



The World Bank

Burkina Faso Water Security Project (BFWSP - P177094)

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Project Information Document (PID)

Appraisal Stage | Date Prepared/Updated: 04-Apr-2024 | Report No: PIDA0282



BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies) Burkina Faso	Region WESTERN AND CENTRAL AFRICA	Operation ID P177094	Operation Name Burkina Faso Water Security Project (BFWSP)
Financing Instrument Investment Project Financing (IPF)	Estimated Appraisal Date 20-Mar-2024	Estimated Approval Date 11-Jun-2024	Practice Area (Lead) Water
Borrower(s) Burkina Faso	Implementing Agency Direction Generale des Infrastructures Hydrauliques		

Proposed Development Objective(s)

The Project Development Objective (PDO) is to improve the safety of dams, access to associated irrigation and watershed services, and climate resilience for beneficiaries.

Components

- Component 1 - Security and Climate Resilience of Water Storage Infrastructures
- Component 2 - Development of Climate-smart Hydro-Agricultural Infrastructures
- Component 3 - Integrated Watershed Protection and Management
- Component 4 - Climate-smart Sector reforms and Operationalization of the National Strategy for Dams
- Component 5 - Project Management, Safeguards & Consultancy Services

PROJECT FINANCING DATA (US\$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)? Yes

Is this project Private Capital Enabling (PCE)? No

SUMMARY

Total Operation Cost	150.00
Total Financing	150.00



of which IBRD/IDA	150.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	150.00
IDA Credit	150.00

Environmental And Social Risk Classification

High

Decision

Other

Other Decision (as needed)

B. Introduction and Context

Country Context

1. Burkina Faso is a low-income Sahelian country, with considerable gaps in human capital and development metrics. For 2023, GDP per capita is estimated at US\$984 and the extreme poverty rate at 25.9 percent. Population growth is around 2.6 percent, one of the highest rates worldwide. With only 19 percent access to electricity and literacy limited to one-third of the adult population, Burkina Faso places 155th out of 174 nations on the World Bank's Human Capital Index (HCI),¹ and was ranked 185th among 193 countries in the 2023–24 Human Development Index report by the United Nations Development Program (UNDP), falling into the category of low human development. Burkina Faso also scores poorly on the Gender Inequality Index (146 out of 166),² which evaluates three essential dimensions of human development: reproductive health, empowerment, and economic status. Gender-based violence (GBV) is widespread, with 34 percent of women across the country having endured physical violence at some point in their lives.³

2. The country faces acute security threats that compound considerable development and humanitarian challenges. The security situation has deteriorated dramatically since 2016 as the country has suffered increasingly intensive terrorist attacks, resulting in thousands of deaths and massive internal population displacements (2.1 million in March 2023, with women and children accounting for 22.9 percent and 60.4 percent, respectively) and an

¹ <https://www.worldbank.org/en/publication/human-capital#Briefs>

² UNDP, 2021. <https://hdr.undp.org/data-center/specific-country-data#/countries/BFA>

³ <https://www.oecd.org/development/development-gender/ETUDE-PAYS-SIGI-BURKINA-FASO.pdf>



unprecedented humanitarian crisis.⁴ Displacement affects new areas as violent extremism spreads, and internally displaced persons (IDPs) are now hosted in 86 percent of the country's municipalities (303 communes). The continued deterioration of security has made the humanitarian situation increasingly complex, with persistent food insecurity (3.35 million severely food insecure during the 2023 lean season) and no basic public services in several regions. Further, the attacks have negatively impacted the economy by disrupting labor supply (especially to agriculture) and impeding mining activities (and the vital gold exports). However, the country is engaged in a process of re-conquering and securing the entire territory, which has led to the return of some 250,000 IDPs.

3. The security crisis continues to impact economic development and political stability, critical to the outlook. The two successive 2022 coups d'état impacted the economy by increasing uncertainty and reducing international financial support. The security situation has led to a drop in mining production and below-average growth in the primary sector, due to restricted access to rural areas. Following a slowdown and high inflation in 2022, GDP growth recovered in 2023 driven by the services sector fueled by an expansion of the public sector. The economy is estimated to have grown by 3.2 percent in 2023, with expected poverty reduction as inflation dropped. Average annual inflation (0.7 percent) bounced back dramatically from its 2022 regional high, but price levels remain high following the Russian invasion of Ukraine and a bad harvest in the 2021/22 season. The security crisis deepened in 2023 with a doubling of security-related deaths (8,494). As Burkina Faso, Mali, and Niger formed the Alliance of Sahel States and announced ECOWAS exit, the likely negative impact on market access and investment may be felt over the longer term. With a stable situation and political situation, the economy may gradually pick up in the medium term, but annual per capita GDP growth would remain below 2 percent. Climate shocks and security issues will continue to affect poor households, while school closures limit human capital accumulation and poverty reduction.

