



# Project Information Document (PID)

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Concept Stage | Date Prepared/Updated: 22-Nov-2022 | Report No: PIDC32940

**BASIC INFORMATION****A. Basic Project Data**

Country Burkina Faso	Project ID P177094	Parent Project ID (if any)	Project Name Burkina Faso Water Security Project (BFWSP) (P177094)
Region WESTERN AND CENTRAL AFRICA	Estimated Appraisal Date Sep 12, 2023	Estimated Board Date Dec 15, 2023	Practice Area (Lead) Water
Financing Instrument Investment Project Financing	Borrower(s) Ministere des Finances	Implementing Agency Direction Generale des Infrastructures Hydrauliques	

**Proposed Development Objective(s)**

The Project Development Objective (PDO) is to improve dam safety and irrigated services in selected areas.

**PROJECT FINANCING DATA (US\$, Millions)****SUMMARY**

<b>Total Project Cost</b>	150.00
<b>Total Financing</b>	150.00
<b>of which IBRD/IDA</b>	150.00
<b>Financing Gap</b>	0.00

**DETAILS****World Bank Group Financing**

International Development Association (IDA)	150.00
IDA Credit	150.00

Environmental and Social Risk Classification  
High

Concept Review Decision  
Track II-The review did authorize the preparation to continue



Other Decision (as needed)

## B. Introduction and Context

### Country Context

1. **Burkina Faso, with about 20 million people, is a low income, landlocked and fragile country facing major development challenges.** Eight out of ten citizens live on less than US\$3 per day. The population is young (46 percent are under 15) and in majority rural (70 percent). Burkina Faso faces a number of economic and human development challenges, particularly in the areas of health, education and food security. Burkina Faso ranks 154 out of 174 countries on the 2020 Human Capital Index.<sup>1</sup> More than 40 percent of the population lived below the poverty line in 2018 and remain almost completely excluded from basic services and from access to infrastructure.

2. **Despite relatively strong economic performance in the past decade, Burkina Faso remains one of the poorest countries in the world.** Over the last fifteen years, economic growth has averaged about 5.5 percent per year, until it dropped to 2.5 percent per year 2020 due to the pandemic crisis. Gross national income (GNI) per capita was just US\$770 in 2020. The economy is expected to gradually recover, growing by 3.1 percent in 2021 and up to 5 percent in 2022. Against a backdrop of uncertainty, the recovery was expected to be driven by a gradual rebound in services, continuing high gold production levels, and a stable agricultural sector. The steady deterioration in the trade balance and in net revenues as well as the stagnation of net transfers are projected to lead to a gradual increase in the current account deficit in the medium term.

3. **Agriculture is the most important sector of the economy and at the same time, rural areas are where most poverty exists.** About 80 percent of the labor force is primarily employed in agriculture. Hence this is the most important sector for job creation. At the same time, rural areas account for almost all (92 percent) of poor people. More than half of rural people are poor. Including downstream activities dependent on agriculture, over 90 percent of livelihoods are dependent on agriculture, which accounts for one-third of GDP.<sup>2</sup> Production is largely family production on small holdings, and soils are typically poor in nutrients, have low water-holding capacity, and are often degraded.

4. **Growing insecurity, particularly in the north along the border with Mali and Niger, has displaced several communities in Burkina Faso.** The conflict is affecting six of the country's 13 regions. Some 43 percent of the population, more than 8 million people, currently live in high or medium intensity conflict zones. While there were fewer than 50,000 internally displaced persons (IDP) in the country in January 2019, a report issued by the National Council for Emergency Assistance and Rehabilitation (CONASUR) put this figure at more than one million at the end of December 2020. This increasing number of internally displaced people has affected patterns of demand for water, constraining the ability of government to pay for and implement water infrastructure and services. At the same time, improving water security can make an important contribution to reducing fragility.

5. **Burkina Faso's population is growing rapidly, increasing pressure on services such as water and sanitation, as well as on the security of water resources.** At an annual growth rate of 3.1 percent, the estimated population of 19.5 million

<sup>1</sup> <http://www.worldbank.org/en/publication/human-capital>

<sup>2</sup> <https://www.cia.gov/library/publications/the-world-factbook/geos/uv.html>



in 2017 is expected to grow to 29 million in 2030. Despite having one of the fastest urbanization rates on the continent, at 5.7 percent per year, Burkina Faso has still 70 percent of the population lives in rural areas where access to services, including adequate water and sanitation, are significantly lagging urban areas. Rapid population growth, environmental degradation, and pollution of water resources further increase the vulnerability of Burkina Faso's hydrological systems.

## Sectoral and Institutional Context

### *The water security challenge*

**6. The availability of water resources is a significant concern for Burkina Faso's economy.** Water is a principal motor of Burkina's development. Agriculture, which depends entirely on water, accounts for 80 percent of total employment, half of rural incomes, and a third of the GDP. Water resources also play a pivotal role for hydropower generation, domestic water supply, and industry. At 852 m<sup>3</sup> per year per person, Burkina Faso's available renewable water resource per capita is below the water scarcity threshold of 1,000 m<sup>3</sup> per year per person. This is further aggravated by the hydrogeological conditions and flat topography, which lead to much of the rainfall becoming unavailable through run off, evaporation and deep infiltration, with major impacts on year-round access to water. Only a small fraction (about 2 percent) of rainfall is therefore available as usable surface water – and much less in a dry year. Whereas the country is crossed by five main cross-border rivers, only two of them are permanent year-round. About 80 percent of the country is located on low-yield, hard-rock aquifers, which are considered limited and generally difficult to exploit.

