers and herders to unexpected climate changes is increased through the construction of an improved and climate resilient path network, which provides a better access to markets, hospitals and extension services.	1 130 000

3. Participatory training and development of sustainable, innovative, productive and resilient agricultural production systems	600 farmers and breeders participate in farmer field schools to share knowledge on more resilient and productive agricultural production techniques	The adaptation capacity of farmer and herders is increased through the introduction and development of innovative productive and resilient agricultural production systems	500 000
4. Environmental Monitoring	4.1 Establishment of three observatories in the three regions of the project 4.2. Baseline 4.3. Environmental and Social Impact Assessment 4.3. Mid-time evaluation 4.4. Final evaluation	Climate change and the impact of the activities on the environment are well documented	650 000
7. Project/Programme Execution cost			475 570
8. Total Project/Programme Cost			5 481 570
9. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			465 933
Amount of Financing Requested			**5 947 503**

Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme

Milestones	Expected Dates
Start of Project/Programme Implementation	06/2015
Mid-term Review (if planned)	10/2017
Project/Programme Closing	12/2019
Terminal Evaluation	06/2020

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project components

The programme is composed of 4 components.

The first component addresses the increased scarcity of rainwater in the region and introduces techniques based on collecting rain water during the rainy season and improved rainwater infiltration to grow crops and feed and water livestock as well as to provide a natural habitat for flora and fauna and promote the development of the villages. The techniques introduced have been tested and applied by the NGO terre verte for more than 10 years on their pilot in Guie. Experiences show that the introduction of grove perimeters, of pluvial gardens and of village bullis makes the agricultural production more resilient to the expected climate changes. Furthermore these techniques help to increase the agricultural production and thereby also increase the adaptation capacity of the farmers and herders.

The second component aims to promote the economic development of the village through improved access to markets. The farmers and herders can better market the surplus generated and thus have more income and an increased adaptation capacity. The combined technique of bordering the paths with trees and building bullies to channel rainwater make the paths more resilient to the expected increase risk of flooding, since the bullies help to channel the water and the trees improve the infiltration of the water.

The third and the fourth component are dedicated to generating knowledge and lessons learned and to monitor climate change and its impact and evaluate the project activities.

Component 1: Introduction of productive and resilient agro-sylvo-pastoral production systems

The First component introduces the following tested and successfully applied agricultural production systems. The component includes certain flexibility in order to be able to also promote the introduction of further innovations developed in the participatory farmer field schools of component 3.

<u>Grove perimeters</u>

One of the expected outputs is the development of 1800 ha of grove perimeter for 15 land groups corresponding to 655 households.. This surface area of 1800 hectares will be divided between the four farms and implemented throughout the five-year program. As projected:

- Guie 600 ha / 5 land groups.
- Filly: 480 ha /4 land groups

• Goema: 360 ha /3 land groups

• Barga: 360 ha /3 land groups

The exact area of each perimeter will depend on the land configuration.

The main objective of the grove perimeters is to make Sahelian agriculture more resilient to expected climate changes such as irregular rainfall patterns and extreme weather events. The main principle of grove perimeters, called “Wégoubri” in the local language mooré, is to keep water where it falls thanks to micro dykes and hedges around each field.

A grove perimeter encompasses an average of 100 ha with a retention capacity of 65 cubic meters. The water availability will therefore last from May to November and possibly December. The perimeter relies on the rearrangement of widely dispersed agricultural fields in one condensed area, which is managed in co-ownership. By grouping the fields in one concentrated and perennial area it becomes coherent and financially sustainable to invest in the site and to protect the site against the different threats from outside, such as wildfire, flooding, sandstorms etc. The perimeter is surrounded by a mix of hedges and a wired fence, as well as by bullies for water storage and infiltration. The storage capacity goes from 20000 to 60000 cubic meters depending on the size of the Bulli. In order to provide the best watering conditions for a better production potential, efforts focus on soil conservation, rainwater management and climate-change-resilient agricultural practices.