Sectoral and Institutional Context

The water security challenge: dams as central assets to build resilience and manage water resources, risks and services

4. As water is a driver of Burkina Faso's development, poor water security,⁵ compounded by vulnerability to climate change, poses a significant challenge for its economy. Agriculture, which depends entirely on water, accounts for 80 percent of total employment, half of rural incomes, and a third of GDP. Water resources play a pivotal role for hydropower generation, domestic water supply, and industry. Water will be essential to close remaining water supply, sanitation and hygiene service gaps, which particularly lag in rural areas.⁶ At 852 m³ per year per person, Burkina Faso's available renewable water resources per capita fall below the water scarcity threshold of 1,000 m³ established by the Food and Agriculture Organization (FAO). Whereas the country is crossed by five main cross-border rivers, only two of them are perennial and climate change projections of decreased rainfall and higher temperatures further threaten availability. As 80 percent of the country is on low-yield, hard-rock aquifers, considered limited and difficult to exploit, surface water represents 80 percent of existing withdrawals. According to latest estimates, less than 2 percent of rainfall is currently usable (~3.2 billion m³/year), once environmental needs, evaporation from reservoirs, and downstream needs are deducted.⁷ This water scarcity, compounded by climate-induced natural hazards, threatens socio-economic development.

⁴ Assessed by the National Council for Emergency Relief and Rehabilitation (Conseil National de Secours d'Urgence et de Réhabilitation, CONASUR).

⁵ Water security consists in managing water resources, delivering water-related services, and mitigating water-related risks to benefit people, the environment and the economy, as defined in the [World Bank Water Security Diagnostics initiative](#) and Young et al. 2019.

⁶ In 2022, 76 percent of the population has access to basic water services (69 percent for rural areas and 92 percent for urban) and 27.5 percent have access to basic sanitation services (22 percent rural and 41 percent urban). Access to water supply, sanitation and hygiene are part of the main targets of the Water Supply and Sanitation Program for Results (P164345, approved on June 26, 2018) and not in the scope of the proposed Project.

⁷ World Bank (2021). Burkina Faso - Water for Development to 2030 – Policy Note.



5. Climate change is a major threat to water security in Burkina Faso, exacerbating water scarcity and worsening water-related risks. Average temperatures have been increasing and aggregated accumulated precipitation decreasing except at the peak of the rainy season (June-August) since 1901.⁸ Weather station observations show a southward extension of the dry zone over the last century. Temperature extremes are occurring more often, with monthly high temperature averages now regularly exceeding the previous maximum of 35°C, particularly in the north. Average temperature increases are projected to be 0.8°C by 2025 and 1.7°C by 2050, accompanied by a rainfall reduction of 3.4 percent by 2025 and 7.3 percent by 2050, and significant inter-annual and seasonal variations. By 2050, significant reductions in water volumes (30 to 73 percent) are expected in Burkina Faso's major river basins.⁹ In the project area (Mouhoun and Nakambe river basins), declining rainfall is lowering water storage volumes, making droughts more likely, which would impact agricultural production, while increased temperatures could lead to worsening water quality.¹⁰ Despite projected economic growth, economic losses from climate change impacts are projected to increase poverty.¹¹ Burkina Faso experiences extreme climatic conditions of great variability, with increasingly frequent droughts exacerbated by climate change. Between 1969 and 2014, droughts affected a total of 12.4 million people, resulting in reduction in agricultural and livestock production, famine and populations migration,¹² as well as more intense cultivation of the river plains, particularly for rice. The ecological impact has been particularly severe with a shrinking of natural vegetation by more than 35 percent (partially due to drought induced wildfire and agricultural burning) and an increase of 10 percent in bare soil.

6. Climate change is also causing more frequent and in intense floods, which damage water storage infrastructure, interrupting water services. In recent years, severe flooding periods have occurred repeatedly especially in the north and center of the country. Between August and September 2007, at least 33,000 hectares of farmland were completely inundated by floods, while the flood events of September 2009 affected more than 150,000 people, washed away 22,000 hectares of farmland and damaged 15 dams, resulting in estimated damages and losses of more than US\$130 million.¹³ During the rainy season in 2021, five dams also failed due to severe floods compounding ageing civil works and lack of monitoring and maintenance. Future climate change scenarios predict increased heavy rainfall events and flood magnitudes between 2021-2050 in Burkina Faso compared with the recent past despite the general drying trend.^{14,15} Climate change exacerbated floods will increase the likelihood of critical water infrastructure failure, putting beneficiaries at physical risk from flood waters, economic risk from damaged property and decreasing water security through service interruptions and loss of water storage.

7. To mobilize surface water resources, Burkina relies on large and small dams exposed to climate-exacerbated floods and droughts, many of which are degraded and far from fulfilling their potential. Water services like irrigated agriculture, pastoralism, fisheries, and potable supply to many settlements, including the capital city, depend on dams, counting 20 large dams and over 1,000 small dams (most less than 10 meters high) which are mostly used for agriculture. However, the latest national inventory noted that 88 percent of the dams were in poor or very poor conditions.¹⁶ The situation has continued to degrade and, in 2020, it was assessed that 43 percent of dams were not

⁸ WB Climate Change Knowledge Portal, Country: Burkina Faso. <https://climateknowledgeportal.worldbank.org/country/burkina-faso/climate-data-historical>

⁹ Comoe (69 percent), Mouhoun (73 percent), Nakambe (30 percent), and Niger (42 percent).

