

Concept Note

Promoting modern irrigation to enhance the resilience of vulnerable communities in Burkina Faso

Banque Ouest Africaine de Développement (BOAD) | Burkina Faso

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Concept Note

Project/Programme Title: Promoting modern irrigation to enhance the resilience of vulnerable communities in Burkina Faso

Country(ies): Burkina Faso

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Notes

- The maximum number of pages should **not exceed 12 pages**, excluding annexes. Proposals exceeding the prescribed length will not be assessed within the indicative service standard time of 30 days.
- As per the Information Disclosure Policy, the concept note, and additional documents provided to the Secretariat can be disclosed unless marked by the Accredited Entity(ies) (or NDAs) as confidential.
- The relevant National Designated Authority(ies) will be informed by the Secretariat of the concept note upon receipt.
- NDA can also submit the concept note directly with or without an identified accredited entity at this stage. In this case, they can leave blank the section related to the accredited entity. The Secretariat will inform the accredited entity(ies) nominated by the NDA, if any.
- Accredited Entities and/or NDAs are encouraged to submit a Concept Note before making a request for project preparation support from the Project Preparation Facility (PPF).
- Further information on GCF concept note preparation can be found on GCF website [Funding Projects Fine Print](#).

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	<input checked="" type="checkbox"/> Project <input type="checkbox"/> Programme	A.2. Public or private sector	<input checked="" type="checkbox"/> Public sector <input type="checkbox"/> Private sector
A.3. Is the CN submitted in response to an RFP?	Yes <input type="checkbox"/> No <input type="checkbox"/> If yes, specify the RFP:	A.4. Confidentiality¹	<input type="checkbox"/> Confidential <input checked="" type="checkbox"/> Not confidential
A.5. Indicate the result areas for the project/programme	<p>Mitigation: Reduced emissions from:</p> <input checked="" type="checkbox"/> Energy access and power generation <input type="checkbox"/> Low emission transport <input type="checkbox"/> Buildings, cities and industries and appliances <input type="checkbox"/> Forestry and land use <p>Adaptation: Increased resilience of:</p> <input checked="" type="checkbox"/> Most vulnerable people and communities <input checked="" type="checkbox"/> Health and well-being, and food and water security <input type="checkbox"/> Infrastructure and built environment <input type="checkbox"/> Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO₂eq over lifespan)	71 550 t CO ₂ eq	A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)	7 000
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 8 354 500	A.9. Indicative GCF funding requested	Amount: USD 8 354 500
A.10. Mark the type of financial instrument requested for the GCF funding	<input checked="" type="checkbox"/> Grant <input type="checkbox"/> Reimbursable grant <input type="checkbox"/> Guarantees <input type="checkbox"/> Equity <input type="checkbox"/> Subordinated loan <input type="checkbox"/> Senior Loan <input type="checkbox"/> Other: specify _____		
A.11. Estimated duration of project/ programme:	a) disbursement period: 3 years b) repayment period, if applicable:	A.12. Estimated project/ Programme lifespan	10 years
A.13. Is funding from the Project Preparation Facility requested?²	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Other support received <input type="checkbox"/> If so, by who:	A.14. ESS category³	<input type="checkbox"/> A or I-1 <input checked="" type="checkbox"/> B or I-2 <input type="checkbox"/> C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	A.16. Has the CN been shared with the NDA?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.17. AMA signed (if submitted by AE)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, specify the status of AMA negotiations and expected date of signing:	A.18. Is the CN included in the Entity Work Programme?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	<p>Brief summary of the problem statement and climate rationale, objective and selected implementation approach, including the executing entity(ies) and other implementing partners.</p> <p>Burkina Faso is subject to the adverse effects of climate change, which is manifested by droughts, irregular rainfall and floods. The rising temperatures lead to high levels of evaporation, resulting in the early drying up of water points, the induration of arable land and the wilting of vegetation. The agricultural production is affected, food security is not ensured (only 38% of households) and poverty remains high (40.1% of the population of</p>		

¹ Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy ([Decision B.12/35](#)) and the Review of the Initial Proposal Approval Process ([Decision B.17/18](#)).

² See [here](#) for access to project preparation support request template and guidelines

³ Refer to the Fund's environmental and social safeguards ([Decision B.07/02](#))

which 92% live in rural areas). This project is initiated to strengthen the resilience of small producers who are the most vulnerable to climate change. The BOAD is the accredited entity and the Ministry of Agriculture is the executing entity.

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

Describe the climate vulnerabilities and impacts, GHG emissions profile, and mitigation and adaptation needs that the prospective intervention is envisaged to address.

Burkina Faso is a landlocked, Sahelian, low-income, resource-poor country whose primary sector is the engine of the economy. It occupies nearly 90% of the active population, accounts for nearly 40% of GDP formation. Burkina Faso has a large potential in arable land estimated at 9 million hectares of which about 46% are currently exploited. Irrigable land reaches 233,500 ha, of which about 12% currently exploited. In addition, the country has 500,000 ha of lowlands that can be easily converted. Despite this potential for agriculture in general and more specifically irrigation, Burkina Faso agriculture is still dependent on rainfall and the adverse effects of climate variability and change. This situation complicates the efforts made by the Burkinabe State in the need to achieve food security. According to the UNDP report, the country ranks among the countries with low human development and ranks 185th out of 188 countries.