The hedges can permit to avoid wind erosion and protect the crops against violent winds, especially at the end of the rainy season. The planting of hedges as living fences around parcels of land creates an area which is protected of winds and floods and not only improves the conditions for agriculture and reforestation but also provides a living space for a diversified flora and fauna. A pool is dug at the lower point of the field, in order to collect the excess water in case of heavy rainfall. Other improved agricultural techniques are applied within the created areas to increase the benefit of the grove, such as Zaï holes, and rotational agriculture integrating livestock grazing on the fallow ground. The traditional technique of Zai holes has been improved through techniques of conservation agriculture. The technique is resilient to predicted changes in rainfall patterns and has also shown to increase the agricultural production three times.

A technical handbook has been developed, which describes the different phases of the development of the grove perimeter.4

Inside the grove perimeter exists individual parcels as well as common lands, whose management is organised in agricultural user groups. All the beneficiaries are involved in the planning and implementation of light work (surveying, installation of the fence, reforestation). Heavy work (bunds, ponds) are realized through a cash for work scheme.

It is also worth noting that traditional systems have changed little and they do not guarantee an adequate harvest. They have registered a water shortage of one year out of four during the last 14 years. Meanwhile, there was no catastrophic year registered in the pilot farms on which the zai technique was applied.

[4] Le manuel technique sur l’aménagement d’un périmètre bocager au sahel est accessible au lien suivant : http://eauterreverdure.org/?dl_id=69

Pluvial gardens

The main objective of the establishment of improved rainfed gardens is to capture and store water to allow watering of vegetable plants, and thereby ensure that subsistence needs are met and monetary income is created by selling a surplus during the rainy season on the market. The project consists of setting up 38 family gardens with a surface of half hectare each one totalling an area of19 ha. The project introduces techniques for water conservation for plants irrigation, by digging a pool in the lower place of the garden. The pool is built of cement in order to prevent infiltration, which makes it possible to store water for at least two weeks and thus allows the gardener to water his plants when there is no rain. Major crop speculations are rainy season vegetables chili, local and exotic eggplants, tomatoes, squash, okra, melon, watermelon, etc.

Component 2: Investment in resilient infrastructure

The second component invests in building infrastructures that on the one hand help to mitigate the risk of flooding and on the other hand are resilient to the risk of flooding and drought. The following infrastructure development is planned:

Bulli (Micro dams in earth)

The objective of this technique is to collect considerable amounts of water for infiltration, gardening and breeding. The establishment of Bullis allows breeders to water their animals more easily and assures broad access to water for gardening and breeding and thereby increases income generated through agricultural production systems. The construction of bullis thereby increases the adaptation capacity of farmer and herders. The bullis also increase the resilience of paths and habitations downstream against the risk of flooding created through heavy rainfalls. A bulli can keep an average of water estimated between 8,000 m3 and 12,000m3, with an average length between 300 and 500 m. The use of the water is opened to everyone and it is under the responsibility of the Village Development Council (CVD), who maintains the bulli with the technical support of the pilot farm.

Paths

The objective of this component is to improve access to local markets so that farmers can better sell the surplus generated through the improved agricultural technique. This would allow a faster access to the market and safeguard the quality of the goods. The increased economic income generated thereby can be invested in the maintenance and investment of agricultural techniques well adapted to the expected climate changes. The paths are bordered by trees to be more resilient against the risk of flooding.

However, the lining and paths maintenance are performed manually (clearing essentially) by VDC (Village Development Councils) which are governed by the law No. 055-2004 / AN ACT CONCERNING THE GENRAL CODE OF TERROTIRIAL COMMUNITIES IN BURKINA FASO (Articles 222 and 223). The paths maintenance is based essentially on the size of trees that represent a source of income thanks to the production of wood-fuel that could be commercialized or shared among the rural

households. The revenues of the VDC originate mainly from the households contributions and of the VDC activities (mills, paths, rentals, etc.).

The layout of the paths within and between villages is materialized by two parallel lines of trees and anti-erosion structure upstream. The unit cost of 1 km of path does not exceed 20,000 USD and includes only costs of labor (clearing, digging holes for trees, erosion control devices), trees purchase and technical supervision.

Activities will be performed according to the High Intensity Labor Force for the implementation of public interest work which also can generate additional income for the villagers.