¹⁰ Sanou, Y., and Pare, S. 2020. "Holistic Approach for an Integrated Management of Mouhoun River in Climate Change Context: Impacts and adaptation measures." *J. Mater. Environ. Sci.*, 2020, Volume 11, Issue 9, Page 1412-1423.

¹¹ World Bank Group (2022) Country Climate and Development Report G5 Sahel. The study estimates by 2050, under the medium-growth and dry and pessimistic climate scenarios, the number of poor will increase relative to the baseline by 2.7 million in Burkina Faso.

¹² Burkina Faso (2021). Premier Rapport Biennal Actualisé (PRBA) Du Burkina Faso Sous La Convention-Cadre Des Nations Unies Sur Les Changements Climatiques (CCNUCC). <https://unfccc.int/sites/default/files/resource/Rapport%20BUR1%20-Burkina.pdf>

¹³ World Bank (2011) Climate Risk and Adaptation Country Profile, Burkina Faso. https://climateknowledgeportal.worldbank.org/sites/default/files/2018-10/wb_gfdrr_climate_change_country_profile_for_BFA.pdf

¹⁴ Okafor GC, Larbi I, Chukwuma EC, Nyamekye C, Limantol AM, Dotse SQ (2021) [Local climate change signals and changes in climate extremes in a typical Sahel catchment: the case of Dano catchment, Burkina Faso](#). *Environmental Challenges*: 5(100285).

¹⁵ Aich V, Liersch S, Vetter T, Fournet S, Andersson JCM, Calmant S, van Weert FHA, Hattermann FF, Paton EN (2016) [Flood projections within the Niger River Basin under future land use and climate change](#). *Science of the Total Environment*: 562, 666-677.

¹⁶ 41 percent in very poor condition and another 47 percent were in poor condition.



functional,¹⁷ contributing to water-related risk as they do not provide flood protection or water storage for irrigation to help face droughts. Many dams are at risk of failure, threatening downstream regions, including downstream riparian countries as most rivers in Burkina Faso are transboundary. On average, there are ten dam failures every year across the country, threatening lives and leading to loss of economic assets. More frequent floods – exacerbated by climate change – are a main reason for increased dam failure risks. Other root causes for this vulnerability include aging infrastructure with poor design and construction (90 percent are over 30 years old), and no or poor maintenance and rehabilitation. Many reservoirs are also full of sediment, polluted, and invaded by vegetation, reducing their storage capacity and usability, further impacting the resilience of the beneficiaries towards rising water scarcity and droughts. In turn, drought impacts on vegetation have led to erosion and sedimentation, reducing the volume stored in reservoirs and to flooding causing loss of life and economic damage.¹⁸

8. Integrated management of water, vegetation and soil resources could improve reservoir safety and sustainability. The sedimentation and pollution of reservoirs results from erosion and gullyling in their watersheds, affects them and is correlated with climatic (increasing intensity of rain episodes), human (including agricultural practices and increasing land use, grazing and deforestation) and biophysical (soils, geomorphology, vegetation cover) factors. More than 30 percent of Burkina Faso's land area (9 million hectares) is severely degraded, and that degradation is projected to continue to expand at the rate of 360 000 hectares per year. Integrated watershed management constitutes the most sustainable response to these problems, building on Burkina Faso's experience with related projects.¹⁸

9. Climate change exacerbated extreme events further threaten Burkina Faso's already frail food security. Some 2.1 million Burkinabe are chronically food insecure despite the small fraction of developed irrigation potential and the poor status of existing irrigation assets. Although estimates vary, the bio-physical potential for irrigation is generally considered to be well over 200,000 hectares, of which only 12-14 percent has been developed so far, all from surface water.¹⁹ In the command area of many existing dams, irrigation infrastructures have also not yet been developed or are underdeveloped. The main constraints to developing irrigation are the lack of water (which impacts crop choice) and poor functionality of infrastructure. Irrigation committees are only formed when water is available for distribution and their operation and maintenance (O&M) capacity is weak. The main irrigated crops are rice, with low water use efficiency, and vegetables. However, formal irrigation development has slowed in recent years and 29 percent of existing assets need rehabilitation. Drought, lack of access to water due to dams degraded by climate change, and increasing temperatures, also detrimentally impact fish populations in Burkina Faso and impede further development of fisheries, which could represent an important local source of protein to increase food security.²⁰

Policies and institutions establish a sound enabling environment for water security

10. Burkina Faso boasts a comprehensive legal and institutional framework for the water sector. According to the water management law,²¹ the Ministry of Environment, Water and Sanitation (MEEA – *Ministère de l'Environnement, de l'Eau et de l'Assainissement*) determines priorities, sets policies and standards for water development, manages and regulates water resources (including dams), and regulates water and sanitation services. The design and construction of dams is under the responsibility of MEEA's General Directorate for Hydraulic Infrastructure (DGIH – *Direction Générale des Infrastructures Hydrauliques*). The National Water Policy for 2016–2030 was translated into

¹⁷ World Bank (2020). *Mobilisation des Ressources en Eau pour le Développement au Burkina Faso*.

