Project Information Document (PID)

Concept Stage | Date Prepared/Updated: 22-Oct-2024 | Report No: PIDDC00856

BASIC INFORMATION

A. Basic Project Data

Project Beneficiary(ies)	Operation ID	Operation Name	
Turkiye	P506997	Türkiye Second Irrigation Modernization and Water Efficiency Project	
Region	Estimated Appraisal Date	Estimated Approval Date	Practice Area (Lead)
EUROPE AND CENTRAL ASIA	27-Jan-2025	27-Mar-2025	Water
Financing Instrument	Borrower(s)	Implementing Agency	
Investment Project Financing (IPF)	Ministry of Treasury and Finance	Directorate General of State Hydraulic Works, Ministry of Agriculture and Forestry.	

Proposed Development Objective(s)

The Project Development Objectives (PDOs) are to improve irrigation service delivery and water efficiency in selected irrigation schemes.

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	No
Is this project Private Capital Enabling (PCE)?	No

SUMMARY

Total Operation Cost	**700.00**
Total Financing	**700.00**
of which IBRD/IDA	**700.00**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	700.00

Environmental and Social Risk Classification	Concept Review Decision
Substantial	

Other Decision (as needed)

B. Introduction and Context

Country Context

1. **Türkiye's development achievements over the past two decades have been remarkable.** Real gross domestic product (GDP) growth averaged 5.4 percent between 2002 and 2022, resulting in income per capita (in real terms) that was more than double over the same period. Moreover, growth was accompanied by rapid poverty reduction, with the poverty rate ($6.85 2017 PPP poverty line) halving from above 20 percent in 2007 to less than 10 percent in 2021. As in other countries, the COVID-19 pandemic had a negative impact on growth in 2020, but the country was one of the few that did not register a GDP contraction that year, instead it's GDP grew by 1.9 percent. This performance was due, to a large extent, to the government's economic policy response to said pandemic, which focused on loosening monetary policy and rapid credit expansion. Moreover, supported by domestic and external demand, Türkiye achieved double-digit GDP growth in 2021 (11.4 percent) and maintained significant momentum in 2022 (5.5 percent) and 2023 (5.1 percent).

2. **However, the policy framework that ensured a strong economic performance during and after the pandemic also heightened macroeconomic risks**. As a result of the loose monetary policy, the country has been suffering from high inflation (with annual inflation reaching 49.4 percent in September 2024 after having peaked at 85.5 percent in October 2022), currency depreciation (82 percent against the US$ between January 2020 and September 2024), corporate and banking sector vulnerabilities, and declines in reserve buffers.

3. **Following the May 2023 elections, the Government has taken steps to normalize the economy gradually in order to manage risks associated with the adjustment process.** This included monetary policy tightening, of interest rates increasing from 8.5 percent in May 2023 to 50 percent in March 2024, the unwinding distortive financial regulations, and implementing fiscal revenue measures to reduce the fiscal deficit. Markets have reacted positively, with 5-year Credit Default Swaps (CDSs) declining from over 500 basis points (bps) in May 2023 to around 250bps in September 2024. All three of the major rating agencies upgraded the credit rating (most recently Fitch to BB- on September 6, 2024). The authorities are also contemplating on how to complement these actions with structural reforms that may help with growth prospects going forward. These efforts will need to be sustained and supported in the coming months. Additionally, Türkiye is highly exposed to non-climate disasters, with 39 earthquakes of magnitude 5 and above since 1990 causing approximately 20,000 fatalities and over US$43 billion in damages. On February 6, 2023, two major earthquakes (7.8 and 7.5 magnitude) struck southeast Türkiye and Syria, resulting in 50,000 casualties and affecting more than 3.3 million people.

Sectoral and Institutional Context

4. **With more than 7 million hectares of irrigated land, a highly advanced State Hydraulic Works Agency, and a long-standing focus on expanding service delivery, Türkiye ranks among the world's leading countries in irrigation and drainage.** Türkiye's agriculture is heavily dependent on irrigation, which triples productivity compared with rain-fed agriculture and provides resilience of steady agricultural production and food security. In addition, a large portion of Türkiye's agricultural productivity depends on irrigation, particularly in the arid and semi-arid regions of the country. Irrigation supports the cultivation of high-value crops like fruits, vegetables, cotton, and cereals, which are vital for both domestic consumption and export. Climate change patterns are expected to significantly impact yields, especially through increased water scarcity, threatening agricultural productivity, rural incomes and employment, and food security. Modernizing irrigation systems and reducing losses will be an important adaptation to climate change. The current World Bank portfolio covers around 100,000 irrigated hectares, yet the Bank's comparative advantage has been in convening a scalable global knowledge in modernization and reuse, with the aim of crowding in additional funding for a long-term engagement.