In Burkina Faso, according to data from the Multisectoral Continuous Survey (CME), the poverty rate fell between 2009 and 2014, from 47% to 40%. It should be noted, however, that this reduction remains very insignificant in terms of the number of poor people, from 7,116,316 to 7,034,390 in 2014, a reduction of about 1.50 per cent in the number of poor people. Besides, the national rate hides the realities in rural area of Burkina Faso where poverty is more pronounced. Burkina Faso is characterized by an unpredictable climate marked by the weakness of the rainfall concentrated over a short period of the year, the annual and inter-annual spatial variability of the rainfall distribution. To this have been added, since the beginning of the 1970s, cyclical droughts resulting from climatic variability. This situation deteriorate livelihoods (productive potential: fertility, soil, water) with a negative effect on the food and nutritional security of populations, especially those living in rural areas whose main source of income is agriculture. This situation is not without effect on the availability of water for agriculture. One of the major problems facing Burkina Faso is its water deficit. As an indication, over the past 50 years, water availability has dropped drastically as a result of declining rainfall. As for the requests, they have uncontrolled increase. Applications are estimated at nearly 2.596 billion m³, and represent 10.2% of usable water resources in the average year and up to 52.5% in a very dry year (IWRM, 2001). This puts Burkina Faso in a situation of high water stress according to the scarcity index defined by UNESCO and WMO, which is 1000 m³ / ha / year. However, irrigation accounts for 63.96% of the demand for drinking water. Meanwhile, Burkina Faso agriculture is essentially rain-fed, which aggravates the shock of climatic variability, which is increasing. As an indication, according to the projections, the rainfall could decrease by -6.4% in 2025 and -11% in 2050 and an increase in temperature, average of 0.9 ° C by 2025 and 1.5 ° C by 2050.

In these conditions, family farming will be very vulnerable to the effects of climate change. To cope with these problems, the state of Burkina Faso, with the help of its partners, is setting up programs and projects to adapt agriculture such as: the village small-scale irrigation development program, the Support Program to Irrigation Development, Small Scale Irrigation and Water Management Project, etc. Despite these efforts to adapt and control water in agriculture, other challenges are being raised. These challenges include the sustainable management of water resources in the agricultural sector; taking into account the quality of the environment. Although Burkina Faso is a country with low emissions of greenhouse gases, it is necessary to take into account the mitigation component in the development and implementation of agricultural projects. Because the sector alone contributes about 88%, 94% of GHG emissions at the national level respectively in 2007 and 2015. In practice, producers for the water dewatering requirements for irrigation mainly use motor pumps and to a lesser extent electricity with irrigation techniques that do not take into account the sustainability of the water resource. . This contributes to the emission of greenhouse gases but also to an increase in the cost of production linked to the use of expensive sources of energy.

The present project aims to contribute sustainably to the strengthening of producers' resilience and to support food security in Burkina Faso, through the promotion of innovative irrigation techniques. It will be a question of substituting the irrigation systems based on moto pumps by the drip system of irrigation or the Californian system with solar pumping.

Please indicate how the project fits in with the country's national priorities and its full ownership of the concept. Is the project/programme directly contributing to the country's INDC/NDC or national climate strategies or other plans such as NAMAs, NAPs or equivalent? If so, please describe which priorities identified in these documents the proposed project is aiming to address and/or improve.

This project is consistent with the objectives set by the Burkinabè Government in the development of sustainable agriculture. The project fits into the guidelines of Burkina Faso's Nationally Determined Contribution (CDN), which is

now a reference framework for climate change in the country. The project is part of the vision and objectives of the national rural sector program, which states that by 2025, the Burkina Faso agriculture will be modern, competitive, sustainable and growth-oriented, based on family farms and performing agricultural enterprises and ensuring all Burkinabe access to the necessary foods to lead a healthy and active life. The approaches of this project are oriented towards the implementation of sustainable and climate resilient innovations while contributing significantly to the achievement of food security. As a result, the project aligns directly with the vision of the National Adaptation Plan (NAP, 2015). This plan aims at more effective management of Burkina Faso's economic and social development through the implementation of planning mechanisms and measures taking into account resilience and adaptation to climate change by 2050.

Describe the main root causes and barriers (social, gender, fiscal, regulatory, technological, financial, ecological, institutional, etc.) that need to be addressed.

Climate change will amplify the phenomena of drought and desertification that already strongly affect Burkina Faso. Family farming, which is practiced throughout the territory, remains highly vulnerable to the effects of climate change. Despite the efforts made by the authorities to take off the agricultural sector in Burkina Faso, the latter encounters certain climatic, technical and financial barriers that are affecting the livelihoods of the population.

Lack of water : The major cause of this lack of water comes from the fact that the climate is unfavorable (characterized by considerable rainfall variations ranging from an average of 350 mm in the North to more than 1000 mm in the South-West), but also the effects climate change manifested by recurring droughts. Much of Burkina Faso is crystalline rocks. These rocks are not able to contain continuous and productive thick aquifers. As a result, this type of training makes it difficult to meet the needs of large-scale irrigation. It should also be noted that the rivers and dams of Burkina Faso have the particularity to dry up completely in the dry season. Consequence of the strong evapotranspiration of the water bodies. As an indication, of the 1,450 dams and reservoirs, only 400 are perennia.