¹⁸ Including the Sahel Integrated Lowland Ecosystem Management project financed by the Global Environment Facility (GEF) and implemented by the WB (P070871, 2004-2011), as well as projects financed by other partners, including the International Fund for Agricultural Development (IFAD) and the German Cooperation (GIZ).

¹⁹ World Bank (2020). The report *Mobilisation des Ressources en Eau pour le Développement au Burkina Faso* estimates Irrigation potential at 233,000 ha and the current equipped area at just 20,000 ha.

²⁰ Silga RP, Oueda A, Kpoda WN, Mano K, Ouedraogo I, Weesie DMP, Kabre BG (2021) [Fishermen local knowledge and aquatic environmental change: impacts on fishing and adaptation strategies in Volta Basin](#). *Open Journal of Ecology*: 11(7).

²¹ Loi n° 002-2001/AN portant loi d'orientation relative à la gestion de l'eau. Accessed at: <https://faolex.fao.org/docs/pdf/bkf30789.pdf>



sectoral programs in the context of the Sustainable Development Goals (SDGs). This includes National Programs for Dam Development, Water Supply, IWRM, and Water and Sanitation Governance. The government also prepared and recently adopted the National Strategy for Dams Maintenance and Safety (SNESB – *Stratégie Nationale pour l'Entretien et la Sécurité des Barrages*) for 2023-2027. The objective of PNAH (*Programme National des Aménagements Hydrauliques*) is to increase water resource availability through infrastructure investment, including rehabilitation of dams. Considerable public investment was also made in irrigated agriculture, including in small-scale village irrigation.

11. Gender inequality persists in Burkina Faso and in its water sector. Despite the ratification of all regional and international conventions on gender equality, the adoption of a national gender policy and strategy, the establishment of a dedicated ministry, and the development of a large number of associated actions and programs, social norms and informal laws challenge the implementation of this progressive framework.²² Women's participation in paid work is 20 percentage points lower than men and they are more likely to work as unpaid workers in a family business or farm, widening the earnings gap.²³ Women in rural areas dominate the workforce²⁴ in non-timber forest product (NTFPs) industries, generating less income through more labor-intensive works than men. In agriculture, women's harvest values and crop sales are both approximately 60 percent lower than men's. Women have little say in decisions related to water and agriculture planning and implementation, such as where water points are constructed. Women's low representation and empowerment stems from their low political leadership, as well as low representativity in management, professional and technical positions.²⁵ In WUCs, executive boards²⁶ are in charge of decision-making and elected by the WUC general assembly, and currently have 14.86 percent of women representation against the 30 percent national target, despite one of the secretary posts explicitly assigned to "the mobilization of women and vulnerable people." The average participation rate of women in the 18 structures involved in Project implementation is 13.27 percent. Efforts to raise awareness, train and promote gender equality can help improve the representation of women in senior positions within these entities.

In spite of these achievements, challenges remain regarding institutional capacity and performance

12. Moving laws and strategies into action represents a sector challenge. For water resources management (WRM), despite notable progress made over the past years (including through the WSS PforR), improvements remain needed at various levels. This includes improving the transparency and quality of decision-making for infrastructure investments and strengthening institutions to overcome coordination challenges and overlapping responsibilities both within and among agencies. Challenges include coordinating across sectors and between the national and the decentralized levels, generating internal financing and effecting cost recovery, and implementing and managing infrastructure investments. Burkina Faso has ample legal and regulatory instruments, but implementing decrees and procedures are still lacking, as well as adequate incentives for improved efficiency, productivity and water savings.

13. The history of dam development and operation raises questions about planning and management capacity. Many dams are not fully serving their purpose, have been poorly constructed, or have suffered inadequate O&M and are therefore not functional or at risk of failure. Given concerns around dam safety, there is a need to improve the understanding of the risks and benefits associated with each dam to prioritize rehabilitation works and strengthen capacity. In response to the problems of poor performance and chronic deterioration of public water infrastructure, MEEA has prepared the SNESB proposing detailed approaches to organize O&M of public

²² OECD (2018). Maps & Facts, Sahel and West Africa Club, [No.63, January 2018](#).

²³ Donald, A., Islam, TM T., and Robakowski, A. Explaining Gender Differences in Economic Outcomes in Burkina Faso.