Taking into account the predicted irregular rainfall patterns the trees are i planted making use of a technique which consists of digging holes with a half-moon of earth around them, to collect enough water for the plant so that they can survive without watering in the dry season.

The bullis and the paths are built through cash for work programme, which is set up during the dry season and is engaging available work force for two to three weeks. The people engaged on the construction site are paid in accordance with the concept of labour-intensive projects initiated by the International Labour Organisation5. The remuneration of the work is a guarantee of quality achievements and can present an important additional source of income for beneficiaries. These are mainly women who do not have remunerative activities during the dry season. The work is usually undertaken in the dry season by teams that work 2 to 3 weeks. This provides them a valuable source of grain in times of famine and additional income in normal years which can be invested (for example in a bicycle) or put into a savings fund for other activities (trading, breeding).

The equipment provided by the project will be used even after the end of the project. The paths maintenance as well as the realised infrastructure will be ensured by the income of the farm activities. (grazing fallow, wood from hedge trimming).

Component 3: Farmer Field Schools on grove agriculture and pluvial gardens

Since traditional agricultural techniques such as shifting cultivation or slash and burn techniques are no longer adapted to the current context of the Sahel it becomes necessary to invent and test techniques, such as conservation agriculture which are more resilient and better adapted to the changing environment. This component aims to train farmers in new techniques that allow the establishment of a sustainable agriculture adapted to the context of climate variability such as the composting technique, Zaï hole technique, crop rotation and rational grazing. The component also aims to create knowledge exchange and the creation of new knowledge through wide participation and encouraging and monitoring new cultivation methods. Indeed, in addition to

[5] The concept of labor-intensive projects began in the 70s, initiated by the ILO (International Labour Office). This concept, developed today in about forty countries, aims to highlight local resources (labor, tools, know-how) to make sites more often referred to community.

building resilient infrastructure, the Terre Verte program has a preoccupation with agricultural production through its component “Participatory training and development of sustainable, innovative, productive and resilient agricultural production systems”.

The pilot farms serve as farmer field schools, where the farmers can learn and invent together on the farm.

Component 4: Environmental Monitoring and Capturing lessons learned

This component aims on the one hand to monitor and document the observed climate changes and their impact in order to create a better understanding of the ongoing processes and the expected future changes. On the other hand this component serves to monitor and evaluate the project activities and to document and to disseminate lessons learned.

The establishment of a monitoring and evaluation system comprises the delineation of three observatories in the three project regions (Nord; Plateau Central, Centre Nord°), the set-up of meteorological stations, the definition of a minimum set of indicators together with a protocol on how to collect these indicators and a training on the collection, storage and treatment of the data collected. The data will be collected among others to generate the baseline, a mid-term evaluation and a final evaluation of the project as well as to undertake an environmental and social impact assessment.

An environmental monitoring observatory means a clearly defined geographic area (ranging from a few hectares to several hundred hectares) representative of an ecosystem or a specific ecoregion where we identify measurement stations and Record of a dataset. It consists in environmental monitoring data collection such as phytosociological indices, abundance indices, etc., climate data through automatic weather stations with the possibility of data transmission in real time by GPRS and socio-economic data through surveys conducted every five years for the populations of the villages in the observatories. Collecting this data is carried out according to Universal / standardized methods. These observatories will ensure the setting up an environmental monitoring on the middle and long term to follow the changing trends of the ecosystem under climate change impacts. Analysis of climatic data and biological and ecological indicators will clearly define the changes that affect the community and help shape adaptation actions to implement.
The collection and capitalizing of environmental data and information at the observatories level will be provided in collaboration with local authorities, farmers and local associations. The objective of this approach is to involve them and make them aware of the importance of environmental data in monitoring environment changes.

This will allow to improve the resilience of farmers in the middle and long term by allowing them to adjust their techniques to new environmental conditions.

B. Economic, Social and Environmental Benefits

1. Environmental benefit:

The environmental benefits in the grove perimeter are: Soil and rainwater conservation, slow winds, setting of aeolian dust, restoration and conservation of biodiversity.