**7. By undermining water availability, climate change is expected to represent a threat, particularly to agriculture, and therefore to be a risk to rural livelihoods and food security, as well as to the overall macroeconomy and fiscal space.** Water resources are highly vulnerable to climate change due to their intrinsic relation to rain, temperature, and wind patterns. 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, with significant inter-annual and seasonal variations. It is expected that by 2050, there will be significant reductions in water volumes in Burkina Faso's major river basins: Comoe (69 percent), Mouhoun (73 percent), Nakambe (30 percent), and Niger (42 percent). Burkina Faso experiences extreme climatic conditions of great variability, with droughts becoming increasingly frequent. The country has, in effect, suffered from 'quasi-drought' conditions since the early 1970s. Between 1969 and 2014, droughts affected a total of 12.4 million people. The most severe years were 1973, 1980, 1990, 2011 and 2014.<sup>3</sup> In 2011, 3.5 million people were affected, in 2014, 4 million. Drought has contributed to considerable internal migration from north to south and to 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 and an increase of 10 percent in bare soil. This has led to erosion and sedimentation which reduces the volume that is stored in the reservoirs and to flooding that has caused loss of life and economic damage.<sup>4</sup>

**8. Floods have also become recurrent events, causing severe impacts on lives, livelihoods and the economy.** For example, flood events of September 2009 affected more than 150,000 people, resulting in estimated damages and losses of more than US\$130 million, including 22,000 hectares of farmland washed away as well as damage to 15 dams and 42,000 residential buildings. During flood events in 2016, at least nine regions and 27,800 people were affected.<sup>5</sup>

<sup>3</sup> World Bank 2020. Water for Development to 2030. Policy Note

<sup>4</sup> World Bank 2017. Amélioration de la Connaissance et de la Gestion des Eaux au Burkina Faso P162723. Synthesis report. September 2017; and

World Bank 2018a. Country Partnership Framework for Burkina Faso FY18-FY23

<sup>5</sup> World Bank 2018b PforR Project Appraisal Document. June 2018



**9. These extreme events further threaten Burkina Faso's already frail food security.** Some 2.1 million Burkinabe are today chronically food insecure and almost two thirds (62 percent) of the population is at risk of multiple hazards. When rainfall declines, dust storms occur or temperature spikes, food production is immediately affected. The impacts of climate change are projected to increase both the frequency and severity of these events.<sup>6</sup> For example, due to repetitive droughts during rainy season 2021, twenty provinces out of the forty-five in the country had a crops production deficit which induced a need for food assistance. Mid-2021, 2.8 million Burkinabè were classified as “in crisis” according to the Integrated Food Security Phase Classification, 2020. To fill these rainy season crop productions gap, off-season irrigation is progressively being developed. However, these off-season crop productions are hindered by (i) a lack of water availability, (ii) increased degradation of existing hydraulic infrastructures in developed plains due to a lack of maintenance, and low level of knowledge among users, and (iii) upland soil degradation due to erosion, deforestation and intensive agriculture.

**10. To mobilize surface water resources, Burkina relies on both large and small dams, many of which are poorly maintained and are far from fulfilling their potential.** Irrigated agriculture, pastoralism, fisheries, and many settlements, including the capital city, depend on dams for their water supply, which is at risk given the current condition of many structures. With limited and highly seasonal surface water flows, storage has proved essential. There are estimated to be 20 large dams and over 1,000 small dams (most are smaller than 10 meters high), a number in rapid increase over the last decade, particularly among small dams. Those dams are overwhelmingly used for agriculture. However, many of these structures are not working or have little water in the dry season when it is most needed. Many reservoirs are full of sediment, and some are invaded by vegetation. According to the 2011 inventory, nine hundred dams are at least 30 years old, and forty one percent are in very poor condition, due to a combination of inadequate design, construction, and maintenance practices. Many dams are at risk of failure, with downstream regions vulnerable, including downstream riparian countries in the case of transboundary rivers. On average, there are ten dam failures every year across the country, leading to loss of lives and economic assets.

**11. Irrigation potential is considerable but only a fraction of the potentially irrigable land has been developed.** Although estimates vary, the bio-physical potential for irrigation is generally considered to be well in excess of 200,000 hectares. Of this potential, only 12-14 percent has so far been developed,<sup>7</sup> the vast majority from surface water sources. Many already existing dams command irrigable areas where irrigation infrastructure has not yet been developed. There are in addition some 500,000 ha of bottom lands (beneath small dams) that can be developed for improved water control. The pace of development of formal irrigation has slowed in recent years and most development that has taken place has been informal development of bottomlands by farmers themselves. Some agronomic improvements could also increase the feasibility and valuation of irrigation. This includes for example irrigated rice under alternate wetting and drying or by upgrading cropping strategies.