²⁴ Women in rural areas constitute 80 % of workforce in the NTFP industry: https://rightsandresources.org/our_impact/strengthening-position-women-non-timber-forest-product-industries-burkina-faso-secure-tenure-rights/

²⁵ 17 percent in parliament, 20 percent in ministerial positions, 11 percent of firms with female top manager, 26% of women among professionals and technicians - according to the 2023 WEF Global Gap Gender Report: https://www3.weforum.org/docs/WEF_GGGR_2023.pdf.

²⁶ Existing executive boards have between 9 and 17 members and all are considered to hold a position of decision-making authority within the WUC.



infrastructure, professionalize O&M and effect cost recovery. The appointment of a dam safety committee and reinforcement of DGIH as core institution in charge of dam safety will be essential for these tasks.

14. Building on the World Bank's decades-long engagement as the leading partner in the Burkina Faso water sector, this project complements contributions to the water security agenda. The World Bank has supported the construction of Ziga Dam,²⁷ water supply and sanitation services (WSS) in urban and rural areas²⁸ and WRM activities including support to hydrometric and water quality networks, operationalization of the National Water Information System and dam inventory update. The proposed project leverages existing WRM engagement while expanding interventions into the dams, watershed protection and irrigation subsectors, complementing the WSS PforR's focus on delivering secure WSS services. The World Bank conducted a water resources assessment in 2017 and completed a Water for Development to 2030 policy note in 2021 covering WRM, WSS, and irrigation. Ongoing World Bank operations in irrigation²⁹ and in the agriculture sector³⁰ support the development or rehabilitation irrigation perimeters and provide agriculture advisory services.

C. Proposed Development Objective(s)

Development Objective(s) (From PAD)

15. The Project Development Objective (PDO) is to improve the safety of dams, access to associated irrigation and watershed services and climate resilience for beneficiaries.

Key Results

16. The following indicators will track PDO progress: (i) Number of dams with improved safety; (ii) Procedures and resources effective at national and regional levels to operationalize the National Strategy for Maintenance of Dams (SNESB); (iii) Cumulative area of new or rehabilitated irrigated perimeters (ha); (iv) Hectares of terrestrial and aquatic areas under enhanced conservation and management (ha); and (v) Number of people with enhanced resilience to climate risks.

D. Project Description

17. The project will improve climate adaptation of water resources in Burkina Faso and provide several climate mitigation benefits through five interrelated components. The project will particularly foster water storage and hence reduce risks of water scarcity due to a combination of higher temperatures and diminished precipitation.

Component 1: Security and Climate Resilience of Water Storage Infrastructures

18. This Component will support the securitization of priority dam infrastructure to ensure continued access to and valorization of the associated water resources, building flood and drought resilience. Building on the Emergency Action Plan for the Rehabilitation/Reconstruction of Hydraulic Facilities (PAUR) 2021-25, it aims to improve infrastructure that serves, among others, to slow potentially damaging climate change exacerbated floods and store water during droughts.

²⁷ Ouagadougou Water Supply Project (2001-2007, P000306)

²⁸ US\$160 million Urban Water Sector Project (2008-2018, P106909) and ongoing US\$250 million WSS PforR (P164345)

²⁹ Such as the Sahel Irrigation Initiative Support Project - SIIP - P154482

³⁰ Agriculture Resilience and Competitiveness Project (ARCP - P167945) - 4,500 ha. West Africa Food System Resilience Program (FSRP - P172769) - 1200 ha.

**Sub-component 1.1: Strengthening climate resilience through rehabilitation of priority dams**

19. **This sub-component will improve the sustainability and storage capacity of degraded dams to enhance infrastructure resilience to floods while boosting the resilience of beneficiaries to floods and droughts.** Among the 235 priority dams of the PAUR, 35 have been further prioritized using a portfolio risk assessment based on the climate vulnerability of the following dimensions: (i) dam degradation, (ii) economic value of water uses in the command area, and (iii) consequences and likelihood of potential dam failures.³¹.

Sub-component 1.2: Rapid response for securing failing dams and enhanced climate resilience

20. This sub-component targets the implementation of reinforcement works on dams outside sub-component 1.1 at imminent risks of failure, identified by the national inventory based on vulnerability to floods or to be identified during project implementation as emergencies occur. Emergency works will include sealing of dams' or dikes' breaches, temporary cofferdams or reinforced riprap to protect weak structural sections and other interventions deemed required. Such-rapid response will avoid: (i) complete dam failure, before full-rehabilitation studies and works can be completed, (ii) associated higher costs for rehabilitation, and (iii) damages to associated economic activities and downstream population and assets.

Component 2: Development of Climate-smart Hydro-Agricultural Infrastructures

21. **This component will support the improvement and expansion of water-related services and economic benefits from dams in drought-prone areas,** especially from dams rehabilitated under component 1. It will include (i) rehabilitation and expansion of climate-smart irrigation infrastructure and irrigated perimeters to improve access to water during droughts, (ii) support to improve water use efficiency, reducing GHG emissions and increasing the volume of water available to act as a buffer during periods of drought, and (iii) fish farming in the rehabilitated water reservoirs to improve food security.