Concerning the pluvial gardens the benefits are : Restoration of biodiversity around homes. Water stream management in the village and extending the availability of water at the beginning and at the end of the rainy season.

The benefits with the bullis are : Recovery of wild waters and creation of an aquatic environment (fish, turtles, plants, etc.)

Finally, the environmental benefits with the paths are: Trees planted on either side of the path allow landscape restoration, the recovery and infiltration of rainwater.

2. Economic benefits

In the grove perimeters, the economic benefits are: Job creation during the development (especially women) and increase in agricultural production.

The benefits with the pluvial gardens are: earlier production of vegetable, which have a higher value at the market at this time and the diversification of the production and the sources of income.

The economic benefits with the bullis are: Job creation during development (especially for women). Availability of water for income generating activities such as irrigation farming and brick production.

The economic benefits of the paths are: improved access to markets and increased interlinkages of the villages; this allows better interaction between people.

3. Social benefits

The project has many social benefits as well during the building of the new infrastructure and production system as afterwards.

- During the work of fitting up, people are engaged in the yards are paid, according to the system of “cash for work” of the ILB. These are mainly women who do not have remunerative activities during the dry season. This allows them to provide for their needing, investment (bicycle), or even make a little fund for other activities (trading, breeding).
- After the work, the beneficiaries are:
  - For the grove perimeters and garden, the families who are the owners and who profit from the increased income generated
  - For the Bulli, all the village communities who use them daily
  - For the paths social benefits are: facilitating market access and access of ambulances in the villages.

As part of this project, each family will benefit from

- 2.75 ha = average gross area (including common areas as the paths).
- 2.56 ha = bare surface (cultivated)

The overall average number of families benefiting from the project is estimated at 655 families with an average of 6 people for each family.

c. Analysis of the cost-effectiveness of the proposed project

The cost effectiveness is different for the two types of fitting up:

- It is direct for the fitting up with individual profits (grove and gardens). The investments made on the land bring a direct increase and long term security of the cereals and market gardens production.
- It is indirect for the fitting up with collective profits (bulli and paths), which investments will bring a collective benefit by improving living environment and water resource (infiltration of streaming water, reconstitution of ground water, improvement of rural communication channels)

With the aim of achieving the replicability of the activities rand insure that the activities one day can be financed through domestic funding, all the activities of the activities of terre verte have been subject of technical studies aiming at optimizing the implementing costs.

Concerning the pluvial garden, a trainee who worked on two pluvial gardens found that the average cost-effectiveness estimated on 20 years of production was equal to 9.59 (10.19 for one garden and 8.99 for the other one).[6]

The establishment of a grove perimeter costs about 500 Euro per ha. The increase in yields can be valued at 150 to 300 Euro per ha per year. Including costs of about 50 Euro for the zai mechanization and the farmers need to increase their income, each cultivated ha could generate a surplus net of 100 Euro. This means that the cost of the initial investigation is recovered after five years.

[6]Memoire Alain Gouba 2009: file:///C:/Users/user/Downloads/Memoire_Master_dev._Dur._Alain_Gouba_AZN_FPG_09.2009.pdf

D. Consistency with national or sub-national sustainable development strategies

The project is in line with the NAPA since securing the pastoral areas and strategic grazing areas (bullis, access paths to water points, etc.), the promotion of Soil and Water Conservation/Soil defense and restoration techniques (Zaï, anti-erosion bunds, etc.) and management of wildlife and its habitat; are priorities identified by the NAPA Burkina Faso (pages 19 to 22). These are part of the activities that the pilot farms are doing (Zaï, degraded soils recovery, setting up hedges, forestry, etc.). Furthermore the project is in line with the National Action Plan for Integrated Water Resources Management (IWRM) and the National Action Plan to combat Desertification.

The project will enable people to adapt to climate variability in particular through the implementation of bullis that will have a supply of water for at least 6-7 months and use of crop varieties (including indigenous) adapted to climate change.