**12. Water supply and sanitation coverage gaps also undermine water security, predominantly in rural areas.** Between 1990 and 2020, access to improved water sources in rural areas increased from only 10 percent to 71 percent, though significant disparities remained, with lower rates in the southwestern regions. More than 15 percent of rural water schemes are dysfunctional, highlighting challenges in terms of service professionalization and financial viability. In urban areas, coverage jumped from 37 percent to 95 percent over the same period. Expanding access to improved sanitation has been much more challenging. Only one out of five people has access to improved sanitation facilities overall, and even in urban areas, this figure is limited to 38 percent. In rural areas, only 13 percent of the population have access to improved

<sup>6</sup> World Bank 2018

<sup>7</sup> World Bank 2020. *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. Ward, C et al 2016. *The World Bank. Improved Agricultural Water Management for Africa's Drylands*. 2016 gives 25,000 ha equipped area in 2015.



sanitation facilities and around 75 percent of rural households still practice open defecation. Public latrines in schools, health centers and public places in urban and rural areas are insufficient, often poorly built and without permanent handwashing facilities. In addition, the existing ones are often poorly managed and insufficiently maintained. Despite the close-to-universal reliance on on-site sanitation facilities, sludge emptying is informal and only four sludge treatment plants exist across the country. Groundwater quality is deteriorating due to leakage of sludge.

**13. Unsafe water and poor hygiene and sanitation contribute to 97% of diarrheal diseases, a major cause of under-5 mortality and morbidity in Burkina Faso.** Burkina Faso's under-five child mortality rate in 2019 was 87.5 for every 1,000 live births.<sup>8</sup> Over 4,300 children under 5 die each year from preventable diarrheal diseases caused by low quality water and poor sanitation.<sup>9</sup> The burden of diarrhea has long-term consequences for child growth, adult health and human capital potential (Troeger et al, 2018).<sup>10</sup> The large mortality, morbidity and economic burden of diarrheal diseases could be significantly reduced by ensuring access to high water quality.

### ***Policies and institutions***

**14. Since the mid-1990s the Government of Burkina Faso (GoBF) has built a comprehensive and well-defined legal and institutional framework for the water sector.** The Ministry of Environment, Water and Sanitation (*Ministère de l'Environnement, de l'Eau et de l'Assainissement*, MEEA) is responsible for determining priorities, setting policies and standards for water development, managing and regulating water resources (including dams), and regulating water and sanitation services. The design and construction of dams is under the responsibility of a public agency for the execution of water and rural equipment works (*Agence d'Exécution des Travaux Eau et Equipement Rural*, AGETEER). For large dams, the MEEA delegates O&M and safety responsibility to contracted operators while small dams are under the authority of the regional and local authorities and are generally operated by the Water Users Associations (WUAs). Municipalities are responsible for planning and delivering water supply and sanitation services in rural areas. Their operations are usually delegated to WUAs, non-government organizations (NGOs), and private operators. The National Office for Urban Water Supply and Sanitation (*Office National de l'Eau et de l'Assainissement*, ONEA), an autonomous publicly owned utility, is responsible for the provision of water supply, on-site sanitation, and sewerage services in urban areas. The Ministry of Agriculture, Animal and Halieutic Resources (*Ministère de l'Agriculture, des Ressources Animales et Halieutiques*, MARAH) oversees technically the irrigated agriculture sector and is responsible for implementing the agricultural policy. Irrigators' committee, the WUAs and Local Water Commissions (*Commissions Locales de l'Eau*, CLE) are the main local agricultural water management bodies.

**15. Burkina Faso has adopted good practices of integrated water resource management (IWRM).** IWRM is implemented through water policies, strategies and investment plans set out in national programs. Governance and oversight are provided by the Inter-ministerial Water Technical Committee (*Comité Technique de l'Eau*, CTE) and at the decentralized level by the inter-services water regional committees (*Comités régionaux Inter-Services de l'Eau*, CISE). From 2007, five river basin organizations (RBOs) were established. Two of those have developed a River Basin Master Plan for Water Management (*Schéma directeur d'aménagement et de gestion des eaux*, SDAGE) and implemented a plan to protect water sources. Evidence-based decision making, including for allocating water resources across uses and for climate change

<sup>8</sup> Water Aid. <https://www.wateraid.org/where-we-work/burkina-faso>

<sup>9</sup> Data from the Global Burden of Disease Study of 2019 conducted by the Institute of Health Metrics and Evaluation shows that diarrheal diseases are in the top 5 causes of most death and disability in Burkina Faso and account for 9.3% of total deaths and 9.1 % of total disability-adjusted life-years (DALYs) in children under 5 years of age.

<sup>10</sup> Troeger C, Colombara DV, Rao PC, et al. Global disability-adjusted life-year estimates of long-term health burden and undernutrition attributable to diarrhoeal diseases in children younger than 5 years. *Lancet Glob Health*. 2018;6(3): e255-e269. doi:10.1016/S2214-109X (18)30045-7



mitigation and adaptation planning, is however hindered by (i) insufficient, unreliable, and outdated knowledge of the location and quantity of surface and groundwater resources; (ii) outdated and dilapidated observation networks; and (iii) the lack of a repository for water-related information. Substantial portion of the country's surface water is also shared with neighboring countries making water management challenging. The Comoe river, the Niger River and Volta River are all transboundary rivers, with Burkina Faso being a member of the three transboundary water authorities – the Niger Basin Authority, the Volta Basin Authority and the Comoe-Bia-Tano Basin Authority recently established.