Degradation of soils: The effects of climatic shocks on soils and forestry observed for more than four decades have led to a significant degradation of soils and a significant regression of the vegetation cover, notably grass. Which contributes to soil poverty. This situation leads producers to increase the cultivated area to the detriment of the plant cover.

Low technical capacity: Although climatic variability continues to be felt in different ways (irregular rainfall, drought pocket), producers with a low income level continue to use the same technologies over the years without adapting in a sustainable and intelligent way the known difficulties and disruptions of climate change. This approach limits their production capacity and thus worsens their poverty situation. Despite Burkina Faso's efforts in the agricultural sector, producers find it difficult to integrate adaptation and mitigation measures into their habits. This situation is explained by the insufficiency of technical support and advice and also a weak capacity of extension of the services of support and advice in the field of agriculture.

Low financial capacity: Coping with climate change requires combined actions in various fields and in a participatory way. Building resilient and climate-smart agriculture requires financial means. Since Burkina Faso agriculture is essentially family-based, the majority of producers do not have the financial capacity to make loans at the level of financial institutions. It should be noted that in developing countries like Burkina Faso, financial institutions are reluctant to finance agricultural activities. This can be explained by the rainfall nature of agriculture, the unfavorable soil and climate conditions (soil poverty and inadequate rainfall) and the ongoing processes of soil degradation (due in particular to wind and water erosion) in the country.

Where relevant, and particularly for private sector project/programme, please describe the key characteristics and dynamics of the sector or market in which the project/programme will operate.

B.2. Project/Programme description (max. 3 pages)

Describe the expected set of components/outputs and subcomponents/activities to address the above barriers identified that will lead to the expected outcomes.

The project is intended to be a national operation in the different regions of the country and is structured around the following components: (i) strengthening technical and organizational capacities for promoting resilient and sustainable agriculture; (ii) development of irrigated perimeters with resilient and low-carbon techniques; (iii) support for the development of agricultural value chains; (iv) knowledge sharing and dissemination of lessons learned. To these components is added the project management and monitoring-evaluation component.

Component 1: Strengthening technical and organizational capacities for promoting resilient and sustainable agriculture

This component aims to strengthen the technical capacities of all stakeholders involved in the promotion of irrigation for the promotion and adoption of resilient technologies and technologies in a context of integrated management of water resources, management water and energy on farms. In addition, lessons learned during project implementation will be

disseminated on a larger scale.

- Activity 1-1: Strengthening the capacities of the deconcentrated technical services of the State. The capacity of the technical services of the Ministry of Agriculture and Environment will be strengthened to enable them to analyze the effects of climate change in combination with food security, livelihoods and vulnerability indicators. This will allow them to monitor local development, mobilize and support communities. These trainings will be in the form of a workshop that will bring together the different categories of managers.
- Activity 1-2: Capacity building of producers and local actors to understand and adopt agricultural practices and innovative irrigation techniques in the face of climate change. This activity will be conducted through: (i) sensitization and training of grassroots communities on climate change related threats and adaptation and resilience measures related to food security; (ii) training farmers in agricultural practices that sustainably preserve water resources and soils; (iii) the training of local technicians in the installation and repair of modern irrigation systems (drip kits, Californian network, etc.) and photovoltaic systems; (iv) support for the development of local climate change adaptation plans .

Component 2: Development of irrigated perimeters with resilient and low-carbon techniques

This component aims to promote irrigation with innovative technologies such as drip system irrigation, the Californian system and a solar pumped water discharge as adaptation and community resilience building measures against adverse effects of climate change and energy crises to address food insecurity and greenhouse gas emissions resulting from water abstraction activity for irrigation. Under this component, 250 ha of irrigated crops will be developed.

- Activity 2-1: Development of irrigated perimeters with modern climate resilient techniques. It will be question of landscaping perimeters by installing innovative irrigation techniques. The choice is oriented on the drip system. This choice is justified by the fact that this system is very economical in terms of water and is more suitable in an environments where water resources are low and the recharge rate of the water table is low, characteristics that is known by a good part of Burkina Faso. Indeed, the drip system has an irrigation yield of 95%. The objective is to bring Burkina to the medium or long-term adoption of water-saving irrigation systems, particularly drip system of irrigation;
- Activity 2-2: Support for access to safe and clean energy for the drainage of irrigation water. This activity involves the acquisition and installation of solar kits (solar panels, solar pumps and accessories) to ensure the energy of dewatering. This energy source whose potential remains largely available in the country is a guarantee for the operation of all the developed areas and solve the thorny problem of the acquisition and transportation of fuel, major constraint to the optimal exploitation developed perimeters. The use of this energy source anticipates the risk of non-exploitation of the perimeters because of the uncontrolled costs of the ever-increasing fuel price;
- Activity 2-3: Support for the enhancement of developed sites. This activity will consist in helping the beneficiaries to exploit the developed sites. In practice, it will be a question of supporting farmers in the acquisition of quality seeds, the promotion of organic manure through the development of manure pits, the promotion of integrated pest management practices, on-site support and advice on good agricultural practice for proper development of developed sites.

Component 3: Support for the development of agricultural value chains

This component aims to valorize agricultural products in order to diversify the sources of income of women and young people.