In addition, national and local technical government institutions are involved in this project, and it concerns basically technical monitoring structures having an interest in the project and its objectives in the region. These institutions are responsible of the promotion and monitoring of partnership with NGOs and civil society, of water and soil restoration and conservation and promotion of agricultural professional training in dedicated centers. The implication of these institutions and stakeholders aims to ensure inclusiveness, scaling up and linkages with national sectoral plans.
the institutions involved in this project are:

- Direction de la promotion et du suivi du partenariat avec les ONG / DGCOOP Ministère de l'Economie et des Finances
- Direction de la Restauration, de la conservation et de la récupération des sols du Ministère de l'Agriculture et de la Sécurité Alimentaire
- Direction des centres de formation professionnelle agricoles.

The project is also consistent with national development priorities, and has close substantive and institutional links and complementarities with the primary national development strategies and plans such as:

- 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 project will also allow beneficiaries to ensure their food security and possibly additional income (after any sale of surplus production) through home gardens and pilot farms.
- Some components of the project will be carried out according to the "Cash for Work" formula of the International Labour Organization, to generate additional income, particularly for women.
- The country's Accelerated Growth Strategy for Sustainable Development (AGSSD) 2011-2015, which is the referential of the development policy of the Government and integrates the whole development orientation framework for long, middle or short term perspective. The AGSSD has 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 and stresses the importance of climate risk to sustainable development and economic growth, and emphasizes the links with natural resource management and ecosystem services .

- The National Policy for the Environment (2007) and the Environment Plan for Sustainable Development (EPSD), which stress the sound management of natural resources and their contribution to the country‘s economic development.
- The Forestry Code (1997, currently being updated), which emphasizes 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.

E. Relevant national technical standards

The project is implemented with respect of the following national laws and standards:

- la loi portant Réorganisation Agraire et Foncière (RAF) ;
- la loi portant Code de l’Environnement ;
- la loi portant Code Forestier ;
- la loi d’orientation relative au pastoralisme ;
- le code général des collectivités territoriales ;
- le code minier ;
- la loi d’orientation relative à la gestion de l’eau.
- The document “Recueil des textes juridiques d’application de la loi d’orientation relative à la gestion de l’eau, November 2005”

According to Burkina legal regulations and laws,, some activities and project components are subject to impact assessment or environmental impact statement (Decret N°2001-342/PRES/PM/MEE portant champs d’application, contenu et procédure de l’étude et de la notice d’Impact sur l’environnement). Thus, the project will achieve the necessary studies according to the model and content defined by this Decree. In general, impact assessment studies consider both natural and ecological aspects, as well as social and economic ones.

Temporary workers of development projects within the framework of High Intensity Labor Force, are governed by a national programme to support vulnerable populations, enabling them to improve their lives while engaging in a realization of common interest. On the other hand as regards the permanent volunteers of the pilot farms. they are governed by the National Social Security Fund (NSSF).

The project will be implemented in accordance with the regulations in force in the field of the environment, including the decree 2001-342 related to impact assessments studies. According to this decree, the bullis whose dam height is between 3 and 10 m require an

impact study. For those with a height of dam less than 3 m, no notice nor Study of environmental impact is required.

The opening path work is High Intensity Labor Force consisting of land clearing, digging holes for trees and anti-erosion upstream devices. Therefore, they will not be conditioned by a Notice / Study of environmental impact.

F. Duplication of project / programme with other funding sources,

Some projects on climate adaptation has just been achieved or are already being implemented in Burkina Faso**.** The proposed project will bring lessons learned and coordinate with ongoing projects implemented in the some regions to avoid duplication.

- 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. By focusing on 6 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.
- *SLM Country Partnership Programme (CPP)*. The umbrella coordinating project in the National Sub-programme for Coordination and Institutional 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.
- 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.
- The AAP/BKF – Burkina Faso is participating in the UNPD-Japan Africa Adaptation Programme (AAP), which focuses on planning mechanisms, institutions, polices, 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,
- 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. .

- 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.

The ongoing activities of the Terre Verte NGO are currently financed by several donors (Service d'Entraide et de Liaison, SOS Enfants, Mission Enfance, Association Champenoise de Coopération Inter Régionale). TERRE VERTE and its pilot farms work for more than 10 years on a limited scale, since their available resources do not allow to develop the concept with the size required to fully adapt to the current climate situation. The project zone is not implied by any of the above mentioned projects, but terre verte will ensure complementarity and integrity with those projects.