**16. GoBF adopted a National Water Policy for 2016–2030 translated into sectoral programs for 2016–2030 in the context of the Sustainable Development Goals (SDGs).** This includes a National Programs for: Dam Development (Programme National des Aménagements Hydrauliques 2016–2030, PNAH); Water Supply (Programme National d'Approvisionnement en Eau Potable 2016–2030, PNAEP), putting a very clear focus on rural water supply; Sanitation and Wastewater (Programme National d'Assainissement des Eaux Usées et Excreta 2016–2030, PNAEUE); IWRM (Programme National pour la Gestion Intégrée des Ressources en Eau 2016–2030, PNGIRE); and Water and Sanitation Governance Program (Programme Gouvernance du Secteur Eau et Assainissement 2016–2030, PGEA).

**17. The strategic objective of the PNAH aims to increase water resource availability through infrastructure investment,** including by (i) prioritizing infrastructure development and rehabilitation; (ii) protecting the water resource, including through the protection of watersheds and riverbanks; (iii) focusing on pollution, unregulated water use, and reservoir siltation; and (v) promoting regional and international cooperation in management of shared resources. The PNAH proposes the rehabilitation of 209 dams and a program of 61 new multi-purpose dams, including 51 for irrigation and drinking water and 10 for hydropower and irrigation. In response to findings on dams' condition, MEEA has initiated an emergency action plan for their rehabilitation/reconstruction (*Plan d'Action d'Urgence de Réhabilitation et de Reconstruction des Aménagements Hydrauliques*, PAUR/AH), which contributes to the operationalization of the PNAH. The first phase of the PAUR/AH for the period 2021-2025 proposes to carry out studies for 235 dams and to rehabilitate 35 of them - the rehabilitation of the remaining ones being left for phase 2, from 2026 to 2030.

**18. The PNGIRE sets clear objectives for water resources management.** The program targets a set of outcomes, notably: (i) the operationalization of resource development and management at the basin level through five basin agencies and the adoption of five basin plans (SDAGEs) and multi-year intervention programs; (ii) full recovery of water resource charges (rising from 55% in 2015 to 100% by 2030); and (iii) improved water measurement: increasing the density of measurement networks and better water knowledge, notably through the full operation of the SNI Eau.

**19. Considerable public investment was made in irrigated agriculture, including in a successful small scale village irrigation program.** In 2004 GoBF launched a comprehensive irrigation strategy – the Program for Sustainable Development of Irrigated Agriculture (*Stratégie Nationale pour le Développement Durable de l'Agriculture Irriguée*, SNDDAI). After an initial focus on large scale irrigation, the government has increased support to small scale irrigation schemes, in particular in the bottomlands. Between 2011-15, the government actively promoted small scale irrigation through its PPIV (*Programme de Développement de la Petite Hydraulique Villageoise*, PPIV), supporting the development of 15,000 ha of new irrigated area together, associated agricultural production and WUAs strengthening. There are in addition, about 60,000 has of *bas fonds* that have been informally developed by farmers themselves with some improvements in water control. Cooperation for irrigation is the common approach. One farmer in two is a member of a cooperative.<sup>11</sup>

<sup>11</sup> World Bank 2017. Amélioration de la Connaissance et de la Gestion des Eaux au Burkina Faso. Annexe 2: Evaluation des ressources en Eau et des demandes Sectorielles. Bilan Besoins-Ressources. Septembre 2017



20. **In recent years, new models are being piloted both for large scale and small-scale irrigation**, including through PPP approach. The practice of *supplemental irrigation* appears appropriate and has demonstrated profitability in some farming systems in a context of variable rainfall patterns. Recent projects demonstrated that the use of *solar pumps for irrigation* was viable and profitable and that local supply chains were feasible. By contrast, *drip irrigation* has been widely tested but results have been disappointing.

### **Capacity and performance**

21. **Burkina Faso's water sector experiences some challenges in institutional capacity and performance**, in moving from laws and strategies to action, in coordinating across sectors and between the center and the decentralized level, in generating internal financing and effecting cost recovery, and in implementing and managing infrastructure investments.

22. **For water resources management, despite notable progress made over the past years (including with the support of the Burkina Faso Water Supply and Sanitation Program-for-Results [BWSSP, P164345]), improvement needs remain at various levels.** In terms of institutional performance, particular focus is needed to improve the transparency and quality of decision-making for infrastructure investments, and to strengthen water resources management institutions. Institutions for water management are in place but with challenges of coordination and overlapping responsibilities both within and among agencies (including Ministries and decentralized water agencies). Burkina Faso has ample legal and regulatory instruments, but texts to apply them are still lacking, as well as adequate incentives for improved efficiency, productivity and water saving. The country has developed effective instruments for managing water resources – including the SDAGE and the SAGE (*schémas d'aménagement et de gestion de l'eau*), and needs to further improve water valuation (including tariffs).

23. **The history of storage development and operations raises questions about planning and management capacity.** The 'functionality rate' in 2020 of existing dams was just 57%. Too many dams are not fully serving their purpose, or have been poorly constructed, or have suffered inadequate O&M and are therefore not functional or even dangerous.<sup>12</sup> Many structures do not produce water in the dry season. Given concerns around dam safety, there is a need to improve understanding of the risks and benefits associated with each dam to prioritize the rehabilitation works, strengthen capacity. In response to the problems of poor performance and chronic deterioration of public water infrastructure, MEEA has prepared a strategy, the SNESAH – *Stratégie Nationale d'Entretien et de Sécurité des Amenagements Hydrauliques*. The SNESAH proposes detailed approaches to: (i) organize O&M of public infrastructure; (ii) embed O&M in the PNGIRE; and (iii) professionalize O&M and effect cost recovery. The appointment of a dam safety committee, proposed in the new adopted National Strategy for Dams O&M will be essential for this task.

24. **The successful implementation of the rural water reform is demonstrated by remarkable functionality rates of 88.6 percent for the hand pumps, and 84.3 percent for the rural water systems.** In 2014, GoBF undertook several initiatives to address the challenge of securing provisions for O&M and extending rural water supply systems, such as adopting the Roadmap in Support of the Decentralization of Water Supply and Sanitation Services (*Assistance à la Maîtrise d'Ouvrage Communale*, or AMOC), developing a tariff study for rural water; and developing a public-private partnership (PPP) strategy for the water sector. Currently, 85 percent of WUAs have signed a delegation agreement with the municipality; 155 out of 623 recognized private providers have signed a contract for O&M; and 12 operators have been delegated the management of 445 water supply systems (mainly by private local operators). However, major challenges remain, including: professionalizing private sector operators; improving water supply systems management; strengthening

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<sup>12</sup> World Bank 2020c





municipal technical services for the delegation and supervision of water supply systems; improving cost recovery; and ensuring equal access.

25. **Donors support.** The sector has been supported by several development partners, including multilateral partners such as the World Bank, UNICEF, the African Development Bank, the West African Development Bank, and the European Union and bilaterals including France, Denmark, Sweden, and Belgium. Over the last two decades, the Bank has been Burkina Faso's leading partner in the sector. This included the Ouagadougou Water Supply Project (2001-2007, P000306) supporting the construction of Ziga Dam; the US\$160 million Urban Water Sector Project (2008-2018, P106909) focusing on water and sanitation services in urban areas and the ongoing US\$250 million Water and Sanitation Program for Results (P164345) in both urban and rural areas. Bank support was also key to the successful turnaround of ONEA. On the rural front, about 1.4 million people gained access to clean water under the Bank financed Community-Based Rural Development Project (2001–2013). The Bank has provided technical assistance for more than a decade for rural water services, delivering a private sector strategy and a pro-poor water tariff study. Finally, the Bank conducted in 2017 an assessment of water resources knowledge in the country and completed in 2021 a Water for Development to 2030 policy note covering water resources management, water, sanitation, and irrigation subsectors. The Bank-financed Agriculture Resilience and Competitiveness Project (ARCP, P167945) supports the development or rehabilitation of five key irrigation perimeters on 4,500 ha and provides agriculture advisory services. Overall, sector financing remains highly dependent on external resources. The holding of the conference of Burkina Faso's partners for the financing of the National Economic and Social Development Plan 2021-2025 (PNDES II) on 2 and 3 December 2021 in Brussels, followed by a sectoral round table, provided strong opportunities for mobilizing the resources needed by the sector.

#### Relationship to CPF

26. By supporting improved dam safety and irrigation services, the proposed project will contribute to the achievement of higher-level development objectives of GoBF's second Social and Economic National Development Plan's (*Plan National de Développement Economique et Social II*, PNDESII) Objective 4.4 : "Developing quality and resilient infrastructure to promote the structural transformation of the economy". It is also fully aligned with the 2018-2023 Country Partnership Framework (CPF), in particular with its Objective 1.1 "Improve agriculture, pastoralism and aquaculture (fish) productivity and competitive value chains", Objective 1.5 "Address management of extractives and sustainability of natural resources", Objective 2.4 "Expand access to water and sanitation services".

27. The project would increase protection to communities living downstream of dams and would support the management and operation of hydraulic infrastructures. The project would focus on rehabilitation and safety of dams, the failure of which have a devastating impact and are critical to supporting national food. Support for improved irrigation, water and sanitation services is a core contribution to Bank's twin goals of eliminating extreme poverty and sharing prosperity, by (i) enhancing food security, (ii) increasing income and livelihood of farmers and their families, (iii) reducing the time and effort—especially of women and children—to collect water, (iv) reducing the incidents of waterborne diseases caused by contact with contaminated water, (v) diminishing absenteeism from work and school and the costs associated with these, including lost income and opportunities, (iv) promoting resilience to climate and man-made risks and low-carbon development options, and (v) contributing to reducing malnutrition and stunting, since food insecurity and poor access to water, sanitation and hygiene are one of their underlying causes. The project aligns with the World Bank Group's Green, Resilient, and Inclusive Development (GRID) approach and Climate Change Action Plan by addressing sustainability, resilience, and inclusiveness simultaneously.



### C. Proposed Development Objective(s)

28. The Project Development Objective (PDO) is to improve dam safety and irrigated services in selected areas.

#### Key Results (From PCN)

- Water storage infrastructure with improved safety profile\*
- Prolonged service life of reservoirs by sedimentation management (m<sup>3</sup>\*year)
- Number of farmers (water users) provided with new or rehabilitated irrigation and drainage services
- Volume of fecal sludge treated per international standards (tons per year) [depending on final investment decision]
- Direct project beneficiaries (number), of which female (percentage)

### D. Concept Description

29. **Government's long-term vision.** The proposed Burkina Faso Water Security Project (BFWSP) will support GoBF's objectives outlined in the National Water Policy to expand water supply and sanitation services (in line with SDG 6.1<sup>13</sup> and SDG 6.2<sup>14</sup>), increase food security (in line with SDG 2.4<sup>15</sup>) in a physical environment conducive to water resources mobilization and increasingly affected by climate change. This will be achieved by financing the necessary infrastructure investments and strengthening sector stakeholders' capacity at the national and local levels to operate and maintain these infrastructures in an effective manner. It aligns with GoBF's policies and strategies for the sector, as outlined in the PNAH, PNAEP, PNAEUE, and SNDDAI. Policy objectives include strengthening the capacity of key sector institutions and improving the knowledge and monitoring of water resources and hydraulic infrastructure.