- Activity 3-1: Group formation on product recovery techniques and market access. Generally, producers are more interested in production activities and do not always have sufficient technical and technological capacity for the conservation and processing of agricultural products. Studies have shown that processing activities add value to producers. Groups of young people and women will therefore be trained in techniques for the valorization and conservation of agricultural products. Clusters will also be trained on market access, recordkeeping and account management.
- Activity 3-2: Support for the acquisition of equipment for processing products. The project will support the groups formed in the acquisition of micro-processing units of products. These micro-units will use solar energy for their operation. The project will organize and encourage microfinance institutions to support scaling up development, agricultural product development.

Component 4: Sharing knowledge and disseminating lessons learned

This component aims to share lessons learned in order to strengthen the impact of the project and its replication.

- Activity 4-1: Organization of exchange meetings on climate resilient practices. This activity brings together producer representatives, deconcentrated technical services, civil society organizations, representatives of local authorities for exchanges on climate resilient techniques adapted to the local context in the field of agriculture as well as the environment. This knowledge sharing is an important capital to catalyze the paradigm shift and ensure the sustainability of the project.
- Activity 4-2. Dissemination of lessons learned. This will involve producing and disseminating documents and documentaries on lessons learned and best practices tested in the project for strengthening resilience and developing agricultural value chains.

Component 5: Project Management, Coordination and Monitoring

This component consists in setting up a unit for coordinating, managing and monitoring the project activities at the technical, administrative, financial and accounting levels.

In terms of rationale, please describe the theory of change and provide information on how it serves to shift the development pathway toward a more low-emissions and/or climate resilient direction, in line with the Fund's goals and objectives.

This project's innovative approach to adaptation and mitigation is in line with the objectives of the Green Climate Fund. The approach of organizing exchange meetings between representatives of producers, decentralized technical services, civil society organizations, and representatives of local authorities on climate resilient technologies adapted to the local context in the field of agriculture in relation to climate change is an innovative approach to catalyze paradigm shifts and ensure the sustainability or sustainability of the project.

In terms of mitigation: The project plans to move from fossil energy to renewable energy, especially solar energy, as part of the irrigation water drainage of the perimeters. The use of motor pumps for water extraction contributes to the emission of greenhouse gases because these motor pumps operate on the basis of fossil fuels including gasoline as an energy source to operate the irrigation system on the irrigated perimeters. Integration of solar energy systems will significantly reduce emissions from this energy source.

In terms of adaptation and productivity improvement: Usually producers practice gravity irrigation. This type of more widespread irrigation is ineffective at more than 50% in terms of water management. This project intends to focus on the drip irrigation system which has several advantages in terms of water management, a rare resource due to the decrease in rainfall and very significant evaporation. These techniques will provide the plant with the water needed and improve production. The same amount that was used on 1 ha could be used on 2ha as part of the project. The project will promote the management and conservation of soil fertility through incentive mechanisms and capacity building activities of producers.

In terms of producers' income improvement: This project supports the promotion and enhancement of agricultural products through their transformation. The agricultural value chain approach would be promoted with a view to enabling producers to have easy access to markets. Which will allow the improvement of living conditions.

Describe how activities in the proposal are consistent with national regulatory and legal framework, if applicable.

The activities developed in this project aim to guide and facilitate the mainstreaming of climate change adaptation into development policies and strategies. The proposed activities conform to several texts and laws. The proposals are in accordance with the principle governing environmental management promoted by Law No. 006-2013 of 16 April 2013 on the Environment Code. In particular Article 6 which states that the promotion of a healthy environment is of general interest and an obligation for all natural and legal persons. Through the reduction of emissions related to the use of fossil energy for the drainage of water, the present project contributes to guaranteeing a healthy environment to the neighboring populations. The project through the development of rational and participatory water management activities for irrigation is also included in the decree n ° 2003-220 / pres / pm / mahrh of May 6, 2003 (OG n ° 21 2003 of the May 22, 2003) approving the action plan for the integrated management of water resources (PAGIRE).

Describe in what way the Accredited Entity(ies) is well placed to undertake the planned activities and what will be the implementation arrangements with the executing entity(ies) and implementing partners.

The accredited entity is BOAD. The West African Development Bank (BOAD) is the common institution for financing the development of the States of the West African Monetary Union (WAMU). In addition to being a development bank that advocates the development of ambitious and stable countries, the activities developed in this project fit with the Bank's flagship areas of intervention: climate change and renewable energies. It is also important to emphasize the good relationship that exists in the bank and the state of Burkina Faso in terms of project financing and development program. As an example, the development project Hydro Agricultural in the Liptako Gourma / Phase III, the integrated development program of the Samendéni Valley, Lake Bam project, Northern Water Development Project.

Please provide a brief overview of the key financial and operational risks and any mitigation measures identified at this stage.

Project risks are financial, political and technical.

Type of risk	Risk	Level	Mitigation measure
Financial	Currency instability, market price and availability of inputs for	Low	All funds will be held in USD to reduce the impact of price and currency fluctuations. Procurement must be developed in accordance with the project work plan to ensure availability of

	the project		inputs in a timely manner.
Politics	Political and security instability affects the implementation of the project	Low	The project will occur in stable areas on the political and security plan and every effort will be made to ensure that project activities are carried out with the participation of all stakeholders, including government departments and local structures.
Technical	Low capacity of stakeholders to implement project activities	Medium	Component 1 capacity building activities for stakeholders will help overcome this obstacle

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

The GCF is directed to make a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change, and promoting the paradigm shift towards low-emission and climate-resilient development pathways by limiting or reducing greenhouse gas emissions and adapting to the impacts of climate change.