G. The learning and knowledge management component to capture and disseminate lessons learned

The component 3 of the project with its participatory training to introduce and develop sustainable, innovative, productive and resilient agricultural production systems is dedicated to creating knowledge through farmer field schools at the pilot farms of terre verte and to create exchanges visits with other initiatives.

The training about the already tested and approved techniques is made at different levels:

- A three-year training within the training center at the Guiè pilot farm. This training is addressed to young people aged 15-21 years who are trained about all the techniques developed by the pilot farms. These young boys and girls are interned and learn through the different sections of the pilot farm how to develop a sustainable agriculture in the Sahelian zone.
- Training of the beneficiaries of newly established the grove perimeters and gardens. This training is offered by rural organizers of terre verte at the newly established grove perimeters and pluvial gardens.
- Regular exchange visits between the farms to exchange about innovations and lessons learned and to collaborate develop new ideas how to improve and better adapt the farming system
- A newsletter is composed every month to distribute the news about the farms and its ongoing activities. This newsletter will be enriched with climatic information to enable the farmers to better react and plan the agricultural activities

The component 4 of the project envisages the establishment of an environmental monitoring system, which will monitor and evaluate the activities and their social and environmental impact closely. The observatories will also be established with

meteorological stations to monitor the weather and the climate. An information system will be developed to timely inform farmers. Furthermore, as part of this component, information products capturing lessons learned will be developed and posted on a dedicated website.

H. The consultative process undertaken during project preparation

The project is based on long term experience of the NGO Terre Verte in the area. The project has developed a consultation mechanism to consider the development of new farms. The NGO always works in close collaboration with the Village Development Committee (Conseil Villageois de Développement CVD) of the concerned village. This structure is officially attached to the municipal council of the town hall of the village. The CVD has been created by decree of the President[7].

The development activities of this project are realized only after a demand has been formulated and passed to the CVD. The demands need to be formulated by

i. Individuals and families for the development of the pluvial gardens

ii. The village community for the development of routes and bullis

iii. Associations of land user groups for the development of grove perimeters

The submitted demands are than examined by the CVD according to established criteria. Demands concerning the development of grove perimeters are only considered by the CVD when a group of land user has been formed (groupement foncier) and a safety deposit of all the beneficiaries has been established. The examination of the side determines in the end the feasibility of the demand[8].

An inquiry[9] has been undertaken at the pilot farm of Guie to get the direct opinion of the farmers and beneficiaries on the farm and its surrounding environment. The inquiry shows that the activities are well perceived by the farmers.

[7]Decree of the President http://www.matd.gov.bf/INFOROUTES/ministres/cvd1.htm

[8] Manuel technique réalisation des périmètres bocagers 2011 : http://eauterreverdure.org/?dl_id=69

[9]The inquiry is acessible at the following link : http://eauterreverdure.org/?dl_id=99

I. Justification for funding requested, focusing on the full cost of adaptation reasoning

The Burkina Faso's NAPA indentified water resources and agricultural sector vulnerability to climate variability as the main challenges for food security, and the poor communities in rural areas as the most vulnerable groups (notably women, young people and small-scale producers). Unpredictable changes in rainfall distribution (volume, start and duration of the raining season) and the increase of extreme events (drought and storms), suggested by recent decades of drought in West Africa, will hinder food security and could exacerbate malnutrition and poverty.

To cope with this situation, the government has initiated the development and implementation of the "Action Plan Resources Management Water" (IWRM), the "National Programme Drinking Water and Sanitation", and programs for improving agricultural practices and conservation of natural resources. But current interventions are insufficient to adequately address Burkina Faso's adaptation gap particularly with the increasing challenges of climate variability.

The proposed project will address community adaptation challenges issues, identified in the "National Adaptation Programme of Action" (NAPA). The financing from the adaptation Fund would be used to secure livelihoods of targeted communities, and minimize exposure to climate change threats. This project will support food security and combat malnutrition of rural communities through crop diversification (component 1). It will improve market access to sell any surplus production, and hence improve people's incomes (component 2).The project will also build capacities of local communities to adopt climate resilient cropping strategies (component 3).