30. The project will aim to improve water security, which will involve: (i) improving the safety, operational performance and hydrological resilience of selected water resources infrastructure, (ii) improving institutional coordination and strengthening institutional capacity for water resources management, and (iii) maximizing the benefits of associated services in the storages command areas. The analysis of the uses of the developed water resources and the existing opportunities will therefore be essential for the financing of activities around water resources mobilization works. By improving surface water availability, the project will create further opportunities for irrigation development under SIIP and ARCP.

31. **Project Cost, Duration, Financing and Beneficiaries.** The estimated total project cost is US\$150 million, financed by an IDA Credit. The Project will be implemented over a period of six years to allow sufficient time for successful achievement of the PDOs, given the limited country's capacity to sustain high implementation pace. The lending instrument for the proposed Project is Investment Project Financing (IPF). Selection of the IPF structure was based on the IPF's flexibility and suitability to incorporate financing for a broad range of activities, including several specific investments with potentially significant safeguard related impact, technical assistance, and capacity enhancement measures. The Recipient will be the GoBF for the full IDA amount. The number of people who will benefit from safer water storage conditions upstream will be assessed before appraisal, based on the selection of storage infrastructure to be rehabilitated. In addition, it is expected that up to 150,000 people will access to improved, climate-resilient and low carbon water supply or sanitation services, and about 5,000 farmers will access irrigation and drainage services in the rehabilitated dams' command areas.

<sup>13</sup> By 2030, achieve universal and equitable access to safe drinking water for all

<sup>14</sup> By 2030, achieve access to adequate and equitable sanitation and hygiene for all, and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

<sup>15</sup> By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality.



32. **Geographical focus.** The project will focus on areas selected based on the multi-criteria methodology described in Component 1 below. It is expected that this will include basins having high vulnerability to climate change and high water stress. Interventions will be targeted so as to minimize Project implementation risks of scattered activities across too many locations.

33. **Project Components.** To achieve the Project Development Objectives (PDOs), the proposed Project will have five components as follows:

**Component 1: Water resources security (US\$90 million)**

34. This subcomponent will aim to secure and increase water resources mobilization capacities, through the implementation of studies, rehabilitation works of deteriorated dams identified in the PNAH and possibly construction of new dams.

35. From the 2011 inventory comprising more than 1000 structures, DGIH has identified a subgroup of 235 dams with a capacity of 500,000 m<sup>3</sup> or more and has started the preparation of engineering studies for 35 of them, which are currently on the priority list of the PAUR/AH 2021-2025. Given the unsatisfactory safety situation of the national portfolio and the very large difference between the size of that national portfolio and that of the PAUR/AH priority list, it is proposed to validate the prioritization process through a simplified portfolio risk assessment. The prioritization of structures to be rehabilitated will be made through a portfolio risk assessment along the following dimensions: (i) the dams' useful life expectancy as determined based on their current structural condition and the level of sedimentation (attention will be given to watershed management initiatives upstream to reduce erosion and resulting siltation); (ii) the economic value of water use in the dams' command area based on current and potential uses (irrigation, livestock, drinking water, etc.); and (iii) the assessment of consequences of potential dam failures, both in terms of populations at risk and impacts on economic assets and environmentally valuable areas. Based on this prioritization, the final selection of structures whose rehabilitation will be included in the project scope will be made considering additional criteria including: (i) assessment of the cost and duration of works; (ii) evaluation of the government's capacity to construct, operate and maintain the dams considering remoteness, security or other local constraints; (iii) water stress; and (iv) availability of engineering studies. To stimulate project readiness, the prioritization exercise will first cover the 35 dams of the PAUR/AH list to fast-track the selection of rehabilitation activities representing half of this component's financial envelope during project preparation. It will then be extended to the full group of 235 dams of the PNAH list, to confirm at a later stage the scope of activities with the remaining funding.

36. Based on this prioritization exercise, this component will support the preparation of further engineering studies for the rehabilitation and upgrade of dams, and the assessment of their impacts on storage capacity and local hydrology. On the reservoirs most affected by sedimentation, the component will also finance sediment management measures to optimize storage gains, soil stabilization measures to enhance the durability of the works, including nature-based solutions (NBS) involving labor-intensive works.

**Component 2: Agropastoral and halieutic production infrastructure development (US\$20 million)**

37. This component will aim to support the expansion and improvement of irrigation services in the selected dams' command area through: (i) the rehabilitation and expansion of irrigated perimeters, (ii) support for the development of small farmer groundwater-fed market gardening perimeters (farmer-led irrigation, FLID), (iii) the development of soil and water conservation technique (line stone) in upland to reduce soil erosion and allowed moisture conservation to mitigate



drought effects, (iv) increasing water use efficiency by improving irrigated agricultural schemes and providing associated training, and (v) capacity strengthening of farmers-led organizations and farmers. Other uses and activities supported by this component may also include the development of livestock access corridors to these water reservoirs, and fish farming in the rehabilitated water reservoirs. The design of this component will build on lessons learned under SIIP pilot activities and ARCP. Close collaboration with the Agriculture Global Practice will help ensure that irrigation development supported in this component is integrated into agricultural value chains to maximize economic benefits and strengthen food security.

38. This component will support the preparation of socioeconomic and agronomic studies and consultations to assess the demand for irrigation expansion or rehabilitation, feasibility studies and engineering designs for the development of infrastructure.

### **Component 3: Water supply and sanitation services (US\$15 million)**

39. This component will support infrastructure development in the water and sanitation sector, focusing on investments that will help support one of the critical uses of water – i.e. water supply and sanitation services for domestic use—and will ensure improvements in practices to safeguard water quality, the environment and biodiversity. This could include for example fecal sludge treatment plants (FSTP) in Ouagadougou, Bob-Dioulasso or secondary towns, for which engineering studies are currently being prepared under the French Development Agency (*Agence Française de Développement*, AFD) and Gates Foundation financing. Following the implementation of several FSTPs, including under the Urban Water Sector Project (P106909), ONEA has expressed interest for additional investments to mitigate water pollution risks and strengthen fecal sludge management subsectors in urban areas. Such investments that support water security cannot be included in the BFWSSP Program-for-Result (P164345) and are better suited to IPF programs due to safeguards-related risks and assessments.

### **Component 4: Institutional strengthening and capacity building (US\$15 million)**

40. This component will support institutional strengthening and capacity building activities to strengthen water resources management and to improve the operation and maintenance of storage infrastructure, irrigation perimeters, and water supply and sanitation systems at the national and local levels.

41. Dams' baseline and target safety statuses will be assessed considering a “maturity level” index aggregating qualitative descriptions of dam safety practices along six dimensions: surveillance, instrumentation, readings, records, interpretation, response (see Annex 1). On the ladder defined by this index, most dams in the national portfolio are currently at a maturity level of 0 (no instrumentation, no surveillance) or 1 (basic surveillance, no instrumentation, no readings and records). A key objective of this component (reflected in an outcome indicator) will be to upgrade their maturity levels to 3 (basic surveillance, no instrumentation, manual readings and records) or 4 (satisfactory surveillance, basic instrumentation, manual readings and records).

42. Local communities will be trained in dam surveillance and basic maintenance, which are essential for the long-term safety of water storage assets. Surveillance tasks will be commensurate to complexity and hazard of the asset, and will be performed based on a basic O&M manual specifying (i) routine observation of the conditions of the works, finalized at filling-in a logbook of defects, (ii) measuring and recording seepage values and (iii) recording extension of deposited sediments to inform the decision to remove them, partially or totally.

43. As part of rehabilitation works and construction of new dams, the project will encourage contractors to hire local manpower in villages/ towns near the work sites. Vocational training will be organized to increase the capacity of local



human resources in skills that will be needed in the construction works. Such skills include carpentry, operation of water pumps and generators, stone gabion preparation, soil compaction, pipeline placing, welding, small equipment operation, mechanical workshop's maintenance, etc. A dedicated training shall be devoted to dams' surveillance and basic maintenance. Creating vocational training centers at the local or regional level will be an early activity of the project for the above purpose. Besides, vocational training in the early stages of Project implementation will help build community's ownership of the Project's objectives and shared aspiration to its benefits.

44. In parallel to community involvement in small dams' rehabilitation and surveillance, the broader institutional accountability will be supported through activities such as: (i) reinforcement of the legislative and regulatory framework, including the clarification of roles and responsibilities for the safety of small and large dams; (ii) the implementation of a training plan on the upkeep of hydraulic works, and (iii) the training and equipping of a national dam maintenance brigade; (iv) the organization of a library of guidelines and manuals of various aspects of dam safety, based on the many similar examples of national guidelines in Africa), (v) the establishment of a competent observatory for technical control and water policing, (vi) the establishment of a Dam Safety Panel composed of national and international experts, to advise the government of dam safety matters, and (vii) an update of the 2011 inventory to help understand rehabilitation and safety management needs. Training activities will be delivered by an entity experienced in the operation of a portfolio of dams at the targeted maturity levels (or marginally higher). The project will also provide capacity building activities to local and regional authorities relevant to the selected Project areas, to clarify and strengthen their role in water management and dam safety.

45. This component will support the establishment and the dynamization of CLEs (at the sub-basin level) and WUAs (at the dam level) relevant to each rehabilitated dam. These activities will aim to ensure that water allocations between users are rationalized, and to foster investments sustainability through the set-up of infrastructure O&M and revenue generation mechanisms. This will include: (i) the assessment of water accounting practices and recommendation to improve decision-making and improve water allocation systems performance, (ii) an analysis of the efficacy of incentives and potential of economic instruments for improved water management, and (iii) a review of institutional responsibilities in terms of allocation activities, with an aim to identify overlaps and simplify processes.

#### **Component 5: Project management and studies (US\$10 million)**

46. This component will support DGIH in project management and supervision. This will include, but not limited to, the operating cost of the PMU, project implementation technical assistance, supervision consultants, and consultants that will support the design of project activities and related studies. The component will also support the provision of studies and technical assistance to help plan and prepare investments under components 1, 2 and 3, and then coordinate and monitor their implementation. Studies to be developed may include water resources development and management plans, feasibility studies and detailed designs, irrigation strategy and investment plans, energy valorization of water reservoirs, etc.

#### **Other project features**

47. *Collaboration with donor partners.* Until very recently, very few donors had expressed interest in supporting financially the PNAH. However, there is now renewed interest, and partners such as the West African Development Bank (BOAD), the Abu Dhabi Fund for Development (ADFD), the Kuwait Fund for Arab Economic Development (FKDEA), and the Kingdom of the Netherlands (via RVO) have announced new projects and/or studies. The Bank's team has already had discussions with those in the Netherlands and the AfDB on possible synergies between our future operations. Netherlands is financing studies for the rehabilitation of dams, which could help improve the maturity of the proposed project. "Historic" donors



of Water Resource Management in Burkina, DANIDA and SIDA, are also kept regularly informed of our operations, through coordination and monthly meetings between the WASH Donors Group, with a view to increasing efficiency and the cumulative impact of our various financings.

48. *Citizen engagement:* Citizen engagement is at the core of the institutional reform process whereby water will be delivered with increased accountability, transparency, and local-level grievance mechanisms. Communities and municipalities in the Project areas will be involved in identifying priority investments in their respective areas, through public consultations and meetings. Female beneficiaries and women's groups will be actively engaged to reflect women's voices in identifying investments of significance to them. The communities will also be involved in monitoring the quality of civil works through community monitoring processes. Feedback mechanisms, such as community scorecards or surveys will be organized to allow citizens to express their satisfaction with those participatory processes and help sustain their adherence to them. Conversely, the project will help build the national and regional agencies' capacity to collect and address feedback from communities. Finally, the vocational training activities organized under Component 4 will, where relevant, be tailored and targeted to ensure the inclusion of excluded groups.

49. *Gender:* Women's representation in political life and decision-making spheres remains low. Women represent only one third of civil service employees. Traditionally, women have little say in decisions related to water, sanitation and hygiene planning and implementation, such as where water points are constructed. In the household, women and girls play traditionally the main roles in water-related chores such as cooking, washing and cleaning. They are mainly responsible for fetching water, a responsibility that is generally compounded by the limited access to water, requiring a considerable amount of time. It takes 27 percent of households, mainly women-led, more than 30 minute a day to fetch clean water for domestic use.<sup>16</sup> The lack of toilets forces women to isolate themselves, which makes them vulnerable to gender-based violence (GBV) and genital infections. Moreover, sanitary facilities are unsuitable for menstrual hygiene management (MHM), including in schools and medical facilities. Project activities will seek to include women, girls and people with disabilities in the decision-making of water supply points locations and design, and in the design of safe and female-friendly WASH facilities in schools, including the use of menstrual hygiene management designs standards.

50. In the agricultural sector, female-headed households use traditional equipment in 96 percent of cases, while 21 percent of male-headed households engaged in the same activity use ploughs. Women account for 55 percent of the agricultural labor force but no more than 40 percent of landowners. Overall, gender stereotypes and inequalities impede women's access to factors of production (land, inputs, equipment, training, information, etc.). Component 3, training and capacity-building on improved irrigation methods will seek significant women participation and use gender-specific training material. Participation of women and other vulnerable groups in WUAs will be fostered, so their needs and priorities can be voiced. Opportunities for greater women inclusiveness will be considered during project preparation in other areas such as community support to dams surveillance or the selection design of nature-based conservation measures upstream of the selected dams.

51. *Climate Change:* The project will help achieve resilience to climate-induced water variability – including the threats of climate-related disasters such as droughts and floods – through the rehabilitation and improved management of water storage infrastructure to (i) smooth seasonal and inter-year water availability and lay the foundations for the improved long-term planning, use, and sustainable management of water resources, including for irrigation and water supply and sanitation services, and (ii) reduce the risks of catastrophic dam failure during extreme flooding events. Adaptation to a changing climate will also be supported by the promotion and adoption of sustainable watershed and soil management practices, in addition to improving the sustainability and resiliency of water services and related institutions. The project

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<sup>16</sup> AfDB, 2020, Burkina Faso Country Gender Profile



will prioritize climate-mitigating investments such as ecosystems restoration and erosion control measures, water storage and irrigation infrastructure with enhanced energy and resource efficiency, and the promotion of treated fecal sludge as fertilizer to avoid chemical use.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	Yes
Projects in Disputed Areas OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

The proposed project activities could generate adverse environmental and social risks and impacts. A screening process will be put in place to ensure that the E&S risks and impacts associated with these activities will be assessed and mitigated addressed appropriately.

Among the 35 sites from the Hydraulic Works Rehabilitation and Reconstruction Emergency Action Plan’s (Plan d’Action d’Urgence de Réhabilitation et de Reconstruction des Aménagements Hydrauliques, PAUR/AH) priority list, those to be selected for project investments are not known at this stage. In addition to the rehabilitation/construction of dams, the project intends to support rehabilitation and expansion of irrigated perimeters; market gardening perimeters; soil and water conservation (Component 2); construction/rehabilitation of small-scale drinking water supply systems; construction of sanitation facilities; construction of sludge treatment plant (component 3).

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**APPROVAL**

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**Approved By**

Country Director:	Maimouna Mbow Fam	13-Jan-2023
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