Impacts and indicators		Project
GCF impacts and core indicators	Area (ha) of agricultural land made more resilient to climate change through agricultural practices	250 ha
	Expected tons of carbon dioxide equivalent (t CO ₂ eq.) to be reduced or avoided (Mitigation only)	71 550
	Number of households adopting a wider variety of livelihood strategies/coping mechanisms	1 000
	Direct beneficiaries for sites development	6 000
	Direct beneficiaries for development of agricultural chains value (other than the beneficiaries of sites development which are included in the activities of development of agricultural chains value)	500
	Directs beneficiaries for the capacity building	500
	Indirect beneficiaries	10 000
	Percent of target population aware of the potential impacts of climate change and range of possible responses	TBD
	Other relevant indicators	Expected strengthening of adaptive capacity and reduced exposure to climate risks
Potential for scaling-up and replication		The project, with the expected results, can be replicated several times in the region of Ségou and in all the regions of Mali
Expected increase of production		50 to 100%

Provide an estimate of the expected impacts aligned with the GCF investment criteria: impact potential, paradigm shift, sustainable development, needs of recipients, country ownership, and efficiency and effectiveness.

1. Potential impact.

This project promotes low carbon and climate resilient agriculture. The usual practices of dewatering water for irrigation are not environmentally friendly. The substitution of solar energy for approximately 1000 motor pumps over 250 ha will have an impact of GHG mitigation (a motor pump is used to irrigate 0.25ha). The implementation of the project will avoid the consumption of approximately The present project will thus save the consumption of 27 million liters of fuel over a period of 20 years (average life of solar panels). In terms of GHG emissions, this would correspond to 71,550 t CO₂e-.

The direct beneficiaries of the project are estimated at 7,000 people who will be direct beneficiaries of the project activities. It is :

- 1,000 households (0.25 ha for one household), or 6,000 people (6 persons per household);
- 500 people for agricultural value chain pilot actions (outside of those already involved in the development of the sites);
- 500 people in the context of technical capacity building.

2. Paradigm shift potentiel :

The present project as a whole is directed towards a paradigm shift in the development of agriculture, particularly irrigated under the conditions of climate change.

Indeed, this project plans to implement innovative approaches that allow beneficiaries to adapt while improving their income, contributing to the reduction of greenhouse gas emissions. It is an approach of co-benefits adaptation / mitigation. These innovations involve the paradigm shift in terms of water abstraction currently carried out using water pumps and non-water-efficient irrigation techniques (more than 45% water loss) towards efficient and effective irrigation, useful for water and energy saving with GHG emission reduction. In addition, the project introduces a "value chain development" component focused on the valorization of the products resulting from the development of the site.

This project, through its innovation in improving access to water resources through innovative irrigation practices, has significant replication potential to cover a larger number of areas. Interesting results and new lessons are expected from the implementation of the project regarding modern techniques used and climate change adaptation measures. Reflections will have to be made on the weaknesses of the project in order to propose new solutions that will be disseminated with the assets of the project. It is expected that the adaptation measures proposed for this project and their results can be incorporated into the lessons learned program. Capacity building actions through training on the techniques and technologies promoted by the project will allow rapid adoption and appropriation of these techniques and technologies.

Components 1 and 3 of the project are kept for strengthening technical and institutional capacities and disseminating lessons learned. The capacity building activities concern all the actors involved in the project (government services, private operators, farmers' organizations, producers, etc.). These activities will enable the actors to assimilate the techniques promoted in the framework of the project. Knowledge sharing and learning will be based on a project knowledge management strategy, with communication activities tailored to target groups. Some means of communication such as radio broadcasts. The lessons learned will be used to propose, to the financing of the Government and the Donors and the populations, a large scale project that can help the populations to better adapt to the harmful effects of the climate change.

Contribution to the creation of an enabling environment and Contribution to the regulatory framework and policies

This project would implement actions to adapt and mitigate the adverse effects of climate change in a sustainable agriculture approach. As a result, this project will enable the State of Burkina Faso to adopt a regulatory and strategic framework to promote climate resilient agricultural technologies and technologies in terms of clean energy and water saving. Some texts will be put in place with incentives for the acquisition of solar water dewatering equipment as well as water saving equipment. This incentive may be, for example, a subsidy on the cost of equipment, the reduction of customs duties on the importation of equipment, the establishment of small assembly factories and / or the construction of equipment.

3. Sustainable development potential

- **Environmental co-benefits**
- **Sustainable management of water resources and their quality**

The use of innovative irrigation techniques will reduce water loss. Generally, the efficiency of the irrigation techniques used is generally low. As an indication, the efficiency of the gravity system is about 56%. This contributes to poor water management. The project, as planned, will equip 600 ha or 120 units of 5 ha drip system and 400 ha or 80 units of 5 ha in California network. However, the yields of the drip and California system are respectively 95% and 85%. Under these conditions, the project this project will achieve water savings of 6 299 600 m³ per year or 31 498 000 m³ the 5 years of life of the project. This quantity of preserved water offers the beneficiary producers or other producer's access to water to increase their cultivated areas. The water saved could be used for other economic and social purposes.