J. Sustainability of the project/programme outcomes

All the investments that will be undertaken in the project (grove perimeters, gardens, paths, Bulli) are sustainable investments. The surplus generated by the project provides the means to the beneficiaries (the land user groups, the individual families, the village committee) to do the maintenance works required. There are certain works of maintenance that need to be undertaken on a regular basis[10] such as for example the clearing of the firewall the pruning of the hedges of the grove perimeters and the repair of the micro dykes Their recurring costs of maintenance are chargeable to the beneficiaries. The establishment of a grove perimeter costs about 500 ha, but it allows the famer to generate a surplus of 100 Euro per year. The famer has thus the necessary means for investment to maintain the established system. Furthermore, some of the maintenance works can also generate income, for example the clearing and pruning produces fire wood.

[10] For the case of the grove perimeters the maintenance duties are described in the manual of the grove perimeters (Manuel technique réalisation des périmètres bocagers 2011 http://eauterreverdure.org/?dl_id=69) in the chapter: Entretien du perimètre

The Village Committee is responsible for the maintenance of the common property infrastructure such as the bullis and the paths. The means to continue a cash for work porgramme for this maintenance work is secured through the establishment of a community fund.

K. Overview of the environmental and social impacts and risks identified as being relevant to the project / programme

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	Activities comply with the laws on land management - The Law on Agrarian and Land Reform (RAF); - The Law on Environmental Code; - The Law on Forestry Code; - The relative orientation law pastoralism; - The general code of local authorities; - The mining code; - The orientation law related to water management.	The grove perimeter is built on the principal of co-ownership of the land. The grove encompasses individual fields of land and land under common property regime. This co-ownership is organised on the bases of the establishment of land use groups. This status is established according to informal rules and procedures, because the registration of the fields in the cadaster is too costly and complicated.
Access and Equity	A sociological assessment allows assuring the equitable access to the project benefits.	Ensure that all the families have access to the programme. . Ensure that the impact of certain land customs is considered.
Marginalized and Vulnerable Groups	All social groups are concerned by the programme	Verify that the uncropped fields are accessible to Fulani breeders. This is done with the electric enclosure.
Human Rights	Are respected by the programme	
Gender Equity and Women's Empowerment	The activities of the project are addressed towards family households. Equal access of women to the project activities is assured through her integration in the family of the husband.	Ensure the impact of certain land customs and access to land of single mothers.
Core Labour Rights	The labor rights are respected in the social laws framework of Burkina Faso and applied in the labour intensive cash for	

	work programme of the project. The cash for work porgramme also is conform with the related ILO principles.	
Indigenous Peoples		Examine participation and consideration of all ethnic groups
Involuntary Resettlement	Not concerned	
Protection of Natural Habitats	Natural habitats are preserved or regenerated within the grove. A study shows that the context amenities create an environment favorable to the reproduction of flora and fauna by the absence of grazing and bush fires. The grove is also a refuge and protective environment for many species.	
Conservation of Biological Diversity	Within the grove perimeters create a place which is appropriated to flora and wildlife is created since the area is protect from bushfires, overgrazing, sandstorms etc. The grove thereby is a harbor zone and protector for many species. A study of the environment has been made on the subject: http://eauterreverdure.org/?dl_id=99	
Climate Change	Improved management of rain water received and given (evapotranspiration), an efficient water circulation is assured which helps to prevent floods and to better cope with dry seasons and drought.	
Pollution Prevention and Resource Efficiency	With its trees, the grove allows to transform desert zones to carbon fixing zones (mould and vegetables)	
Public Health	Indirectly concerned by the production of healthy food, and by purification of the air with the grove networking	
Physical and Cultural Heritage	The grove reconciles mankind with his environment.	
Lands and Soil Conservation	Lands and soil conservation are at the core of the grove concept	

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government

Lassané KABORE, Directeur Général de la Coopération	04/08/2014

B. Implementing Entity certification:

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, commit to implementing the programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
On behalf of the Executive Secretary of the Sahara and Sahel Observatory, M. Khatim KHERRAZ Abdessalam KALLALA	
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