Sub-component 2.1: Development of Climate-smart irrigated perimeters

22. **This sub-component will rehabilitate and develop 788 ha of irrigated perimeters and ensure the efficient development of irrigated land for intensive, environmentally friendly and climate-smart agriculture.** It will support the development of such land by supplying gravity-fed irrigation water from the reservoirs rehabilitated under Component 1, which will enable offsetting existing diesel-pumping for irrigation. The sub-component will improve access to drought resilient water supply through: (i) the rehabilitation of existing irrigated perimeters (259 ha) and (ii) the development of new irrigation schemes (529 ha). The works for this component will be procured and implemented within the contracts targeting rehabilitation of priority dams under Component 1.

Sub-component 2.2: Support to agricultural and fish production and to the management of irrigation schemes

23. **This sub-component will support adequate O&M of irrigation perimeters as well as fish production, benefiting from water resources secured under components 1.** This sub-component will ensure community consultation and capacity building towards the sustainable use and management of irrigated perimeters for drought resilient agricultural production. This sub-component will leverage the newly available water supply from rehabilitated dams to increase fish production towards food and nutrition security through a local, climate resilient source of protein, and to fight against malnutrition and stunting.³² Activities of this sub-component will include: (i) building 10 fishponds and hatcheries to increase fish production and supply of quality fry and fingerlings, (ii) building 15 modern fish enclosures and floating cages to strengthen the fisheries' halieutic potential, (iii) stocking 15 dams to improve fish production and help maintain the ecosystem balance of water bodies, (iv) supporting fish processing to improve their storage, (v) the allocation of operational permits to private fisheries and irrigation enterprises, and (vi) capacity building for the management, operation and maintenance of Project irrigation schemes.

³¹ With as a first priority the minimization of loss of life.

³² A. Bennett et al, 2021. Recognize fish as food in policy discourse and development funding – [Ambio](#).

**Component 3: Integrated Watershed Protection and Management**

24. An integrated management approach will be implemented in the watersheds of the reservoirs to be rehabilitated by the project, to protect them from sedimentation, progressive filling and loss of storage capacity, leading to increased water availability during drought and reduced climate exacerbated flood vulnerability by reducing siltation due to run-off and increasing storage capacity. Income-generating activities for the benefit of local populations will be included to ensure their engagement and promote resilience by sustainably increasing the productivity of agro-sylvo-pastoral activities, while also reducing pressure on water bodies and the reservoir catchment area. The approach will consist of: (i) carrying out, under the leadership of the relevant RBA, a participatory diagnostic and planning process with local stakeholders (CLE, WUC, users of natural resources and local authorities) to identify in a concerted manner the most critical sites requiring intervention and remedial actions to reduce land degradation and erosion; and (ii) elaborating and implementing, in a participatory manner, Integrated Watershed Development and Management Plans (PAGI - *Plans d'Aménagement et de Gestion Intégrée du Bassin Versant*).

Subcomponent 3.1: Participatory planning for integrated watershed management

25. The elaboration of PAGI will be carried out according to a participatory and bottom-up process of diagnosis and planning. This implies the inclusion of all natural resource users of the reservoir's watershed (farmers, sedentary herders, pastoralists, fishermen, hunters, non-timber forest products operators, rural microenterprises, etc.), mostly represented in CLEs. The identified actions will consider the diversity of users and uses of resources in an integrated manner, through an approach that strengthens social cohesion. The first stage in the diagnostic is a deep analysis of spatial data to produce risk maps for climate vulnerability (land degradation, erosion and siltation), as well as the critical sites for intervention (cross-referencing data on land use, soil types, and topography). The second stage is a participatory and inclusive process of consultation and planning of activities with local stakeholders.

Sub-component: 3.2: Integrated watershed management

26. The PAGI will be implemented by the RBA, CLE, WUC and producers of the watershed in collaboration with other local stakeholders. The PAGIs will determine the activities to be financed according to the specificities of the sites. Categories of possible activities include (i) mechanical and biological anti-erosive water and soil conservation measures to reduce surface run-off during flooding events, (ii) vegetation cover restoration measures to fix the soil and reduce erosion, (iii) protection measures for the banks of reservoirs and watercourses,³³ (iv) hydro-agricultural developments to reduce water erosion and improve the livelihoods of local populations, and (v) facilitating consensus-based agreements on land use, including potential development of grazing areas and corridors (including for livestock to the reservoirs).³⁴

27. The PAGI will also include accompanying measures such as communication campaigns and trainings to raise awareness about pollution (agriculture, mining), climate change exacerbated floods and droughts, unsustainable practices, and the management of invasive plants. To ensure the sustainability of the implemented activities, the PAGI will also finance the securitization of land and the establishment of management committees for the investments supported.