- **Reduced consumption of fossil fuels and greenhouse gas emissions**

In practice, producers use fossil fuel-powered motor pumps, especially gasoline, as an energy source to operate the irrigation system on IPs. According to the available information, the fuel consumption is between 0.75 to 1 liter per hour. With a running time of 6 hours a day, fuel consumption is estimated at at least 5 liters per day per motor pump. This equates to a consumption of 918 liters per year (over two cropping seasons). With a basic assumption of substituting drop by drop for about 1000 motor pumps at the rate of one motor pump per hectare, the consumption of these motor pumps being 918 000 liters per year, the project will have saved in the next 5 years , 4,590,000 liters of gasoline and 9,180,000 liters in 10 years

- **Improvement or maintenance of soil quality and maintenance of biodiversity**

The project provides for the establishment of soil conservation activities. Agroforestry and composting actions will be promoted through an incentive mechanism. These actions are likely to limit soil degradation, delay or modify water erosion dynamics and improve soil quality. What will be beneficial for production?

- **Social co-benefits**
- **Improved health and safety**

Burkina is a poor country with weak human development. Acute malnutrition is at a moderate level, ie 7.6% in 2016 according to the national nutrition survey. This level is to be watched closely because the country comes from far away with regard to malnutrition. Because in 2013 it is classified in countries that reached the alert threshold according to

WHO standards (SOWC, 2013), ie 11.1%. The project, by improving agricultural production, population income and air quality, will improve the health and safety of the population. The benefits generated will improve access to care services by the beneficiaries.

- **Improved access to education**

In general, producers' lack of financial means limits their ability to send their children to school. This has the consequence of the low enrollment rate recorded in rural areas. With this project, which aims to improve farmers' incomes, they will be able to send their children to school. The low enrollment rate of children in rural areas and the abandonment of classes are generally due to the lack of financial means of parents.

- **Improved regulation or cultural preservation**

The project will improve income thereby will provide vital comfort to producers in rural areas. This will allow the conservation of cultural values. The project will be implemented by the beneficiary populations. One of the immediate positive consequences of the project is the reduction of the rural exodus, one of the causes of the loss of cultural identity and household dislocation.

• **Economic co-benefits**

- **Jobs creation**

The implementation of the project will create direct jobs, consisting mainly of local labor and indirect jobs around the sites and circuits of supply and distribution of raw and semi-finished agricultural products. To promote the employment of local labor, hiring priority will be given to local populations. Women will be encouraged in the implementation of the project by being paid the same salary as men. The IGAs that will be promoted by the project will be a potential source of employment.

- **Amount of foreign currency savings**

This project integrates the "solar energy" component as a source of energy for dewatering irrigation water, replacing fossil fuel-based generators. This substitution of energy will prevent the consumption of fossil fuels, a significant part of which is still imported by the country causing the exit of foreign currencies with negative consequences on the country's trade balance.

- **Amount of government's budget deficits reduced**

The analysis of the share of public expenditure towards the agricultural and food sector in Burkina Faso's total expenditure shows that the share of the national budget allocated to agriculture in the total budget exceeds 10% with the exception of year 2005 where it is 8%. Burkina Faso's agricultural budget allocation responds to the country's commitments in Maputo. In 2016, the final budget of the agricultural sector was CFAF 208.094 billion, corresponding to 11.89% of the total State budget. This shows that despite the deficit nature of the national budget, the state of Burkina Faso made a lot of effort to meet the minimum in terms of agricultural development. Generally in this sector, investments are made on loans and, to a lesser extent, donations. These loans, formally hired to finance the sector, only increase the country's indebtedness, which is estimated at US \$ 4.08 billion in 2016. The contribution of GCF funding in the form of a grant will contribute to reduce the country's indebtedness. This will reduce the country's budget deficit.

• **Gender-sensitive development impact**

Support for the transformation of the products promoted by this project will enable women to have added value. Generally in the project area human strength is always used for watering. In Paris, these human forces, we meet the women who are also engaged in this task. The implementation of this project will allow them to pursue other occupations such as the establishment of income-generating activities. In accordance with GCF's gender policy, the proposal will: (i) include qualitative and quantitative gender indicators; (ii) align with national policies and gender priorities; and (iii) strengthen equitable opportunities for women throughout the project cycle. Women, men, young people, children will be affected by the benefits of the project from the preparation until the closure of the project. In choosing direct beneficiaries, the gender criterion will be included to give women, youth and adults the opportunity to participate fully in the project. A gender analysis will be conducted during the preparation of the project for equitable consideration of women, men, young people, the elderly and children. Special attention will be given to vulnerable groups.

4. Needs of recipient:

Agriculture in general and the irrigation sector more specifically in Burkina face climate problems. The country is very vulnerable to the effects of climate change. Studies on vulnerability assessment and adaptive capacity to climate variability and change have highlighted, on the one hand, the four most vulnerable key sectors: agriculture, water resources, animal resources, forestry / biodiversity and, on the other hand, the most vulnerable groups found among the rural poor (women, young people, small agricultural producers). The decrease in rainfall combined with the rise in temperature will lead to lower yields on soils with low water reserves. According to the NAP (2015), the vulnerability of water resources is perceived in the agricultural sector in terms of declining agricultural yields with the reduction of food stocks and of poverty more and more recurrent in rural areas where agriculture off-season has become a way of adapting populations. The availability of water resources largely influences the vulnerability of this sector. Burkina Faso agriculture is essentially rain-fed. This situation exacerbates poverty and food insecurity. The level of poverty is high in Burkina Faso, about 46% of the population lives below the poverty line and 20% of the extreme poverty line. This

population is all the more vulnerable to the uncertainty of precipitation. According to LAME studies, the situation will go from bad to worse. These studies show that in the field of water resources, annual water volume decreases in two of Burkina Faso's four watersheds. In 2050, water volumes will decrease significantly compared to the 1961-1990 norm over all the basins of Burkina Faso. In particular, there will be a drop of 68.9% for Comoé, 73% for Mouhoun, 29.9% for Nakanbé and 41.4% for the Niger River. To all these problems is added soil degradation.