5. **The intensification of climate change, particularly droughts, has worsened groundwater depletion and water scarcity in Türkiye, while increasing irrigation water demand.** Average temperatures are projected to rise by 1.5 to 2.5°C by mid-century, with summer months seeing increases of nearly 4°C, leading to more frequent and severe heatwaves. As a result, between 1990 and 2019 the share of water used for irrigation rose from 72.0 to 76.7 percent of total consumption. Over two-thirds of Türkiye's river basins, including those supplying major cities like Istanbul and Ankara, now face severe water scarcity. This has caused significant drops in water levels in river basins, threatening agricultural sustainability and contributing to massive sinkholes. According to the Türkiye Country Climate Development Report (CCDR), the country is highly vulnerable to climate change, particularly in terms of extreme heat and agricultural yield losses. By 2050, agricultural droughts are projected to increase by 37 percent, and heatwaves could last 42 percent longer, potentially resulting in a 2.26 percent GDP loss. The 2020/21 drought, which brought reservoirs around major cities to their lowest levels in 15 years, underscores the urgency of adapting to these risks to sustain economic growth.

6. **Irrigation accounts for 77 percent of total water use, but nearly half (48 percent) of the irrigation water is lost before reaching crops.** Maintaining and upgrading aging irrigation infrastructure is critical for improving efficiency and sustainability and adapting to climate change. The Türkiye CCDR recommends completing land consolidation and investing in modernizing irrigation and drainage systems, such as high-efficiency drip systems, remote sensing, and automation, alongside water-saving agricultural practices. A 10 percent reduction in water availability could cost Türkiye 5 percent of its GDP, to around US$50 billion annually, making the modernization of irrigation networks essential for the country's water security and economic stability and adapting to climatic risks. The Government's Water Efficiency Strategy Document and Action Plan (2023-2033) also sets targets for irrigation efficiency and water loss reduction. The Plan aims at increasing irrigation efficiency from 50 percent in 2023 to 60% percent by 2030.

7. **The Water Efficiency Action Plan outlines ambitious targets across four pillars: Urban Water, Irrigation, Industrial Use, and Cross-cutting Areas, with a focus on irrigation modernization.** Modernizing 1.3 million hectares by 2050, at an estimated cost of US$6.5 billion, aims to optimize water use and improve crop yields through climate-smart irrigation and precision agriculture. This effort builds on previous investments and will form the basis for long-term engagement on adaptation. A comprehensive strategy, including policy reforms like

water pricing, strengthening Water User Associations, and smart metering, will be key to reducing water losses, promoting new technologies, and ensuring sustainable water management.

Relationship to CPF

8. **The proposed Project is aligned with the World Bank Group (WBG) Country Partnership Framework (CPF) for Türkiye for FY24-FY28** (Report No. CPF0000004, discussed and endorsed by the Board of Directors on April 9, 2024). The overarching CPF goal is to support Türkiye to accelerate progress towards the Sustainable Development Goals (SDGs), address global challenges leveraging the strategic role Türkiye can plan regionally and globally, and continue recovery and reconstruction from recent shocks, in line with the Government of Türkiye's 12th National Development Plan (NDP) for 2024-2028. The proposed Project is particularly aligned with the CPF Objective 8: Strengthen natural resources management particularly contributing to the objective by improving efficiency, reliability, and inclusiveness of irrigation and wastewater services and reuse (indicator 8.4). The Project is also aligned with the Resilient and Net Zero Pathway outlined in the Türkiye CCDR. Among the six climate-specific priorities described in the Pathway, the Project will contribute to Priority 5: Make growth more resilient and sustainable.

9. **The proposed project is consistent with Türkiye's Determined Contributions (NDC) and National Action Plan on Climate Change (NAPCC)[1] and will be aligned with the adaptation and mitigation goals of the Paris Agreement[2].** Proposed activities in this operation will support the adaptation efforts of the country. This includes the rehabilitation and modernization of irrigation infrastructure such as improved water pumping with efficiency metrics, conversion from open channel to pressurized systems, changing from pumping-based to gravity systems, and reducing water losses and wastage that can increase water and energy use efficiency. In addition, this includes helping farmers adapt to an evolving water scarcity situation.

C. Proposed Development Objective(s)

10. The Project Development Objectives (PDOs) are to improve irrigation service delivery and water efficiency in selected irrigation schemes.

Key Results (From PCN)

11. Key results are the following, of which two are WBG scorecard indicators:
    - PDO indicator (WBG scorecard indicator): People with enhanced resilience to climate risks number (gender and youth disaggregated) [Numbers TBC through project appraisal].
    - PDO indicator 2: Increase in Water Efficiency (reflected by the increase in water productivity over the scheme/basin level, measured through undertaking a scheme/basin-level Water Accounting effort);
    - Component 1 IRI: Equipped Irrigation Service Area (ha). Area provided with improved irrigation or drainage services (hectares).
    - Component 1 Intermediate Results Indicators: Increase in irrigation conveyance efficiency (typically measured off-farm through input/output volumetric measurement).
    - Component 2 IRI: (WBG scorecard indicator): Number of WUAs trained in the use of Irrigation Facilities Spatial Information System (SUTEM).

[1] *https://static.pib.gov.in/WriteReadData/specificdocs/documents/2021/dec/doc202112101.pdf*
[2] *https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1847812*

- Component 2 IRI (for Gender Tagging): Percentage share of female farmers with improved access to the irrigation service or with active roles in the Water User Associations.
- Component 3 IRI (indicator for preparing the long-term engagement): Number of bankable feasibility studies prepared.

D. Concept Description

12. The proposed Project will provide US$700 million in financing to the Government of Türkiye (GoT) and will build on the ongoing irrigation modernization project in other irrigation schemes distributed over the country, covering total agricultural area of around 107,000 hectares. A long list of potential subprojects has been shared by the government prior to the Project Concept Note (PCN) review. The long list of subprojects would be screened as part of the project appraisal, to select a shorter list which fulfils the ex-ante eligibility criteria.

13. Türkiye has embarked on an ambitious water efficiency program aimed at modernizing and rehabilitating irrigation schemes to enhance water efficiency and adapt to climate change. The proposed Project will support these efforts by facilitating institutional advancements, improving the design and operations of irrigation systems through active upstream engagement with beneficiaries, and implementing improved social and environmental management practices. Additionally, the Project will focus on strengthening the capacity of Water User Associations (WUAs) to ensure effective and sustainable water management. These efforts aim to create a more resilient and efficient irrigation sector, ultimately contributing to the country's broader water adaptation goals.

14. The proposed Project includes three Components:

Component (1): Irrigation System Rehabilitation and Modernization This component will finance investment to rehabilitate and modernize Devlet Su İşleri (DSI)'s irrigation systems in selected schemes. Subprojects will be selected based on their readiness, technical and economic efficacy, and lower environmental and social risks.

Component (2): Institutional Support and Digital Irrigation This activity will leverage SUTEM, an innovative digital service being rolled out by the government across approximately 3 million hectares. It aims to support DSI in developing the National Program for Water User Association (WUA) Capacity Building in the subproject areas supported under Component 1.

Component (3): Project Management and Preparation of a 10-year Program: including (a) Environment and Social (E&S) management and fiduciary management; (b) feasibility studies, and other relevant documents to identify and guide future investment opportunities within the scope of supported activities; and (c) preparation of a 10-year donor-supported program for the irrigation sector, as outlined in the Government's "2023-2033 Water Efficiency Action Plan" and DSI's "Development Strategy 2024-2028".

15. **Climate Change:** The Project addresses climate change-exacerbated droughts (increasing in frequency and intensity) to create a more efficient and adaptive irrigation sector while also boosting resilience against climate change-exacerbated extreme heat and floods, ultimately contributing to the country's broader water adaptation goals.

16. **Gender:** In Türkiye, women have less access to extension services[3], yet the first phase TIMP has made greater progress on reaching female farmers (about 50 percent) than farmers overall (about 10 percent). A Social Impact and Gender Assessment found that female water users have smaller plot sizes, represent between 7 to 18 percent of the WUA members, less than 2 percent of WUA councilors, and face limited access to information, consultation platforms, and training.

17. **Citizen Engagement**: DSI has a functional multi-level grievance redress mechanism and public consultation platforms that guides its project operational activities. DSI adopted a variety of participatory approaches during land consolidation and construction phases. It extensively engaged WUAs. The land consolidation and expropriation activities are largely completed. These same procedures and platforms shall be employed through the proposed Project, to align project implementation with local needs and capacity.

Legal Operational Policies

Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

Summary of Screening of Environmental and Social Risks and Impacts

18. The environmental risks are rated as *Substantial* due to the inclusion of civil and constructions works in the scope of the activities. Potential environmental risks and impacts include air/ and noise emissions, waste and soil management, the aforementioned Jevons Paradox, occupational health and safety risks, traffic safety, structural safety of the irrigation scheme structures, and habitat disturbance due to construction. Number of existing upstream dams might be involved by providing water for irrigation systems and/or flood protection for the facilities to be financed under the project. Failure of the existing dams could pose community health and safety risks. Potential social risks and impacts include land and livelihoods caused by permanent and temporary land acquisition or easement restrictions, impacts on informal users of land, labor and working conditions risks, community health and safety risks, sexual exploitation abuse and sexual harassment risks, impacts on cultural heritage and risks relating to inadequate stakeholder engagement and grievance management. The mitigation measures, including relevant dam safety measures, set out in the Bank approved Environmental and Social Management Framework (ESMF), Resettlement Framework (RF), Labor Management Procedure (LMP) and Stakeholder Engagement Plan (SEP) will be implemented by DSI and the contractors on the sites. Site specific impact assessments and management will be guided by these ESMF, RF, LMP and SEP.

[3] Özçatalbaş, Orhan & Akcaoz, Handan. (2010). Rural women and agricultural extension in Turkey. Journal of Food Agriculture and Environment. 8.

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