Component 4: Climate-smart Sector reforms and Operationalization of the National Strategy for Dams

28. This component will support legal and institutional strengthening and capacity building to enhance water security in Burkina Faso. This component target operationalizing the National Strategy for dams (SNESB) in terms of legal and institutional frameworks as well as processes, tools, and financial & human resources. Doing so, this

³³ In the event some riverbanks are occupied, they could, through consensual agreements among the population, be liberated or the land use changed to ensure their protection. In those cases, the PAGI would include compensatory measures for the producers involved.

³⁴ Activities to address overgrazing and minimize conflicts between sedentary land users and pastoralists will coordinate closely with the PRAPS (P173197), especially to capitalize on their mapping of optimal location of pastoralist/livestock water points along migration corridors.



component will expand the benefits of the project to all dams of the country, beyond those considered under component 1. This component will also help sustain and scale up the systemic (upstream-downstream) sector approach promoted by the project that integrates watershed, storage, and irrigation services to maximize socio-economic benefits and improve livelihoods in a climate resilient manner. This component will also support improving the monitoring, operation and maintenance of dams and irrigation schemes. This component will support the increased participation of female decision makers and leaders in local community bodies.

Sub-component 4.1: Supporting climate-smart sector reforms and strengthening the institutional framework

29. This sub-component will support preparing the legal and institutional framework for the management of climate-resilient dams and core irrigation infrastructures at the national, regional and local levels, within an integrated and systemic approach to the management of dams. Strengthening this sector framework is essential to ensure the sustainability of mobilized water resources in the medium and long run in Burkina Faso, while increasing water availability and reducing flood vulnerability. The project will support the Government in operationalizing the SNESB at national (strategic and operational), regional and local levels.

30. Consolidating the national vision for the safety, operation and maintenance of dams, and developing regulatory texts for the SNESB: based on a review of existing capacities and practices, an action plan for operationalizing the SNESB will be prepared, including (i) the legal and regulatory texts deemed necessary to clarify the roles and responsibilities for dam safety and maintenance, (ii) relevant institutional changes (including creation of emergency/rapid response dam repair brigades and management of early warning systems and disaster risk), (iii) a list of processes and quality control procedures to be improved or developed (including how to finance O&M and safety of dams), (iv) a description of the associated resources to be adapted or mobilized (staff recruitment or reallocation, financing, IT tools, equipment, etc.), and (v) a training and capacity-building plan. The project will support the implementation of the detailed action plan at organizational, institutional and legal levels, including support to (i) the development of the laws, decrees and orders deemed necessary in these fields and (ii) developing water police and monitoring services to enforce compliance with water regulations. This sub-component will also strengthen cooperation with hydrometeorological services and WRM Directorate of MEEA to further support integrated management of water resources as well as early warnings systems.

31. Securing land tenure will involve mapping land tenure associated with dams towards their integration into the country's cadastral plan. Land tenure will be secured at the sites under sub-components 1.1 and 2.1, with associated perimeters and a map drawn up for this purpose. For its operational implementation, a collaboration protocol will be signed between the PIU and the Tax General Directorate (*Direction Générale des Impôts*).

32. The project will also support developing legal and supportive materials for establishing a water fund dedicated to O&M of dams, as recommended by the SNESB. This activity will develop synergies with the next Development Policy Operation (DPO) in BF to seek legal approvals of the legal texts that will be prepared by the project and budget support at national level.³⁵ This fund will be used to finance the sub-sector and will secure a budget allocation for dams safety and O&M safety and will be also supported by a share of the water fees collected by River Basin Agencies.

33. Establishing and strengthening local institutions: This sub-component will support the establishment and the dynamization of (i) Local Water Committees (CLEs) at the sub-basin level, and (ii) Water Users Committees (WUCs) with representatives of local water users in the dam's area of influence, and relevant to each rehabilitated dam and to 40 other WUCs. CLEs will help to coordinate watershed and WRM project activities (including monitoring of water resources), while WUCs will be responsible for day-to-day dam maintenance. This sub-component will also support setting up (i) Irrigator's Committees (IC) to ensure sustainable use and routine maintenance of the facilities, and (ii)

³⁵ To be noted that no IDA fund will be directly channeled to this Water Fund. The project will prepare legal texts and operational procedures.



simplified cooperatives to manage fish pens and ponds to ensure the sustainability and profitability of investments in fish production.

Sub-component 4.2: Capacity-building

34. Capacity building activities will contribute to the operationalization of the existing and reinforced national and regional institutional set-up (as developed under previous sub-component). With the objective of expanding and sustaining impact on the ground, this sub-component will include: (i) strengthening the technical, financial and administrative capacities of national and regional actors in adequate monitoring and O&M of hydraulic infrastructure, (ii) providing on-the-job local and regional training in the routine surveillance and maintenance of hydraulic structures, (iii) in partnerships with universities and training centers, strengthening academic and vocational training and supporting research programs in dams' design, supervision and rehabilitation, (iv) strengthening key operators (including dam repair brigades) and institutional entities with equipment and materials deemed required to implement their O&M duties, and (v) facilitating south-south exchanges and partnerships on dam safety. This subcomponent will also support (i) the organization of a library of guidelines and manuals on various aspects of dam safety and O&M, (ii) the reinforcement of central and decentralized services responsible for independent control of dam safety, and (iii) the reinforcement of the national committee of dams to advise the government and DGIH on dam safety matters (composed of national experts, with support from the International Commission on Large Dams - ICOLD).

35. Local institutions (CLEs, WUCs and ICs) and communities will be trained in dam surveillance and basic maintenance, which are essential for the long-term safety of water storage assets. Training courses will be deployed to all local entities benefiting from project activities, including training and providing WUCs with basic maintenance and surveillance equipment and climate change considerations. Training kits and communication materials on these topics will also be made available nationally. Trainings in the early stages of Project implementation will also help build community's ownership of the Project objectives and shared vision on its benefits.

Component 5: Project Management, Safeguards and Consultancy Services

36. This component will support additional studies and consultancy services, implementation of project safeguard requirements and project management. This will include, but not limited to: (i) the operating cost of the PIU, (ii) Technical Assistance Consultancy Firm (TACF), (iii) Design and Supervision Engineering Firms (DSEFs) that will support the preparation of complementary technical studies, tenders, procurement, and supervision of works, (iv) consultancy firms to update and prepare complementary E&S studies as deemed required, and (v) implementation of project safeguards requirements (including financing any land expenditures and resettlement compensations). With the support of the PPA, complementary studies and bidding documents for around seven sites will be prepared by the time the project is submitted to the Board. This component will support preparation of studies for next tender packages (on average around ten sites will be tendered per year). This component is subdivided into three sub-components: 5.1. Design, control and supervision of works (US\$8.83 million), 5.2. Implementation and monitoring of project safeguard requirements (US\$5.30 million), 5.3. Project coordination and management (US\$10.95 million).

37. Project coordination and management include training for personnel in resource management and various aspects of project execution, such as procurement (equipment, GIS, and others), financial management, monitoring and evaluation (M&E), and the use of software systems.

Component 6: Contingency Emergency Response Component

38. This component will provide immediate response to an Eligible Crisis or Emergency, as needed. The component will finance emergency works in the case of a disaster event by including a "zero-dollar" Contingent Emergency Response Component (CERC). This will help recover damage to infrastructure, ensure business continuity, and enable early rehabilitation.



Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Area OP 7.60	No
Summary of Screening of Environmental and Social Risks and Impacts	

39. The proposed project activities could generate adverse environmental and social risks and impacts. The Environmental and Social risk classification is High. The most probable environmental and social risks and impacts of the proposed project are related to : dam safety and health risks on communities, risks of construction site accidents and traffic accidents, risk of drowning in dams, risk of soil and land degradation during construction, biodiversity risks associated with habitat destruction, risk of water and soil pollution by solid and liquid waste from living bases and construction sites, risk of disturbance runoff, risk of poaching by site workers, groundwater and surface water pollution through improper use of agrochemicals (pesticides and fertilizers) as well as risk of soil pollution during the operation phase, risk of poisoning of producers by using empty pesticide containers as drinking water containers, risk related to insecurity in the project area, labor and working conditions (including child and forced labor, Sexual Exploitation and Abuse / Sexual Harassment (SEA/SH), health, and safety of populations during civil works, incidents and accidents during civil works both for workers and communities), risks of conflict related to land reallocation of irrigated agricultural land after development, community risks associated with road safety, drowning risks, etc. Appropriated mitigation measures are proposed in the E&S documents to address these risks and impacts.

E. Implementation

Institutional and Implementation Arrangements

40. The MEEA will be responsible for the technical supervision of the project, through DGIH, which will be the project implementing agency. DGIH has experience implementing projects funded by donors such as AfDB, BOAD, the Islamic Development Bank (IsDB) or the Kuwaiti and Saudi Funds for Development. Its current resources are not sufficient to manage the development of infrastructures at the necessary scale. A Project Implementation Unit (PIU) will be established within DGIH and will manage all aspects of the project (procurement, financial management, safeguards, technical, etc.) with the support of decentralized (regional) services and consultants (such as DESFs and TACF). The project will also support identification and recruitment of complementary and perennial staff.

41. Project management decisions will be made in close coordination with other ministries and directorates such as (i) MARAH and DGADI for irrigation and agropastoral activities and (ii) other MEEA directorates such as the Water Resources General Directorate (DGRE). The decentralized agencies of the MEEA such as River Basin Agencies and associated Local Water Commissions (CLE) and Water Users Committees (WUC) will also be actively involved. Throughout project implementation, local municipalities will also be actively involved given their local involvement in the water sector (including in WUCs).

42. A Project Steering Committee (PSC) will be established by the MEEA to provide high-level government oversight and strategic guidance to the PIU. The PSC will convene every quarter, or as needed, during project implementation to monitor progress, address new difficulties, and suggest mitigation strategies. Additionally, its functioning will be built on existing experiences in the sector for donors financed projects. Annual work programs and the project budget will be reviewed and approved by the PSC.

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