The various constraints related to the improvement of agricultural yields are at the base of the weak economic capacities, the primary sector being the engine of the economy. As an indication, the country's debt is only increasing from 30.6% of GDP in 2014 to 32.5% in 2016. According to estimates, it will reach 33.6% in 2018. The budget deficit. As for him rose in 2016 by -2.8%. These situations do not allow the Burkinabè State to cover the needs, although several efforts are recorded. Like the majority of developing countries, the capital market in Burkina for the development of agricultural projects is precarious and remains in an embryonic state. Access to finance is through loans with a high interest rate. Due to the unpredictability of the climate, financial institutions are reluctant to finance agricultural projects. Generally, access to loans is conditional on a financial contribution from the client that can reach 25 to 50%. The target populations are poor farmers who are vulnerable to climate change. Through the support to production promoted by this project, beneficiaries will have the facility to acquire basic inputs in a long-term empowerment strategy.

5. Country ownership:

This project is in line with the objectives set by the Government of Burkina Faso for the development of sustainable agriculture. The project fits into the guidelines of Burkina Faso's Nationally Determined Contribution (CDN), which is now a reference framework for climate change in the country. Through the objectives set, the project meets the guidelines established in the national plan for economic and social development (2016-2020). The project is part of the vision and objectives of the second generation rural national program (PNSR II). The project will be executed by the Ministry of Agriculture and Hydraulic Facilities. This project has been identified with the actors of the agricultural world in Burkina Faso in general and more particularly those of the development of irrigation. A Global Lead mission was conducted in Burkina Faso and meetings were held with the Burkina Faso Authorities.

6. Efficiency and effectiveness:

The project has an interesting cost-effectiveness advantage with respect to the techniques and technologies promoted in the project.

The implementation of the project will reduce emissions by 85,860 t CO₂e-. Considering the financing requested from the GCF, ie USD 8 354 500, the cost per ton of CO₂ is US \$ 97,3.

Added to this, the benefits of adapting vulnerable populations to the adverse effects of climate change, improving incomes and valuing agricultural products, as well as reinforcing the capacities of actors to initiate activities with co-benefits adaptation / attenuation outside the project.

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

Please describe how engagement among the NDA, AE and/or other relevant stakeholders in the country has taken place and what further engagement will be undertaken as the concept is developed into a funding proposal.

The project has been identified in collaboration with the NDA, the WADB and the institutions involved in the development of the agricultural sector in Burkina Faso.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Strengthening technical and organizational capacities for promoting resilient and sustainable agriculture	500 000	500 000	Grant			
Component 2: Development of irrigated perimeters with resilient	4 500 000	4 500 000	Grant			

and low-carbon techniques						
Component 3: Support for the development of agricultural value chains	2 000 000	2 000 000	Grant			
Component 4: Sharing knowledge and disseminating lessons learned	700 000	700 000	Grant			
Project activities cost	7 700 000	7 700 000				
Project management (8.5%)	654 500	654 500				
Indicative total cost (USD)	8 354 500	8 354 500				

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF funding request (max. 1 page)

Explain why the Project/ Programme requires GCF funding, i.e. explaining why this is not financed by the public and/ or private sector(s) of the country.

Agriculture plays a leading role in the Burkinabe economies. This situation explains the fact that the poor performance of the agricultural sector is at the root of the insufficient progress made to reduce poverty and famine. In the past, the poor performance of the agricultural sector was generally related to farming practices. In recent decades, in addition to poor farming practices adopted by producers, are added climate variability. These climatic variabilities significantly affect the country's economic performance. However, Africa's current agricultural growth is not able to support population growth rates. The World Bank's 2007 World Development Report points to a major shift in the importance of agriculture's role in economic growth and poverty reduction. In these conditions, it is therefore necessary to increase the productivity of smallholders through investments better adapted to local needs. Aware of this situation, the State of Burkina Faso drafted in 2007 its National Action Program for Adaptation to Climate Variability and Change (PANA). In this action program, the promotion of irrigation has been selected as one of the priority areas for adaptation to the adverse effects of climate change. The orientation in agricultural production of the State of Burkina Faso is to anticipate and mitigate the adverse impacts of the climate while maximizing production which will have a positive effect in the short term on the development sectors as well as vulnerable layers most at risk. Looking at the results of the NAPA, the country is committed to mainstreaming adaptation into policies by developing the National Adaptation Plan (NAP, 2015). This plan focuses on anticipating the effects of climate change, which is directed towards taking environmental issues into account in development policies. Despite Burkina being a low-emitting country, it has embarked on a process to mitigate greenhouse gas emissions. This results in an Mitigation component that only considers activities that lead to credited program results whose objectives have been focused from the outset on reducing greenhouse gas emissions and in particular carbon equivalent emissions. Despite these obvious ambitions, the Burkinabe state is facing a problem of financial resources. This limits its ability to implement adaptation and mitigation projects that reduce the level of poverty. Because taking care of the environmental aspect is more expensive.

In these circumstances, without the support of the GCF to encourage the efforts already undertaken by the country and to overcome the challenges, Burkina Faso will be unable to meet the conditional objectives of the planned contribution determined at national level on the one hand, and ambition expressed in the national adaptation plan. Under these conditions, the vulnerability of populations to the adverse effects of climate change will grow. Assuming that one of the GCF's flagship objectives is to promote a paradigm shift towards low-emission, climate-resilient development, it is in a good position to provide essential support for sound project implementation. In general, and more specifically, this project, which aims to contribute to ensuring sustainable food security by strengthening the resilience of agriculture, especially family farming, to climate change in Burkina Faso, through the promotion of innovative techniques of irrigation. GCF funding will allow: (i) populations vulnerable to climate change significantly improve their own resilience to the adverse effects of climate change; (ii) learn from the implementation of the funded activities for replication of the project in other areas and regions of the country. This project is directly in line with Burkina's agricultural development objectives; its sustainability is explained by its integration into the nationally determined contribution (NDC); in the national program of the second generation rural sector. The project also promotes a participatory approach to implementing activities in order to support sustainability and experience sharing.

Describe alternative funding options for the same activities being proposed in the Concept Note, including an analysis of the barriers for the potential beneficiaries to access to finance and the constraints of public and private sources of funding.

Like the majority of developing countries, the capital market in Burkina Faso for the development of agricultural projects is precarious and remains in an embryonic state. Access to finance is through loans with a high interest rate. Due to the u

npredictability of the climate, financial institutions are reluctant to finance agricultural projects. Generally, access to loans is conditional on a financial contribution from the client that can reach 25 to 50%. Target populations are poor farmers who are vulnerable to climate change.

Justify the rationale and level of concessionality of the GCF financial instrument(s) as well as how this will be passed on to the end-users and beneficiaries. Justify why this is the minimum required to make the investment viable and most efficient considering the incremental cost or risk premium of the Project/ Programme (refer to Decisions B.12/17; B.10/03; and B.09/04 for more details). The justification for grants and reimbursable grants is mandatory.

Burkina Faso is one of the Low Developed Countries (LDCs). The country is heavily indebted. These debts represent 33.6 % of GDP⁴ in 2018. These debts have been restructured with the HIPC Initiative. This requires the country to receive a authorization from the International Monetary Fund (IMF) to incur new debts. But the IMF does not allow the country to take high-rate loans even if they are concessional. The IMF prefers grants for the country. This limits the country in its development and particularly in its initiatives to fight against climate change and its initiatives to strengthen the resilience of vulnerable populations to the adverse effects of climate change. With regard to climate-related projects, and given the urgency of the needs on the ground, traditional donors in Burkina Faso are trying to find donations to finance these projects or, at least, to improve the loans they give to the country. The request for a grant to the GCF to finance this project is a must necessity if the country wants to carry out the project.

In the case of private sector proposal, concessional terms should be minimized and justified as per the Guiding principles applicable to the private sector operations (Decision B.05/07).

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

Please explain how the project/programme sustainability will be ensured in the long run and how this will be monitored, after the project/programme is implemented with support from the GCF and other sources.

The project through its various approaches is part of sustainability and allows producers to self-finance from the economic benefits realized in the execution of activities. Practically, thanks to the access of the water to ensure a regular irrigation, the availability of a safe source of energy for the dewatering, the increase of the number of agricultural campaign per year, and especially the promotion and valorization of products through a value chain approach, producers can pragmatically draw added value from the project. The results achieved will be sustained over time and will achieve a high level of replicability of activities through: (i) effective partnership with local public institutions, organized rural civil society (FOs, etc.) and the private sector in the design and implementation of the activities, ii) the assurance of the economic and financial profitability of the equipment put in place through the sub-projects financed. However, farmer groups will be sensitized and trained on the environmental, economic and financial management of sub-projects to ensure performance in achieving the expected results and sustainability of the project as a whole. The ultimate goal of the actions of this project is to transform producers into autonomous agricultural entrepreneurs. As a result, awareness and training campaigns will be conducted by NGOs and other local environmental groups. NGOs and associations active in agricultural promotion, with expertise in the field of environment and entrepreneurship will be retained to perform these services. Training and awareness topics will include: (i) environmental and social issues related to small-scale irrigation development; (ii) environmental management and good agricultural practices; (iii) the management and organization of a farm. The project will also train the selected producers in management (business plan and technical and economic monitoring) and banking (blocked savings account, financial education) to ensure the sustainability of investments. All these actions will be executed in a way that respects GCF principles.

For non-grant instruments, explain how the capital invested will be repaid and over what duration of time.

D. Supporting documents submitted (OPTIONAL)

- Map indicating the location of the project/programme
- Diagram of the theory of change
- Economic and financial model with key assumptions and potential stressed scenarios
- Pre-feasibility study
- Evaluation report of previous project
- Results of environmental and social risk screening

Self-awareness check boxes

⁴ FMI - World Economic Outlook Database - <http://www.expert-comptable-international.info/fr/pays/>

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes No

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes No