THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

**FOR OFFICIAL USE ONLY**

Report No: PAD4730

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A PROPOSED LOAN

IN THE AMOUNT OF EUR 320.75 MILLION
(US$352.3 MILLION EQUIVALENT)

TO THE

REPUBLIC OF TÜRKIYE

AND

A PROPOSED LOAN IN THE AMOUNT OF EUR 75 MILLION
(US$82.4 MILLION EQUIVALENT)

TO ILLER BANKASI ANONIM SIRKETI

WITH THE GUARANTEE OF THE REPUBLIC OF TÜRKIYE

FOR A

# TÜRKIYE WATER CIRCULARITY AND EFFICIENCY IMPROVEMENT PROJECT

May 2, 2023

Water Global Practice
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2023

| | |
|---|---|
| Currency Unit = | Turkish Lira (TRY) |
| TRY 19.45 = | US$ 1 |
| US$0.051 = | TRY 1 |
| EUR 0.91 = | US$ 1 |
| US$ 1.1 = | EUR 1 |

| | |
|---|---|
| Regional Vice President: | Antonella Bassani |
| Country Director: | J. Humberto Lopez |
| Regional Director: | Sameh Naguib Wahba Tadros |
| Practice Manager: | Winston Yu |
| Task Team Leader(s): | Sanyu Lutalo, Canan Yildiz Uz, Regassa Ensermu Namara |

# ABBREVIATIONS AND ACRONYMS

| | | | |
|---|---|---|---|
| **AIP** | Annual Investment Program | **MSIP** | Municipal Services Improvement Project |
| **BCR** | Business Case Report | **MSP** | Municipal Services Project |
| **BOD** | Biological Oxygen Demand | **MTR** | Midterm Review |
| **BOT** | Build-Operate-Transfer | **NDP** | National Development Plan |
| **CPF** | Country Partnership Framework | **NPV** | Net Present Value |
| **DI** | Department of Irrigation (*Sulama Dairesi*) | **NRW** | Non-Revenue Water |
| **DSI** | *Devlet Su İşleri* (State Hydraulic Works) | **OECD** | Organization for Economic Co-operation and Development |
| **EFA** | Economic and Financial Analysis | **O&M** | Operation and Maintenance |
| **EIRR** | Economic Internal Rate of Return | **PDO** | Project Development Objective |
| **ENPV** | Economic Net Present Value | **PFS** | Project Financial Statement |
| **ESF** | Environmental and Social Framework | **PIR** | Policy, Institutional, and Regulatory |
| **ESIA** | Environmental and Social Impact Assessment | **PIU** | Project Implementation Unit |
| **ESMP** | Environmental and Social Management Plan | **PMCF** | Project Management Consultancy Firm |
| **EU** | European Union | **PMT** | Project Management Team |
| **FIRR** | Financial Internal Rate of Return | **PMU** | Project Management Unit |
| **FM** | Financial Management | **POM** | Project Operations Manual |
| **FNPV** | Financial Net Present Value | **PPP** | Public-Private Partnership |
| **GDP** | Gross Domestic Product | **PPSD** | Project Procurement Strategy for Development |
| **GDWM** | General Directorate for Water Management | **RBMP** | River Basin Management Plan |
| **GHG** | Greenhouse Gas Accounting | **RoT** | Republic of Türkiye |
| **GoT** | Government of Türkiye | **SBO** | Strategy and Budget Office |
| **GRM** | Grievance Redress Mechanism | **SCP** | Sustainable Cities Project |
| **GRS** | Grievance Redress Service | **SDGs** | Sustainable Development Goals |
| **I&D** | Irrigation and Drainage | **SEP** | Stakeholder Engagement Plan |
| **ICR** | Implementation Completion and Results Report | **SIGA** | Social Impact and Gender Assessment |
| **IFI** | International Finance Institution | **SPC** | Shadow Price of Carbon |
| **IFR** | Interim Financial Report | **STEM** | Science, Technology, Engineering, and Mathematics |
| **ILBANK** | *Iller Bankasi Anonim Sirketi* | **STEP** | Systematic Tracking of Exchanges in Procurement |
| **IPF** | Investment Project Financing | **SUEN** | Turkish Water Institute |
| **IRR** | Internal Rate of Return | **TIMP** | Türkiye Irrigation Modernization Project |
| **ISP** | Implementation Support Plan | **UoF** | Utility of the Future |
| **KBS** | Public Expenditure and Accounting Information System | **WBG** | World Bank Group |
| **LMP** | Labor Management Procedures | **WICER** | Water in Circular Economy and Resilience |
| **M&E** | Monitoring and Evaluation | **WSS** | Water Supply and Sanitation |
| **MIS** | Management Information System | **WSSIP** | Water Supply, Sewerage and Infrastructure Program (SUKAP) |
| **MoAF** | Ministry of Agriculture and Forestry | **WUA** | Water Users Association |
| **MoEUCC** | Ministry of Environment, Urbanization and Climate Change | **WWTP** | Wastewater Treatment Plant |
| **MoTF** | Ministry of Treasury and Finance | | |
| | | | |

TABLE OF CONTENTS

DATASHEET

## BASIC INFORMATION

| Country(ies) | Project Name | |
|---|---|---|
| Turkiye | Türkiye Water Circularity and Efficiency Improvement Project | |
| Project ID | Financing Instrument | Environmental and Social Risk Classification |
| P174915 | Investment Project Financing | Substantial |

### Financing & Implementation Modalities

| | |
|---|---|
| [ ] Multiphase Programmatic Approach (MPA) | [ ] Contingent Emergency Response Component (CERC) |
| [ ] Series of Projects (SOP) | [ ] Fragile State(s) |
| [ ] Performance-Based Conditions (PBCs) | [ ] Small State(s) |
| [✓] Financial Intermediaries (FI) | [ ] Fragile within a non-fragile Country |
| [ ] Project-Based Guarantee | [ ] Conflict |
| [ ] Deferred Drawdown | [ ] Responding to Natural or Man-made Disaster |
| [ ] Alternate Procurement Arrangements (APA) | [ ] Hands-on Enhanced Implementation Support (HEIS) |

| Expected Approval Date | Expected Closing Date |
|---|---|
| 23-May-2023 | 31-Dec-2030 |

Bank/IFC Collaboration

No

### Proposed Development Objective(s)

The Project Development Objectives (PDOs) are: (a) to improve wastewater services and reuse; (b) to increase irrigation services and efficiency; and (c) to strengthen institutional capacity and coordination for managing water circularity and point source pollution reduction in selected water-stressed areas in Türkiye.

### Components

| Component Name | Cost (US$, millions) |
|---|---|
| Component A: Wastewater Collection, Treatment and Reuse | 82.01 |
| Component B: Rehabilitation, Construction and Modernization of Irrigation Systems | 350.00 |
| Component C Technical Assistance for Institutional Strengthening, Capacity building and Innovation | 1.10 |
| Component D: Project Management | 1.54 |

### Organizations

| | |
|---|---|
| Borrower: | ILLER BANKASI ANONIM SIRKETI (ILBANK)<br>Republic of Turkiye (represented by the Ministry of Treasury and Finance) |
| Implementing Agency: | Devlet Su Isleri<br>ILLER BANKASI ANONIM SIRKETI (ILBANK) |

## PROJECT FINANCING DATA (US$, Millions)

### SUMMARY

| | |
|---|---|
| **Total Project Cost** | 434.65 |
| **Total Financing** | 434.65 |
| **of which IBRD/IDA** | 434.65 |
| **Financing Gap** | 0.00 |

### DETAILS

**World Bank Group Financing**

| | |
|---|---|
| International Bank for Reconstruction and Development (IBRD) | 434.65 |

### Expected Disbursements (in US$, Millions)

| WB Fiscal Year | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
|---|---|---|---|---|---|---|---|---|---|
| Annual | 0.00 | 10.00 | 20.00 | 35.00 | 55.00 | 65.00 | 75.00 | 85.00 | 89.65 |
| Cumulative | 0.00 | 10.00 | 30.00 | 65.00 | 120.00 | 185.00 | 260.00 | 345.00 | 434.65 |

## INSTITUTIONAL DATA

**Practice Area (Lead)**

Water

**Contributing Practice Areas**

Environment, Natural Resources & the Blue Economy

**Climate Change and Disaster Screening**

This operation has been screened for short and long-term climate change and disaster risks

## SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

| Risk Category | Rating |
|---|---|
| 1. Political and Governance | Substantial |
| 2. Macroeconomic | Substantial |
| 3. Sector Strategies and Policies | Moderate |
| 4. Technical Design of Project or Program | Moderate |
| 5. Institutional Capacity for Implementation and Sustainability | Moderate |
| 6. Fiduciary | Substantial |
| 7. Environment and Social | Substantial |
| 8. Stakeholders | Substantial |
| 9. Other | |
| 10. Overall | Substantial |

## COMPLIANCE

**Policy**

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

**Environmental and Social Standards Relevance Given its Context at the Time of Appraisal**

| E & S Standards | Relevance |
|---|---|
| Assessment and Management of Environmental and Social Risks and Impacts | Relevant |
| Stakeholder Engagement and Information Disclosure | Relevant |
| Labor and Working Conditions | Relevant |
| Resource Efficiency and Pollution Prevention and Management | Relevant |
| Community Health and Safety | Relevant |
| Land Acquisition, Restrictions on Land Use and Involuntary Resettlement | Relevant |
| Biodiversity Conservation and Sustainable Management of Living Natural Resources | Relevant |
| Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities | Not Currently Relevant |
| Cultural Heritage | Relevant |
| Financial Intermediaries | Relevant |

**NOTE**: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

**Legal Covenants**

Sections and Description

RoT LA, Schedule 2, Section I.A.2. The Borrower, through DSI, shall maintain throughout Project implementation a Project Management Team, with terms of reference, qualified staffing, authority, and budgetary resources necessary and appropriate to, in the Bank's opinion, effectively carry out the Borrower's Respective Parts of the Project to the satisfaction of the Bank.

Sections and Description

RoT LA, Schedule 2, Section I.B.1. The Borrower, through DSI, shall maintain throughout Project implementation, a

Project Operations Manual, in substance and manner acceptable to the Bank.

Sections and Description
RoT LA, Schedule 1, Section I.C.1. In carrying out Part B.1 of the Project, the Borrower shall, through DSI, ensure that, unless otherwise agreed to by the Bank in writing and thereafter incorporated into the POM, each subproject is appraised, selected and prioritized in accordance with standards, criteria and procedures acceptable to the Bank, as specified in the Loan Agreement and detailed in the POM.

Sections and Description
RoT LA, Schedule 2, Section I.D.2. The Borrower, through DSI, shall ensure that the Project is implemented in accordance with the Environmental and Social Commitment Plan, in a manner acceptable to the Bank.

Sections and Description
RoT LA, Schedule 2, Section I.C.2(a). The Borrower, through DSI, shall ensure that, in carrying out Part B.1 of the Project: (a) the appraisal and selection of irrigation schemes for the subproject investments have been assessed with appropriate consideration of the feasibility studies carried out by the Borrower, through DSI, and said feasibility studies and appraisals have been submitted to the Bank for review and no-objection prior to the approval of the investments.

Sections and Description
RoT LA, Schedule 2, Section I.C.2(b). The Borrower, through DSI, shall ensure that, in carrying out Part B.1 of the Project, the Borrower, through DSI, notifies and consults with the Bank on the selection of each subproject investment and related Project Municipality/SKI, as relevant, prior to the start of said subproject investment.

Sections and Description
RoT LA, Schedule 2, Section I.E.1. The Borrower, through DSI, shall prepare and furnish to the Bank not later than October 31st of each year during the implementation of the Project, a proposed Annual Work Plan and Budget.

Sections and Description
ILBANK LA, Schedule 2, Section I.A.1. The Borrower shall maintain, until the completion of the Project, a Project Management Unit, and ensures the PMU functions at all times in a manner and with staffing, budgetary resources, and authority necessary and appropriate for the satisfactory implementation of the Borrower's Respective Parts of the Project and ensure the support of the Borrower's other specialized and regional departments.

Sections and Description
ILBANK LA, Schedule 2, Section I.A.2(a). For the implementation of Parts A.1 and A.2 of the Project, the Borrower shall ensure, or cause to ensure, that each Municipal Sub-borrower receiving a Municipal Sub-loan under Parts A.1 and A.2 of the Project establishes by no later than thirty (30) days following the effectiveness of the first Municipal Sub-loan Agreement to that respective Municipal Sub-borrower, and thereafter maintains throughout the period of Project implementation, a Project Implementation Unit ("PIU") for the implementation of the relevant Municipal Subproject's activities financed by this Project; and

Sections and Description
ILBANK LA, Schedule 2, Section I.A.2(b). For the implementation of Parts A.1 and A.2 of the Project, the Borrower

shall ensure, or cause to ensure, that the PIUs, established and maintained by the Municipal Sub-borrowers, have functions and responsibilities acceptable to the Bank for the implementation of the respective Municipal Subproject activities.

Sections and Description
ILBANK LA, Schedule 2, Section I.B.1. The Borrower shall maintain throughout Project implementation, a Project Operations Manual, in substance and manner acceptable to the Bank.

Sections and Description
ILBANK LA, Schedule 2, Section I.C.1. In carrying out Parts A.1 and A.2 of the Project, the Borrower shall ensure that, unless otherwise agreed to by the Bank in writing and thereafter incorporated into the POM, each Municipal Sub-borrower, and each Municipal Subproject is appraised, selected, and prioritized in accordance with standards, criteria and procedures acceptable to the Bank, as specified in the Loan Agreement and further detailed in the POM.

Sections and Description
ILBANK LA, Schedule 2, Section I.C.4. Except as the Bank shall otherwise agree, the Borrower shall provide Sub-loans to the Municipal Sub-borrowers in support of selected Municipal Subprojects on terms and conditions acceptable to the Bank, as specified in the POM, and shall ensure that each Municipal Sub-loan is extended under a written agreement ("Municipal Sub-loan Agreement") with each Municipal Sub-borrower on terms and conditions acceptable to the Bank, as detailed in the POM, including rights adequate to protect its interests and the interests of the Bank and the Guarantor.

Sections and Description
ILBANK LA, Schedule 2, Section I.E.1. The Borrower shall prepare and furnish to the Bank not later than October 31st of each year during the implementation of the Project, a proposed Annual Work Plan and Budget.

Sections and Description
ILBANK LA, Schedule 2, Section I.D.2. The Borrower shall ensure that the Project is implemented in accordance with the Environmental and Social Commitment Plan, in a manner acceptable to the Bank.

**Conditions**

| Type | Financing source | Description |
|---|---|---|
| Effectiveness | IBRD/IDA | Republic of Turkiye (RoT) Loan Agreement (LA), Section 4.01(a). The Borrower, through DSI, shall have prepared and adopted the Project Operations Manual. |
| Type | Financing source | Description |
| Effectiveness | IBRD/IDA | RoT LA, Section 4.01(b)(i). The Borrower, through DSI, shall have assigned or hired qualified staff, with appropriate terms of reference to its Project Management Team: two environmental specialists; two social experts; one occupational health and safety |

| | | |
|---|---|---|
| | | expert; and one dam safety specialist; and |
| Type<br>Effectiveness | Financing source<br>IBRD/IDA | Description<br>RoT LA, Section 4.01(b)(ii). The Borrower, through DSI, shall have assigned or hired qualified staff, with appropriate terms of reference to its relevant regional offices: one environmental specialist; two land acquisition experts; and one occupational health and safety specialist. |
| Type<br>Effectiveness | Financing source<br>IBRD/IDA | Description<br>ILBANK LA, Section 4.01(a). The Borrower shall have prepared and adopted the Project Operations Manual. |
| Type<br>Effectiveness | Financing source<br>IBRD/IDA | Description<br>ILBANK LA, Section 4.01(b). The Borrower shall have hired or assigned a qualified environmental specialist, a social specialist, and a health and safety specialist. |
| Type<br>Effectiveness | Financing source<br>IBRD/IDA | Description<br>ILBANK LA, Section 4.01(c). The Borrower shall have established the grievance redress mechanism for the Borrower's Respective Parts of the Project, in form and manner satisfactory to the Bank. |

## I. STRATEGIC CONTEXT

### A. Country Context

1. **Türkiye is an upper-middle-income country with a strong record of inclusive growth, but recent shocks are threatening the economic gains made since the early 2000s.** The economic recovery that started in late 2019 was undermined by the COVID-19 pandemic, which triggered a deep economic shock that exacerbated the structural challenges Türkiye was experiencing before the pandemic. About 2.8 million jobs (mostly informal) were lost during the first wave of the pandemic, while labor market participation shrunk by 2.9 million workers over the same period.[1] These challenges aggravated existing rates of youth unemployment, which rose from 20 percent in 2018 to 24.9 percent in 2020, before declining to 19.4 percent in 2022, and female labor force participation, which declined from 34.3 percent in 2019 to 30.8 percent in 2020, before increasing to 35.1 percent in 2022.[2] COVID-19 also caused a significant setback in poverty reduction. Between 2018 and 2019, the share of people below the US$5.5 per capita per day (2011 purchasing power parity) poverty line rose from 8.5 percent to 10.2 percent, pushing about 1.5 million additional people into poverty. Another 1.6 million individuals were estimated to have fallen into poverty in 2020 due to the pandemic, before improving slightly in 2021. By 2021, Turkey's economy exhibited a very strong recovery thanks to buoyant domestic and external demand and good progress in vaccination rollouts. This rebound supported employment recovery to pre-pandemic levels and also led to a sharp increase in exports. However, the economy continues to face significant risks from high macro-financial volatility associated with the Lira's depreciation.[3]

2. **In addition to Covid-19, climate change[4] and natural disasters, such as earthquakes have been among the most critical threats to Türkiye's development.** In the last two decades, extreme climate-induced events have occurred with greater frequency and intensity; there were 984 extreme weather events in 2020, 935 in 2019, and 840 in 2018.[5] Several parts of the country have experienced severe drought in recent years contributing to increasing water scarcity. Climate change impacts on water scarcity are expected to pose a major threat to agricultural productivity, rural incomes and employment, and food security.[6] The long-term average annual losses due to disasters in Türkiye are estimated at about US$2,200.4 million per year for earthquakes[7] and US$843.4 million for floods. Together, these hazards are expected to result in losses of around US$1.5 billion per year. In August 2021, severe flash flooding in Türkiye's Black Sea region killed 17 people and required evacuation of more than 1,400 people from the affected areas. Similar floods in March

[1] Baez, Javier E., and Asli Demirgüç-Kunt. 2021. "The Urgency of Promoting a More Equal Recovery: Insights from the COVID-19 Crisis in Türkiye." February 9, 2021, https://blogs.worldbank.org/europeandcentralasia/urgency-promoting-more-equal-recovery-insights-covid-19-crisis-Türkiye.
[2] Data source: World Bank DataBank, https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=TR.
[3] Rab,Habib Nasser; Knight,David Stephen; Yasar,Pinar; Atas,Erdem; Cuevas,Pablo Facundo; Nebiler,Metin; Ozen,Etkin. Turkey Economic Monitor: Charting a New Course (English). Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/429091572623015810/Turkey-Economic-Monitor-Charting-a-New-Course
[4] Turkiye ratified the Paris Climate Agreement in 2021.
[5] Data source: "Türkiye Saw 984 Extreme Weather Events in 2020." İstanbul - BIA News Desk, May 24, 2021. https://m.bianet.org/bianet/environment/244508-climate-crisis-Türkiye-saw-984-extreme-weather-events-in-2020#:~:text=%22The%20data%20of%20the%20Directorate,of%20the%20one%20in%202020.
[6] Turkiye CCDR – Executive Summary
[7] Data source: Earthquake Risk Transfer for Türkiye. https://acircularworld.com/d/earthquake-risk-transfer-for-Türkiye#:~:text=2%20%2D%20Probable%20Maximum%20Loss%20(PML,%26%20Risk%20Profile%2C%202014).

2023 in the southeastern cities of Şanlıurfa and Adıyaman killed at least 21 people. Türkiye was also hit by two major earthquakes in Kahramanmaraş and Hatay in February 2023, causing major devastation in 11 provinces. Turkish authorities estimate that the economic cost of the disasters will be around 104 billion dollars (around 9.0% of the GDP forecast)[8]. The country's vulnerability has been exacerbated by the two devastating earthquakes that struck the southern provinces of Türkiye on February 6, 2023, which have reportedly caused the collapse or extensive damage to tens of thousands of buildings, including housing, public buildings and historical structures, and to critical infrastructure in the region. The impact is still unfolding, with implications for growth, labor markets and poverty, as well as the overall macroeconomic framework.

3. **Current projections suggest a temperature increase of 3–4°C on average across Türkiye from 2041 to 2070, as well as uneven changes in precipitation patterns.** These in turn are expected to affect the temporal and spatial distribution and availability of water resources and increase the occurrence of floods associated with intense precipitation, coastal storms, and droughts. Rapid growth in the last two decades has caused its environmental footprint to increase rapidly. Total greenhouse gas (GHG) emissions rose from 219.6 million metric tons of carbon dioxide equivalent ($MtCO_2e$) in 1990, to 488.144 million metric tons in 2018 and 506.1 in 2019.[9]

4. **While water can be a source of risk in extreme contexts, the sector is also a key enabler of development and Türkiye has an opportunity to move towards a more resilient, green, and inclusive growth path as its economy recovers from COVID-19.** Water is strongly linked to domains that are critical for economic growth such as agriculture, energy, health, the natural environment, regional development, and poverty alleviation. It supports important economic, social, and job-related agendas, including rural development and agriculture revitalization, as well as industry and services such as tourism. It is also essential for ensuring public health and hygiene, an aspect that has become even more evident in the face of recent stressors such as the ongoing COVID-19 pandemic. Water and its related ecosystems—including lakes, wetlands, and coastal zones—also provide a wide range of environmental and disaster mitigation benefits, such as flood protection, pollution abatement, and biodiversity conservation.

## B. Sectoral and Institutional Context

### Sector Context

5. **Türkiye is a water-stressed[10] country, with climate change, urbanization, and economic activities posing significant risks to its water security.** Over two-thirds of the country's 25 river basins are facing water scarcity, yet demand is steadily increasing. In 2018, total water withdrawals reached 61,094 million cubic meters ($m^3$), almost double compared to 28,073 million $m^3$ in 1990. By 2023, water withdrawals are projected to increase to about 112 million $m^3$.[11] About 85 percent of annual freshwater withdrawals in

[8] *https://www.sbb.gov.tr/wp-content/uploads/2023/03/Turkiye-Recovery-and-Reconstruction-Assessment.pdf*

[9] Data source: *https://www.statista.com/statistics/956997/greenhouse-gas-emissions-Türkiye/*
*https://data.tuik.gov.tr/Bulten/Index?p=37196&dil=2*

[10] Water stress is the ratio of total water withdrawals to available renewable supply in an area. In high-stress areas, 40 percent or more of the available supply is withdrawn every year. In extremely high-stress areas, that number goes up to 80 percent or higher. A higher percentage means more water users are competing for limited supplies.

[11] Ministry of Urbanization and Environment 2016 (Climate Change Development Report Background Note 3)

Türkiye in 2017 were used for agriculture, 10 percent for domestic purposes, and 5 percent for industry. An estimated 95 percent of exploitable groundwater resources are now being used for irrigation, domestic, and industrial purposes. Irrigation consumes about two-thirds of the total. The negative impacts of climate-induced water scarcity have been most severe in basins where populations and economic activity are concentrated, including those hosting large cities and economic hubs (Istanbul, Ankara, Izmir, and Antalya), as well as important agricultural areas such as the Konya plains. According to a 2016 climate change assessment,[12] water demand may exceed Türkiye's exploitable water level as early as the 2030s, in a worst-case scenario. Irrigated agriculture would be the hardest hit, which would in turn affect the country's economy. According to Türkiye's Climate Change Development Report (CCDR), a 10 percent reduction in water supply could cost Türkiye about $50 billion, about 6 percent of GDP.

6. **Water quality is another major concern due to widespread water pollution from the discharge of untreated industrial and domestic wastewater and diffuse pollution from fertilizers and pesticides**. One-third of Türkiye's lakes and up to half of its rivers are currently considered either 'contaminated' or 'highly contaminated' by nutrients, particularly phosphorus and nitrogen which are linked to pollution from municipal wastewater and agricultural runoff. Climate change-related warming of the Marmara Sea combined with widespread pollution from the discharge of untreated industrial and domestic wastewater, fertilizers, and pesticides contributed to the mucilage crisis in 2021 that threatened aquatic life, tourism, and fisheries. Addressing these threats necessitated a holistic approach to water management at the city and/or basin level to improve management of municipal and industrial wastewater, complemented by efforts to address pollution from the application of agricultural fertilizers and pesticides. In 2003, Türkiye adopted the Integrated Water Resource Management Policy,[13] and by the end of 2023, should complete river basin management plans (RBMPs) for its 25 river basins, in line with European Union Water Framework Directives.

**Water Supply and Sanitation**

7. Türkiye achieved notable progress in providing water supply and sanitation (WSS) service to its population; in 2019, about 99 percent was connected to a piped water network.[14] Nonetheless, the increasing demand and scarcity of water resources threaten reliable and sustainable service delivery. Many areas are experiencing both physical water scarcity and economic water scarcity.[15] Sector performance indicators, such as high non-revenue water (NRW),[16] are on average more than 40 percent[17] across the country. High energy use reflects significant system inefficiencies. The average energy consumption of Municipal Water and Wastewater Administrations (SKIs)[18] per 1,000 subscribers is 212,126 kWh/year. The average share of energy expenditures in SKI total budgets is 20 percent, ranging between 7 and 43 percent, and the share of renewable energy sources in the energy consumption is 4 percent on average. Thus, adaption to strengthen

[12] Ministry of Forestry and Water Affairs, 2016; Climate Change Development Report Background Note 4
[13] Türkiye: Integrated Water Resource Management at River Basin Level 2003, https://www.iowater.org/avancementdenosprojets/Türkiye-integrated-water-resource-management-river-basin-level-2003.
[14] World Health Organization (WHO)/ United Nations Children's Fund (UNICEF) Joint Monitoring Program data
[15] Economic water scarcity in this case refers to inadequate management of water resources even where infrastructure may be in place.
[16] Programs to address NRW are being implemented through various initiatives at the municipal level.
[17] Comparative Performance Assessment of Metropolitan Water and Sewerage Administrations, June 2022 (*https://www.suen.gov.tr/Suen/catdty.aspx?val=5525*)
[18] Responsibility for the provision of WSS, lies with the General Directorate of Water and Wastewater Administration (Su Ve Kanalizasyon Idaresi, abbreviated SKIs). Findings were based on data from 26 out of 30 Metropolitan SKIs.

resilience to climate induced scarcity and reduce GHG emissions make energy efficiency improvement a top priority for the sector.

8. **Access to safe sanitation is relatively high, but inefficiencies in wastewater management continue to threaten water quality and environmental sustainability.** In 2020, 91.1 percent of the urban population and 59.1 percent of the rural population received sewerage service.[19]The rest of the population used on-site sanitation systems, mainly septic tanks. Wastewater treatment capacity in Türkiye has steadily increased as a result of sustained investments in the last decade, with the number of wastewater treatment plants (WWTPs) in operation in 2019[20] and the share of the population served by WWTPs growing from 36 percent to 79 percent between 2004 and 2018 (Turkstat 2019). In 2020, the wastewater from 74 percent of Türkiye's total population, 77.7 percent of the municipal population, and 13.1 percent of the rural population, was treated. However, a large proportion only undergoes primary or secondary treatment, indicating a substantial amount of wastewater is discharged untreated into the environment.[21]Although industries are required to treat their wastewater before discharge, about 38 percent of industrial wastewater is discharged untreated into the environment. Seepage of untreated sewage from aging sewerage networks and collectors also contributes to water and environmental pollution in many parts of the country.

9. **Reuse of treated wastewater is relatively low in Türkiye, although untreated wastewater is widely used informally by farmers for irrigation in many parts of the country.** According to a recent International Water Association (IWA) paper,[22] Türkiye has 26 WWTPs with different capacities of reuse facilities, but only 15 of them reused the treated wastewater in 2017. The other WWTPs do not operate their wastewater reuse/reclamation facilities due to design, mechanical, or operational problems associated with tertiary treatment. More attention needs to be paid to improving the quality of ageing infrastructure and operation and maintenance (O&M) services across the entire sanitation service chain, from collection and treatment of wastewater, to strengthening the capacity of SKIs to improve management of plants that have tertiary treatment facilities and reuse components in a sustainable manner, including management of the interface with the end users of reclaimed wastewater.

**Irrigation and Drainage**

10. **Türkiye has over 60,000 km² of irrigated land, a sophisticated State Hydraulic Works Agency, and a long tradition of emphasizing extension of irrigation and drainage (I&D) service delivery.** Türkiye also is one of the countries with the highest investment in I&D in the world, and the ninth largest agriculture producer. Agriculture in Türkiye is heavily dependent on irrigation, which triples productivity, compared to rain-fed agriculture, and provides for steady agricultural production and food security. Agriculture also plays an important role in the economy, employing about 15.8 percent of the total workforce in 2022.[23] Climate change

[19] Source: TURKSTAT Water and Wastewater Statistics, 2020 Bulletin dated 16 December 2021. *https://data.tuik.gov.tr/Bulten/Index?p=Water-and-Wastewater-Statistics-2020-37197*
[20] International Water Association data, 2019
[21] Source: TURKSTAT Water and Wastewater Statistics, 2020 Bulletin dated 16 December 2021. *https://data.tuik.gov.tr/Bulten/Index?p=Water-and-Wastewater-Statistics-2020-37197*
[22] [22] Source: Bilgehan Nas, Sinan Uyanik, Ahmet Aygün, Selim Doğan, Gürsel Erul, K. Batuhan Nas, Sefa Turgut, Mustafa Cop, Taylan Dolu; Wastewater reuse in Türkiye: from present status to future potential. Water Supply 1 February 2020; 20 (1): 73–82. doi: *https://doi.org/10.2166/ws.2019.136*
[23] Data source: World Bank DataBank, https://data.worldbank.org/indicator/SL.AGR.EMPL.ZS?locations=TR.

patterns, however, are expected to have significant impacts on yields, especially by increasing water scarcity and thus threatening agricultural productivity, rural employment and incomes, and food security. While agriculture is the second largest sector in the country's economy, agricultural areas decreased from 26.3 million hectares in 2001 to 23.7 million hectares in 2016. Currently, the Global Food Security Index ranks Türkiye 47th for overall food security. The projected increase in population and decrease in agriculture area will make food security a major challenge in the future.

11. **Despite substantial investment in recent years, Türkiye's irrigation sector is characterized by low-performing and inefficient irrigation schemes and obsolete infrastructure**. The open channel and flood systems in many parts of the country have contributed to substantial losses and unsustainable use of water resources. Freshwater productivity[24] (US$17 per $m^3$ in 2017[25]) is low compared to that in high-income countries (US$47 per $m^3$ in 2016). Moreover, many farmers are tapping into limited groundwater supplies, contributing to over-exploitation of the resource. They also are using untreated or partially treated wastewater to sustain their crops, thus posing significant risks to public health and safety. Moreover, the heavy reliance on groundwater has caused underground water levels to drop by more than two meters in river basins (for example, Konya) in the past five years, contributing to unsustainable water supplies. To improve irrigation efficiency, the GoT launched an extensive irrigation modernization program, supported in part by the World Bank through the ongoing Türkiye Irrigation Modernization Project (TIMP).

**Institutional Context**

12. **The mandate for developing and managing water resources and related services in Türkiye involves multiple institutions; thus the achievement of sector goals will require a coordinated effort.** The Ministry of Environment, Urbanization, and Climate Change (MoEUCC) is responsible for environmental protection and rehabilitation, and for assessment and monitoring of the environmental impacts of projects and other activities. The Ministry of Agriculture and Forestry (MoAF) is responsible for developing policies on protection of water resources and their sustainable use, and for coordinating all national water management issues. The MoAF conducts its water management role through two general directorates: (a) the General Directorate of State Hydraulic Works (DSI) and (b) the General Directorate for Water Management (GDWM). MoAF is also supported by a national think tank, the Turkish Water Institute (SUEN). Responsibilities for specific water management functions at the local level have been delegated to subnational governments.

13. **DSI is responsible for development, planning, and management of surface water, groundwater, and land resources, while GDWM is responsible for developing policies to protect and sustain water resources.** DSI's primary focus is to plan, design, construct, and operate dams, hydroelectric power plants, water supply and wastewater treatment infrastructure,[26] and irrigation schemes as well as to implement structural flood protection and control measures. DSI operates through 26 regional directorates, whose boundaries correspond largely to the country's river basin boundaries. Since 2011, it has been active in the sanitation sector. In 2021, it had 21 active WWTP projects. DSI invested in 3,221 irrigation systems in 2020, resulting in an additional 7 million ha of irrigated land. In its 2022 investment program, DSI had a pipeline of 190 irrigation

[24] Water productivity is defined as ***the amount of agricultural output per unit of water depleted***
[25] Data source: Türkiye – Water Productivity, Knoema, https://knoema.com/atlas/Türkiye/Water-productivity#:~:text=In%202017%2C%20water%20productivity%20for,per%20cubic%20meter%20in%202017.
[26] There are some overlapping mandates in terms of development of WSS infrastructure with other institutions, such as SKIs, depending on the respective jurisdictions.

projects with an aggregated value of about US$27.5 billion. GDWM is responsible for developing policies for protecting and sustaining water resources, coordinating and preparing RBMPs, and developing national water quality standards and monitoring systems. At the local level, water user associations (WUAs) are responsible for managing irrigation services at the interface with farms. In 2018, WUAs were managing irrigation O&M on 89 percent of the total irrigated land in Türkiye.

14. **Municipalities are responsible for provision of water supply, sanitation, and other municipal services.**[27] Türkiye currently has 30 metropolitan municipalities, each having a General Directorate of Water and Wastewater Administration (Su Ve Kanalizasyon Idaresi, or SKI) that manages WSS services. SKIs are public utilities with an autonomous budget. There are now more than 1,400 municipalities, including 30 metropolitan municipalities, 51 non-metropolitan municipalities, over 900 district municipalities, and 400 town municipalities. The amendment to the Metropolitan Municipality Law (Law No 5216) in 2012 gave metropolitan and district municipalities the authority and responsibility to provide services for supporting agriculture. SKIs are at the heart of institutional efforts to develop and implement innovative, resilient, inclusive, and efficient means to deliver reliable, safe, inclusive, transparent, and responsive WSS services to households while exploiting, where feasible, opportunities to provide alternative water sources, such as treated wastewater for irrigation, industry, and other uses.

15. **Municipal investments are financed through government grants or loans from ILBANK (Iller Bankasi Anonim Sirketi), Türkiye's national municipal development and investment bank**. ILBANK is affiliated to MoEUCC, which provides loans to municipalities for developing municipal investments, including WSS investments, as a financial intermediary. In addition to its own resources, it borrows directly from multilateral financiers, including the World Bank, and receives grants from donors to support municipalities through on-lending or on-granting of the proceeds from these sources. ILBANK has an active portfolio in the WSS sector, where it has been operating since 2006 through the Water Supply, Sewerage, and Infrastructure Program (WSSIP) and several Bank-financed operations including the Municipal Services Project, Sustainable Cities Projects (P128605, P161915, P170612) and Municipal Services Improvement Project (P169996). In addition to the wastewater management investment, Ilbank also developed Integrated Urban Water Management Plans and NRW Management Guideline for municipalities.

16. **Türkiye's National Water Plan for 2019–2023 cites several policy, institutional, and regulatory (PIR) bottlenecks which undermine efficient and effective achievement of the country's sector development goals.** They include: (a) a highly fragmented institutional architecture with multiple entities at the national, local, and basin-wide levels, in some cases having over-lapping institutional mandates; (b) necessity to improve coordination among sector institutions; (c) lack of public awareness and participation in water resources management; and (d) complex legislative framework of regulatory enforcement of key functions. Delayed approval of the draft Water Law (originally submitted for GoT approval in 2016 and resubmitted in 2018) addressing some of these bottlenecks resulted in the current status quo whereby the sector remains governed by a complex legislative framework that affects regulatory enforcement, thus augmenting unpredictability and risks.

17. **Several policy, institutional, and regulatory factors pose challenges to wastewater reuse.** Currently, the only specific legislation in force in Türkiye addressing reuse of treated wastewater is the Communiqué on Technical Principles for Wastewater Treatment Plants (no: 27527, published in the Official Gazette dated 20.03.2010).

[27] Metropolitan municipalities cover populations of 750,000 people.

However, the PIR analysis carried out by the Bank as part of project preparation revealed that it has limited information on important aspects such as roles, responsibilities, and management of risks, and focuses only on irrigation reuse with no clear standards for other potential uses. Responsibilities for wastewater reuse are also shared between two different ministries. The MoAF is in charge of preparing a new "Reuse National Master Plan" and 10 pilots under the project "Reuse of Treated Urban Wastewater for Different Alternatives" (2021-2024). The MoEUCC determines treatment standards for wastewater treatment plants (in accordance with policies developed by MoAF on receiving water bodies), issues discharge permits, monitors the performance of wastewater facilities, and regulates wastewater tariffs. Other challenges relate to the enabling environment for implementing policy priorities such as mainstreaming circular economy principles in the water sector; institutional capacity gaps, particularly at the sub-national level on aspects of water management (for example, issues related to development and O&M of wastewater treatment systems with reuse elements); and overall coordination among key stakeholders.

18. **There are wide gender gaps in workforce participation in the water and wastewater sector, as well as in participation and leadership in community-level irrigation and water management institutions.** Women are largely under-represented as staff in SKIs and WUAs. A rapid survey undertaken in one SKI[28] during project preparation found that women comprised only 9 percent of staff overall, 11 percent of staff in engineering positions, and 19 percent of managers. As seen in the Seismic Resilience and Energy Efficiency in Public Buildings Project (P175894), women's representation in the engineering field is low. Similarly, an assessment carried out for the ongoing TIMP found that women represent between 7 to 18 percent of WUA members and are even less likely to be in decision-making positions (less than 2 percent of WUA councilors were women).

19. **GoT aims to strengthen resilience to the growing climate and non-climate related risks of water scarcity and pollution.** In its 11th National Development Plan (NDP), the GoT prioritized promotion of circular economy principles through increased wastewater treatment and reuse. The Plan includes a target for the reuse of treated wastewater from 1.2 percent (2018) to 5 percent by 2023, primarily for agriculture, but for other end uses as well. Further, as one of the key actions outlined in the Türkiye Green Deal Action Plan, the GoT prepared the Wastewater Treatment Action Plan for the period of 2017-2023[29]. Among other measures, the Plan endorses revision of the technical standards required for WWTPs and preparation of studies to raise awareness about wastewater reuse. In addition, the Declaration of Türkiye's First Water Council issued in October 2021 promotes other actions, including preparation of: (a) strategies and policies to encourage sustainable, efficient, and integrated urban water management; (b) a water efficiency strategy and basin-wide water efficiency action plans; (c) new NRW targets for municipalities; and (d) studies on financing, including full cost recovery pricing of water and wastewater to begin in 2023. Some of these initiatives are already being undertaken at central and local authority levels.

20. **The reuse of treated wastewater can offer a double value proposition for Turkish municipalities**. In addition to the environmental and health benefits of wastewater treatment, resources recovered (such as energy generated from biogas) can provide an additional revenue stream for SKIs by partially or fully contributing to reducing O&M costs and making WWTPs more environmentally and financially sustainable. Recognizing this potential, several municipalities in Türkiye have prioritized circular economy principles in their strategic plans,

[28] This case (Denizli SKI (DESKI)) was used as a proxy, although conditions may vary among SKIs
29 Available online at https://webdosya.csb.gov.tr/db/cygm/icerikler/aaep-2017-23-20180410110044.pdf

focusing on wastewater reuse and resource recovery[30] for energy generation from methane capture. Article 29 of Türkiye's Environmental Law allows for 'incentives' to SKIs whose WWTPs plants comply with effluent water standards in the form of refunds of 50 percent of their electricity costs, excluding taxes from electricity service providers for cost incurred. Nonetheless, Türkiye's efforts to encourage performance improvements in water supply and wastewater reuse would only offset demand by 1-2 billion $m^3$,[31]requiring significant efforts to increase irrigation efficiency and agricultural productivity.

21. **The 11th NDP prioritizes expansion and modernization of irrigation systems to increase productivity and reduce water losses and GHG emissions.** Global experience has shown in many countries that investing in modernization and efficiency improvement solutions alone does not resolve water scarcity because farmers can shift to more intensive cropping where farms are reclaimed and expanded. Thus, the modernization of irrigation schemes to increase efficiency will need to be paired with strong regulations and monitoring capabilities, as well as reforms to ensure that water allocation and pricing better reflect the economic scarcity of water. Such interventions must be accompanied by policy measures such as resource limitations through licensing, close monitoring, and capping water use through smart water meters.

22. **Türkiye has been actively exploring the potential for introducing public-private partnerships (PPPs) in the I&D sector to encourage private financing and improve service delivery.** This requires active policy and pilots to attract private investment and direct engagement of Türkiye's extensive private sector in service delivery, and the World Bank has been facilitating policy dialogue and knowledge exchanges on these issues. Despite Türkiye's rich PPP experience in the energy, health, and transport sectors, private sector participation in Türkiye's water sector has been limited.

### C. Relevance to Higher Level Objectives

23. On February 6, 2023, two very large earthquakes hit Türkiye causing massive damage, significant loss of life and huge economic loss. The World Bank is responding to the impacts of the earthquakes with a package that includes mobilizing support through projects that were already active before the earthquakes and delivering new projects to provide quick response. The new projects are scheduled to be presented to the World Bank Board of Directors in June 2023. In parallel, the World Bank is continuing to deliver its regular program of projects which were being prepared before the earthquakes hit. This project is one of those projects that is part of the regular program.

24. **The proposed project is aligned with the World Bank Group (WBG) Country Partnership Framework (CPF) for Türkiye for FY 18–FY21 (Report No. 11096-TR, August 2017), which was extended to cover the FY22–23 period through the Performance and Learning Review (PLR) (Report No. 14253-TR, March 2020).** The CPF is based on the findings of the Systematic Country Diagnostic (finalized in 2016) which highlights water availability and sustainable use as key challenges for Türkiye's future development. Among its three focus areas, (1) growth, (2) inclusion, and (3) sustainability, the project is particularly aligned with focus areas 2 and 3. In addition, the PLR highlights the challenge of increasing equitable access to jobs and services to boost human capital and attenuate poverty during economic volatility, which has more recently been heightened by the COVID-19 pandemic. Under focus area 2 (inclusion), WBG support aims to consolidate Türkiye's success toward achieving these twin goals while supporting efforts to reach those left behind. In water-stressed areas,

[30] Valuable wastewater by-products include fertilizer and biogas.
[31] CCDR Background Note 4

this segment of the population is largely located in rural areas, where accessing water for irrigation is a challenge. The project will cover rural and urban areas that are facing increasing water stress and scarcity, due to the impact of climate change, as well as the threat of longer-term economic and social impacts resulting from the COVID-19 pandemic.

25. Consistent with focus area 3 (sustainability), Component A of the proposed project will address both adaptation and mitigation aspects of climate change. The reuse of treated wastewater will augment the available scarce freshwater resources, while the generation and use of bio-and solar energy will reduce GHGs emissions and contribute to the mitigation agenda. Enhancing the capacity of wastewater collection and treatment will also mitigate public health risks, which tend to be high during and after the occurrence of extreme weather events. In the project areas, floods and droughts are expected to become more intense and frequent, further exacerbating the spread and transmission of water-related diseases and exposure to harmful pathogens. Components B and C involve interventions that enhance the efficiency of irrigation water use and energy efficiency, which involve reductions in water and energy consumption per unit area.

26. **The design of the proposed project builds on the World Bank Türkiye CCDR Background Note on Agriculture, Fisheries, and Water.**[32] The Background Note emphasizes the need to sustain water services delivery and strengthen resilience to growing water-related risks, as well as contribute to achieving its long-term net-zero vision. The document proposes a multi-pronged approach that involves investing in adaptation and mitigation, and strengthening institutional capacity and regulations for water resources management. The proposed adaptation and mitigation measures include: (a) investing in increasing and optimizing multi-purpose water storage; (b) investing in enhanced water-energy use efficiency in water systems by reducing water losses in water supply systems (NRW), reducing water losses in irrigation, switching from pumped to gravity-based systems, pursuing more efficient treatment technologies, replacing older treatment equipment, promoting demand management, and switching to more energy efficient forms of irrigation solutions; (c) modernizing I&D systems through more efficient conveyance and operation and management systems complemented by water-saving agriculture interventions (for example, high efficiency drip, remote sensing approaches, and automation); and (d) diversifying freshwater resources through circular economy approaches in the delivery of water services. The latter includes reducing water losses, recovering and capturing valuable resources such as biogas from wastewater treatment, and reusing treated effluents and resource recovery. Strengthening institutional capacity and regulations for water resources management focuses on policy and regulatory instruments that encourage demand-side management, circularity, and efficiency; establishing institutional coordination mechanisms based on incentives with key stakeholders; and extending knowledge about global warming and water scarcity by raising public awareness about water resources management.

27. **The proposed project will contribute to achieving national development goals outlined in Türkiye's 11th NDP (2019–2023).** The NDP aims to increase the treated wastewater reuse rate from 1.2 percent (in 2018) to 5 percent (in 2023) and over 2 million ha of land for irrigation. The GoT plans to allocate budget resources to irrigate 750,000 ha of this land, and the MoAF seeks to develop new domestic and external financing methods to finance irrigation of the remaining 1.25 million ha. Modern water saving irrigation technologies, such as sprinkling and drip irrigation, will be deployed to improve water and energy efficiency to reduce GHG emissions. The NDP also promotes use of renewable energy technologies such as solar-powered pumping systems.

[32] CCDR Background Note 3

**Box 1. From Analytics to Implementation:**
**The World Bank's Program to Support Türkiye's climate commitments**

**Türkiye's Climate commitments.** Türkiye ratified the Paris Agreement in October 2021 and committed to achieving net zero emissions by 2053. The Climate Memorandum of Understanding (MOU) signed with six Development Partners in October 2021 is supporting the implementation of Türkiye's climate ambitions on mitigation, adaptation, and just transition.

**The World Bank's programmatic support towards green transition in Türkiye.**

- ✓ **Analytics and Policy Advice:** In June 2022, the World Bank Group published the Türkiye Country Climate and Development Report (CCDR) as its first ever CCDR. The Türkiye CCDR outlines a potential Resilient Net Zero Pathway (RNZP) in line with the country's net zero goal, adaptation and resilience needs, and economic growth and development priorities. It was prepared in coordination with the multi-year Türkiye Green Growth Analytical and Advisory Program—a platform to engage with Government on green transition more broadly. Among others, the Green Growth Program is supporting the Government to develop its Long-Term Strategy (LTS) for decarbonization and is informing the 12th National Development Plan.
- ✓ **Investments:** The signing of the Climate MOU enabled the identification of multiple new IBRD projects totaling over $2 billion, aimed at supporting sectoral transformations in energy, transport, industry, urbanization, and agriculture, water and forest management, the focus of this project. The pipeline of new climate projects also aim at leveraging green finance and engaging the private sector, building institutional capacity, and ensuring that the green transition is socially inclusive.

**Project contribution to Türkiye's Resilient Net Zero Pathway**

- ✓ The proposed project is fully aligned with the Turkiye CCDR. It aims to advance the CCDR's priority number 5 of making growth more resilient and sustainable—by applying circular economy principles to water management. Specifically, the project will promote the reuse of treated wastewater for irrigation. In doing so it will implement a range of water and energy efficiency measures including: (i) resource recovery like biogas capture with energy generation facilities and sludge treatment; (ii) modernization of irrigation and drainage systems, (iii) promoting demand management to reduce excessive consumption; and (iv) strengthening capacity of institutions in charge of water management.

28. **The proposed project is aligned with the WBG Global Crisis Response Framework (GCRF).** The project is aligned with the first, third and fourth pillars of the GCRF (Pillar 1: Responding to Food Insecurity; Pillar 3: Strengthening Resilience; and Pillar 4: Strengthening Policies, Institutions, and Investments for Rebuilding Better). The project will promote green, resilient, and inclusive development (GRID) by supporting green and resilient wastewater and irrigation infrastructure investments to encourage inclusive growth, build human capital, and reduce the water and energy footprint of irrigation and wastewater services. Consistent with pillars 1 and 3, the project will support food production and producers through irrigation modernization and its focus on climate resilience. Pillar 4 will be supported through the project's focus on policy reform and institutional strengthening to build resilience to the impacts of climate change on water availability. It also addresses the WBG Climate Change Action Plan (2021-25) (Report No. 136368), notably Objective 1 (Boosting Adaptation Financing). Progress towards achieving the Sustainable Development Goal 6[33] is part of the GRID

[33] SDG 6 is to "ensure availability and sustainable management of water and sanitation services for all". The individual targets of SDG 6 cover the entire water cycle and its interconnections: 6.1: provision of drinking water; 6.2: sanitation and hygiene; services; 6.3: treatment and reuse of wastewater and ambient water quality; 6.4: water-use efficiency and scarcity; 6.5: Integrated water resources management;

approach in that it promotes availability and sustainable management of water and sanitation for all.

## II. PROJECT DESCRIPTION

### A. Project Development Objective

#### PDO Statement

29. **PDO Statement.** The Project Development Objectives (PDO) are: (a) to improve wastewater services and reuse; (b) to increase irrigation services and efficiency; and (c) to strengthen institutional capacity and coordination for managing water circularity and point source pollution reduction in selected water-stressed areas in Türkiye.

30. The Project will support the GoT in addressing the challenges of climate change-induced water scarcity and in reducing the wastewater pollution load in selected water-stressed[34] areas. The PDO will be achieved through a three-pronged approach to strengthen water security and promote climate change adaptation and mitigation. The approach comprises: (a) wastewater treatment, reuse, and resource recovery (Component A) to support priority infrastructure and services sub-projects across the sanitation value chain in selected areas, including wastewater collection, treatment, and reuse for non-agricultural purposes, as well as resource recovery (for example, use of stabilized biosolids from sludge for agriculture and/or energy generation from biogas); (b) irrigation modernization and efficiency improvement (Component B), including investments that will support modernization of irrigation schemes to promote more efficient water and energy use and improved demand management, as well as reuse for irrigation; and (c) institutional strengthening, capacity building, and innovation (Component C) to strengthen institutional capacity and coordination and to enhance the enabling environment to promote sustainable O&M and stakeholder engagement for wastewater and irrigation infrastructure investments under the project through DSI.

#### PDO Level Indicators

31. Achievement of the project objectives will be assessed through the following indicators:

- Volume of of treated wastewater that is generated ($m^3$);
- People provided with access to safely managed sanitation services under the project (of which female (number);[35]
- Water users provided with new/improved I&D services under the project (of which female) (number);

6.6: protecting and restoring water-related ecosystems; 6.a: international cooperation and capacity-building; 6.b: local participation in water and sanitation management.

[34] Water stress is described in footnote 9. For purposes of this project, water stressed basins include basins where 40 percent or more of the available supply is withdrawn every year.

[35] This indicator measures the people provided with access to wastewater services as a result of the wastewater treatment facilities provided under the project. This is aligned with the SDG definition of improved sanitation facility at the household level that is not shared with other households and where excreta is safely disposed of in situ or treated off site.

- Irrigation efficiency[36] (percentage);
- Template for Protocols[37] for wastewater re-use between participating SKI and DSI developed (Yes/No)

The detailed Results Framework[38] is presented in Section VII.

## B. Project Components

32. **Component A: Wastewater Collection, Treatment, and Reuse (Cost Estimate: EUR 74.6 million).** This component, to be financed through the ILBANK loan, aims to strengthen resilience to increasing climate change-induced water scarcity and to reduce environmental pollution in selected water-stressed basins through wastewater treatment, reuse, and resource recovery for municipal irrigation and other beneficial purposes.[39] This component mainly contributes to the fourth pillar of the GCRF (through subcomponent A3) by supporting green and sustainable growth policies and strengthening policies, institutions and investments for rebuilding better . ILBANK, as the Borrower under this component will provide sub-loans ("Municipal Sub-loans") to eligible SKIs[40] ("Municipal Sub-borrowers") to undertake infrastructure investments (including goods, works, and consulting and non-consulting services) to upgrade wastewater collection and treatment, and reclaim wastewater for resource recovery and reuse ("Municipal Subprojects") (Subcomponent A1). Under Subcomponent A2, the Project will also support completion of preparatory activities for infrastructure investments under subcomponent A1 of the project.

33.

34. **Subcomponent A1: Construction and Upgrade of Wastewater Collectors and Treatment Plants with Reuse and Resource Recovery Potential (Cost Estimate: EUR 72.9 million).** This subcomponent will provide sub-loans from ILBANK to eligible SKIs for goods, and works related to wastewater collection, treatment, reuse, and resource recovery infrastructure investments. The investments will include: (a) extension or rehabilitation of priority raw wastewater collection and conveyance systems; (b) expansion or upgrading of existing WWTPs with reuse potential; (c) rehabilitation and retrofitting of WWTPs in operation with biogas capture and energy generation facilities and/or sludge treatment processes, allowing for the recovery of these subproducts for reducing energy-related operational costs or for other end uses such as agricultural or industrial use; and (d) development of Supervisory Control and Data Acquisition (SCADA) systems for monitoring wastewater quality, as required. Innovative technical solutions for all of the above have the potential to reduce capital and operational costs and contribute to improved water and energy security while reducing GHG emissions. For example, biogas production through sludge digestion can contribute to meeting wastewater utilities' energy

[36] This indicator refers to the increase in irrigation efficiency realized by the reduction of conveyance losses by use of modern irrigation methods based on closed rather than open channel methods. Values and targets refer to efficiency increase, in absolute percentage points from baseline, averaged over project schemes.
[37] Protocols in this case will entail appropriate instruments such as Wastewater Reuse Agreements between wastewater treatment service providers, specifically DSI.
[38] The baselines and targets provided in Section VII are indicative and will be finalized during the first year of implementation depending on the agreed scope of works and feasibility studies. For Component A indicators, targets have been provided based on Konya WWTP for which data is available as of now.
[39] In line with the GoT's 11th NDP, the subprojects to be prioritized under this project will focus on wastewater reuse and resource recovery for irrigation. However, opportunities for wastewater reuse and resource recovery for other purposes such as irrigation of municipal areas and industry will be explored where appropriate and due consideration will be given to improved financial sustainability.
[40] Semi-autonomous SKIs manage water and wastewater services in metropolitan municipalities (over 750,000 people), while for non-metropolitan municipalities the services are managed by municipalities directly.

needs, and the use of biosolids for agriculture can reduce sludge transport and disposal costs. Several of the potential SKIs that expressed interest in participating in the project, including those in municipalities such as Konya, prioritized biogas production in their feasibility studies and designs. To ensure the long-term sustainability in the management of the wastewater investments, and their resilience to climatic and non-climatic events, and innovation, the SKIs receiving sub-loans will be required to commit (under the Sub-loan agreement) to prepare performance improvement action plans for the investments (the preparations for such performance action plans are expected to be supported by the World Bank through a trust fund).

35. **Sub-project selection.** Investments to be financed under this component will be located in a water-stressed area included in ILBANK's pipeline of municipal wastewater collection and treatment. ILBANK, in close consultation with and based on demand from municipalities, will identify potentially eligible municipalities to receive investment financing under the project based on the following eligibility criteria: (a) aligned with existing national and/or municipal plans and policy documents (such as the national Annual Investment Program and municipal development plans; (b) maturity and readiness of the investment based on completeness of technical studies, such as pre-feasibility and designs; (c) demand for treated wastewater[41] and potential for resource recovery and related benefits; (d) scale of the subprojects and estimated costs vis-à-vis the available resources; (e) will not trigger OP 7.50 - Projects on International Waterways; and (f) SKI creditworthiness. Subproject eligibility and prioritization criteria should additional investments be considered in the future will be elaborated in the Project Operations Manual (POM) to be prepared by ILBANK.[42] Selected investments will be subject to a more detailed technical appraisal by ILBANK based on a review of existing pre-feasibility and design documentation.

36. **Subcomponent A2: Technical Support for Preparation and Implementation of Investments in Wastewater Treatment (Cost Estimate: EUR 1.6 million).** This subcomponent will finance sub-loans to municipalities for consultancy services to support preparatory activities under Subcomponent A1, including: (a) review of existing designs, development of detailed engineering designs of the treatment and monitoring systems (SCADA), resource recovery, and preparation of bidding documents;[43] (b) construction supervision; and (c) preparation of required environmental and social management instruments, such as Environmental and Social Impact Assessments (ESIAs) and Environmental and Social Management Plans (ESMPs); (d) carrying out citizen and community engagement activities and trainings to facilitate effective two-way engagement among stakeholders on pertinent issues relating to the Project and to broader water circularity, efficiency improvement and resilience through online surveys; and e) energy and operational efficiency audits in wastewater treatment plants for participating Project Municipalities/SKIs. Energy is often the costliest component of WSS operations, and energy efficiency and renewable energy serve both to reduce emissions of GHGs and advance climate goals while strengthening financial performance. Making these utilities more efficient or even transforming them into energy producers (of renewable sources for example, by capturing and using generated biogas) are effective ways to manage and reduce operational costs, hedge against fluctuations in energy prices, ensure long-term operational sustainability, and increase the resilience of water systems.[44] For most urban WSS utilities, investments in energy efficiency generate the highest returns. Audits

[41] Demand is defined as demonstrated willingness to use treated wastewater for specific purpose.
[42] ILBANK and DSI are to prepare two separate POMs each of which will elaborate on the respective roles of the entities with regard to project activities under this component.
[43] In certain subprojects, procurement may be conducted based on design and build or design-build and operate contracts which may not require the full scope of preparatory work described under this activity.
[44] Mainstreaming Energy Efficiency Investments in Urban Water and Wastewater Utilities report by the World Bank: *https://openknowledge.worldbank.org/handle/10986/31927*

of existing WWTPs can also reveal excess capacity in some treatment processes, thus helping prioritize investments and lowering costs when plants need to be upgraded or expanded.[45]

37. **Subcomponent A3: Institutional Strengthening, Capacity Building, Innovation and Gender (Cost estimate: EUR 0.1 million[46]).** This subcomponent will support technical assistance activities to strengthen the participating SKIs in order to deliver resilient, efficient, innovative, and sustainable wastewater services across the sanitation service value chain. This activity will support institutional capacity-building activities including knowledge exchange workshops, study tours, training, and other activities aimed at promoting innovation and learning and sharing of best practices for sector institutions at central and local authority level within Türkiye, including ILBANK and SKIs on aspects relating to promoting water security and resilience as well as training for municipal staff encouraging the female staff in technical and leadership skills, gender diversity training, gender sensitization of all employees and management, and mentorship programs. To help narrow the gender gap in employment of women in technical roles in the engineering sector in Türkiye, the ILBANK PMU and the SKI PIUs will encourage design and supervision firms to include more female experts in their staff by receiving additional technical points during proposal review. Given the volume of design and supervision services required in this Project, there is a real opportunity to advance the professional experience of female experts and technical professionals through this Project[47]. The project will also implement the Equal Aqua survey[48] in the participating SKI/s with Bank support to capture data on female and male employment and diagnose any barriers to promote equal opportunities for women.

38. **Component B: Rehabilitation, Construction, and Modernization of Irrigation Systems (Cost Estimate: EUR 318.75 million[49]).** This component will be financed through a Government of Türkiye loan, to be implemented by DSI, to finance goods, works and consultancy services relating to rehabilitation and modernization of irrigation infrastructure to improve water and energy efficiency and productivity. This component contributes to two of the pillars of the GCRF, specifically: (i) Pillar 1, Responding to Food Insecurity, through support to the agricultural producers through irrigation systems; and (ii) Pillar 3, Strengthening Resilience, especially to water scarcity. Specifically, it would finance: (a) transformation of open channel irrigation systems to more water-efficient 'closed' (pressurized) irrigation systems to reduce non-beneficial water losses and conserve energy, (b) installation of irrigation hydrants and smart water meters for the piped irrigation systems, and (c) development of new or existing irrigation schemes to be supplied by treated wastewater in selected basins. Support to WUAs for adopting modern, more efficient on-farm irrigation systems such as drips and sprinklers is the responsibility of TRGM under a separate Government program.

39. Activities under this component will lead to significant mitigation benefits by reducing non- beneficial water losses, improving water and energy efficiency, and helping to increase carbon sinks by assisting in enhancing storage of soil carbon through an increase in irrigated land. Moreover, the adaptation co-benefits will be

[45] See the case of "Optimizing WWTP in Sao Paulo". World Bank, 2020: *https://openknowledge.worldbank.org/bitstream/handle/10986/36245/Water-in-Circular-Economy-and-Resilience-WICER-The-Case-of-Sao-Paulo-Brazil.pdf?sequence=5*

[46] Opportunities for identifying complementary grant resources from Bank Executed Trust Funds and technical assistance for supporting some of the knowledge sharing and capacity building activities will be exploited by the Bank where available.

[47] Bidding consultancy firms that include females in at least 20 percent of key positions will receive additional points during evaluation of bids.

[48] https://www.worldbank.org/en/topic/water/brief/inclusive-water-institutions-platform

[49] The cost estimate does not include cost for irrigation schemes to be fed by treated wastewater under the initial identified potential scheme (Konya) and will be financed through future financing.

achieved by: ensuring climate resilient infrastructure, ensuring efficient and fair allocation of water resources, reducing excessive and unproductive use of water leading to more volume available during droughts, and reducing unsustainable abstraction of groundwater to enhance resilience to droughts and rising temperatures, and to prevent the occurrences of sinkholes.

40. **Subcomponent B1: Conversion of Open Mains, Secondary, and Tertiary Canals to Pressurized Pipelines and Rehabilitation of Associated Infrastructure (Cost Estimate: EUR 265 million).** Activities under this subcomponent will include (a) the conversion of open concrete-lined trapezoidal main, secondary, and tertiary canals to closed, buried, and pressurized pipelines and (b) rehabilitation of head structures and pumping stations, including the electrical and mechanical components; and (c) consultancy services for LMPs, ESF studies and Dam safety experts, and goods for dam safety measurement. The project is expected to finance the modernization of at least three irrigation schemes or subprojects located in priority water-stressed provinces, as identified by DSI and included in its Strategic Program as well as the GoT's Annual Investment Plan (AIP). The subprojects will be selected from a long list of schemes identified by DSI and submitted to the SBO under a framework approach, based on specific criteria agreed with the parties and the World Bank. The final schemes will be confirmed by DSI in collaboration with GoT's SBO by project effectiveness. However, an indicative list of three potential schemes to be included have been proposed by DSI (table 1). The total or gross area to be irrigated by these tentatively identified schemes is estimated to be 30,396 ha, benefiting more than 19,651 people. The source of water for the schemes are existing reservoirs created by building dams on rivers or creeks and groundwater (existing).

**Table 1. Indicative[50] List of Potential Irrigation Schemes**

| Irrigation Scheme | Gross Service Area (hectare) |
|---|---|
| Pazarcık Kartalkaya Dam Irrigation Scheme | 20,431 |
| Karakuyu (Dombay) Pumping Irrigation Scheme | 1,100 |
| Sarimsakli Dam Irrigation Scheme | 8,865 |
| Total | 30,396 |

41. **Subcomponent B2: Installation of Irrigation Hydrants and Smart Water Meters to the Piped Irrigation Systems (Cost Estimate: EUR 53 million).** This subcomponent will support the installation of prepaid meters to water intake facilities in existing piped irrigation systems as part of Türkiye's Effective Use of Water in Agriculture Program. DSI plans to purchase and install a total of 80,000 prepaid water meters with hydrants in about 556,000 ha irrigation area in 25 of its regions under the Program, of which this project will finance the installation of 50,000 prepaid water meters with hydrants with an estimated cost of EUR 53 million. The remaining 30,000 meters will be installed using the Government's own finances. Associated investments will include additional structures, pipes, and other appurtenances which will be encountered in the transportation and installation of the meters on site. The meters will allow for volume-based monitoring and payment with metered water intake for about 250,000 ha of irrigation area which are unmetered. The meters will allow for volume-based monitoring and payment with metered water intake for about 387,964 ha of irrigated areas which are unmetered. The use of water meters is expected to prevent farmers' excessive water consumption habits and to increase irrigation efficiency due to less water consumption. On average, the irrigation water use per hectare is 10,262 $m^3$ in Türkiye for open canal and low-pressure systems, 8,430 $m^3$ per ha in piped irrigation systems, and 6,452 $m^3$ per ha in systems where the volume-based tariff is applied. Introducing hi-

[50] The list of schemes is to be confirmed by loan effectiveness.

tech irrigation in the absence of controls on water allocations may lead to increases in consumption per unit area. The installation of water meters allows for proper monitoring of water use at the farm level. The project design includes water audits (under Component C) which will inform water allocation and pricing policy decisions.

42. **Subcomponent B3: Feasibility studies and designs for Wastewater Tertiary Disinfection Units and Associated Irrigation Water Distribution Networks for Reclaimed Wastewater Conveyance (Cost Estimate: EUR 0.25[51] million).** This subcomponent will finance: (i) feasibility studies and designs for tertiary disinfection units for wastewater treatment plants that will treat wastewater for irrigation purposes (Subcomponent B3.1), and (ii) feasibility studies and designs for irrigation water conveyance infrastructure for the treated wastewater for irrigation purposes (Subcomponent B3.2). The feasibility studies and designs for the disinfection units and those for the associated irrigation network will be approved by DSI and SBO prior to implementation of relevant investments. Once approved, the investments will be included in the AIP and DSI may request for additional loan financing from the World Bank. DSI will coordinate implementation of this subcomponent closely with respective SKIs as needed, including data and information sharing for the future investments.

    (a) **B3.1 Feasibility studies and design for wastewater disinfection units.** These activities will be implemented by DSI. DSI will be responsible for the procurement of relevant consultancy services for these activities. The disinfection units comprise discrete infrastructure components of the WWTPs that will treat the wastewater to meet the quality standards required for reuse for irrigation. Goods and works related to the construction and installation of relevant investments may be financed through future financing that may be requested by DSI from the Bank should the feasibility studies for such investments be approved by SBO[52]. In such case, the respective SKI will be responsible for operation and maintenance (O&M) of the entire wastewater treatment plant systems, including the disinfection units, to ensure a smooth transition between the main treatment plants, disinfection units, and the irrigation schemes that will use the treated wastewater, but DSI will own the disinfection units. A protocol arrangement will be established between DSI and the relevant SKI to allow for clarification of aspects such as O&M of the disinfection units.

    (b) **B3.2 Feasibility studies and design of irrigation networks using treated wastewater.** This subcomponent will finance the feasibility studies and designs for the irrigation network that will convey the treated wastewater for irrigation to farms. These activities will be implemented by DSI, which will be responsible for the procurement of relevant consultancy services for these activities. The irrigation networks will be owned by DSI. Priority will be given to schemes located in basins characterized by severe water scarcity and groundwater depletion, such as Konya and potentially others to be identified. Goods and works related to the construction and installation of relevant investments will be financed separately through additional financing to be requested by DSI from the Bank once the feasibility studies and investments are approved by SBO.

    (c) **Preparation of a Wastewater Reuse Protocol templates.** Preparation of a Wastewater Reuse Protocol

[51] This cost currently covers only the feasibility studies. DSI intends to seek additional financing for this sub-component to cover the construction costs once the feasibility studies are completed and approved through a separate financing agreement.
[52] It is noted that any request for additional financing would be subject to the approval of SBO.

template and framework for its use in the management of future wastewater reuse investments[53].

43. **Subcomponent B4: Provision of Technical Support to Participating WUAs (Cost Estimate: EUR 0.5 million)**. This subcomponent aims to strengthen the capacity of WUAs participating directly in the project, particularly those involved in the use of treated wastewater for irrigation, on key aspects linked to managing irrigation schemes. Activities supported under this subcomponent will include: (a) consultations with WUAs in coordination with DSI on safe use of treated wastewater and incorporation of their feedback in the final design of the schemes. This subcomponent will also; and (b) support for women's participation and voice in the context of WUAs by. The latter will aim at increasing the employment of women as WUA staff; awareness raising about the importance and benefits of women's membership and leadership in WUAs; and providing capacity building activities for female WUA members, staff, and women farmers in the use of smart agricultural and irrigation technologies, products, and markets, etc., to enhance opportunities for women in the field positions. The adoption of on-farm water-efficient irrigation technologies and agronomic practices is an essential element of the irrigation modernization agenda of Türkiye. However, the Government has a dedicated national program for facilitating the adoption of water efficient on-farm technologies. These interventions will address the risks associated with increasing the projected increase in water demand and reduced water availability projected due to climate change by increasing efficiency of water use and enhancing the safe and economic utilization/use of the treated wastewater.

44. **Component C: Institutional Strengthening, Capacity Building, and Innovation for irrigation services and implementation of circular principles in water (Cost Estimate: EUR 1.0 million from RoT loan).** Component C will support technical assistance activities to strengthen the institutional capacity and coordination of sector institutions at national and local authority levels in order to deliver resilient, efficient, and sustainable irrigation services and to support strengthening of key elements of the enabling policy, institutional, and regulatory (PIR) environment for promoting implementation of water in a circular economy principles in Türkiye. An analysis of the PIR elements supporting water in a circular economy and resource recovery (WICER) activities carried out by the World Bank as part of project preparation identified priority areas for institutional strengthening and capacity building, in consultation with key stakeholders from the GoT, including ILBANK, DSI, SUEN, and other sector agencies. Details on the PIR findings and broader priority interventions are provided in the project files. Proposed technical assistance activities under this component contribute to the GCRF Pillar 4 - Strengthening Policies, Institutions and Investments for Rebuilding Better. It will specifically support the following:

45. **Subcomponent C1: Study and Roadmap for Strengthening Reused Wastewater Financing and Regulatory Mechanisms (Cost Estimate: EUR 0.1 million).** Implemented by DSI, in collaboration with other key stakeholders, this activity will support consultancy services to develop appropriate financing mechanisms to cover CAPEX and OPEX costs for wastewater reuse and resource recovery for different uses. The subcomponent will include a study to explore tariff and subsidy levels; tariff setting methodologies; cost recovery levels and affordability; willingness to pay for water, wastewater, and irrigation services; and financial modelling options. The study will identify medium- to long-term pathways to promote progress in cost recovery that will be both affordable to consumers and financially sustainable for the SKIs and municipalities.

[53] This activity will not be financed through the loan. It will be carried out by DSI internally with advice and global lessons as needed shared from the Bank through its Water in a Circular Economy Business line.

46. **Subcomponent C2: Stakeholder and Citizen Engagement Activities for Activities Implemented Through DSI (Cost Estimate: EUR 0.25 million).** This activity will support consultancy and non-consultancy services implemented by DSI to develop and promote broad understanding and buy-in to project interventions, ensure citizen engagement in project design and implementation, and facilitate GRMs throughout the project cycle. Specific activities will include: (a) development and implementation of community scorecards, (b) engagement of WUAs as the main institution responsible for local water management structures supported by the project and for participatory monitoring of reclaimed wastewater quality, and (c) development of a beneficiary feedback system for a timely response to community level grievances and issues. This activity will also support DSI and WUAs in implementing awareness campaigns directed at the end users of treated wastewater to inform them about project activities as well as to communicate risks and mitigation measures.

47. **Subcomponent C3: Energy Audits for Irrigation Systems (Cost Estimate: EUR 0.25 million[54]).** This activity, to be implemented by DSI, will support detailed Energy and Water Audits of the irrigation systems that will be selected for rehabilitation and modernization in Subcomponent B1. The assessment will include estimation of the potential reduction in energy use, peak demands, water losses, and GHG emissions through improved pumping efficiency, re-design, and rehabilitation of electrical and mechanical structures. This technical assistance subcomponent will also include an assessment of international experience with the benefits and costs of prepaid water meters (for example, reduction in water use and losses, increase in irrigation efficiency, increase in area irrigated, and related co-benefits that may include reduction in energy use and GHG emissions). This assessment will also be beneficial in designing the structure of the implementation program for the prepaid meters. The findings of these activities will inform policy and regulatory interventions such as water allocation and pricing decisions.

48. **Subcomponent C4: Capacity Building, Training, and Innovation (Cost Estimate: EUR 0.15 million).** This activity, to be implemented by DSI, will support knowledge exchange workshops, study tours, training, and other activities aimed at promoting innovation and learning and sharing of best practices for sector institutions at the central and local authority level on aspects relating to water security and resilience. These activities will promote various global partnerships between Türkiye and countries with similar water policies, such as Portugal, Australia and the United States, with whom the Bank is working closely on water management knowledge aspects. Specific topics will focus on, but not be limited to: (a) management of water in a circular economy and use of non-conventional water resources, including wastewater reuse for irrigation and other purposes and resource recovery; (b) priority topics on broader water resources management, such as water storage, water allocation and accounting, and monitoring. Türkiye is also developing and implementing innovations on various water management aspects, such as its new Water Management Information System (SUTEM),[55] and it will be able to contribute to global knowledge through this component. More substantive investment and non-investment interventions on broader water resources management

[54] The Bank is exploring grant resources to co-finance these activities.

[55] SUTEM is a GIS enabled Management Information System designed to support smart-decision making and increase the WUAs operational efficiency by centralizing data related to physical (irrigation network condition, type of water source and availability, etc.), socio-economic (total number of water users/farmers, crop types and cropping patterns, etc.) and managerial (assessment and collection of service charges, investment needs, etc) aspects of the targeted irrigation schemes. Ultimately, the MIS will support sustainable land management for agricultural uses by encouraging more efficient water use, better crop management, and multi-stakeholder planning and investment. Turkiye Irrigation Modernization Project finances: (i) upgrading of national WUAs database, to allow performance monitoring on various dimensions (O&M, water conservation, financial management, governance, M&E, and communications); (ii) provision of equipment to WUAs, to enable their participation in the platform; and (iii) training of WUAs to improve technical and financial management capacity.

aspects will be considered in another parallel operation in the pipeline[56] involving DSI, focused on flood and drought management and integrated water resources management.

49. **Subcomponent C5: Support for Piloting an Irrigation Scheme under PPP Arrangement (Cost Estimate: EUR 0.25 million).** This subcomponent will support the assessment of innovative financing and business models for financing and managing specific irrigation subprojects. An appropriate PPP model will be identified and readied for piloting in at least one irrigation scheme. DSI intends to develop 1000 ha pilot PPP irrigation scheme based on a BOT by engaging the private sector. The purpose of this subcomponent is to assess the technical feasibility and financial viability of this pilot scheme. Currently the proposed pilot PPP irrigation scheme is at the pre-feasibility or pre-viability stage requiring additional detailed assessment. This component will perform:(a) pre-feasibility/pre-viability analysis of a limited array of PPP options other than BOT, including brief highlights of potential irrigation PPP models; (b) initial assessment of the feasibility of the proposed irrigation PPP models in the context of Türkiye under the current policy; and (c) an evaluation of the proposed pilot PPP irrigation scheme, including an initial estimate of the risk-based priority investment plan. A study tour will be organized to expose Türkiye officials to international PPP practices and enhance their knowledge about various PPP models in irrigated agriculture, specifically those used in Spain and Morocco. The final output is a financially viable PPP model for implementation.

50. **Component D: Project Management (Cost Estimate: EUR 1.4 million, comprising EUR 0.4 million for ILBANK and EUR 1.0 million for DSI).** This component will have two subcomponents that finance project management costs for ILBANK (Subcomponent D1) and DSI (Subcomponent D2). Eligible activities will include consultant and non-consulting services, goods, training, and operating costs required by ILBANK (Subcomponent D1) and DSI (Subcomponent D2) to implement the project according to World Bank policies and guidelines. These will include consultant services to support implementation of procurement and financial management (FM) aspects, social and environmental risk management and climate change-related aspects, technical and contract management, M&E, and project reporting and communications, as agreed with the World Bank. It will also finance incremental operating costs, including goods and consulting services required to support DSI, ILBANK, and the municipalities'/SKIs' day-to-day project coordination and supervision activities in the above areas as well as workshops and other events required to facilitate project management.

### C. Project Beneficiaries

51. **The project will yield benefits on two levels: populations received improved services and institutions.** The primary beneficiaries of the project will be (a) the population that benefits from the access to improved wastewater collection and treatment services and reduced environmental pollution, and (b) communities and farmers who would benefit from improved access to irrigation services, specifically in terms of efficiency and reliability, with accompanying potential for enhanced productivity, income, and livelihoods in a post-COVID-19 context. The total envisaged number of beneficiaries for the Wastewater treatment services are 1,000,000 people, and for the irrigation services are estimated at 4,880 people. The total estimated number of project beneficiaries based on envisaged activities will be updated once the full scope including the beneficiaries of the irrigation schemes that will use the treated wastewater are determined after the relevant feasibility studies are completed. The second group of project beneficiaries are the staff of sector institutions, including

[56] The proposed Flood and Drought Management Project is envisaged for Fiscal Year 24?

the MoAF, DSI, and beneficiary municipalities, utilities, and WUAs which would benefit from the project-financed technical assistance for institutional strengthening and capacity building activities.

### Project Cost and Financing

52. The total project costs are estimated at EUR 395.75 million. The lending instrument will be an Investment Project Financing (IPF), which will provide an IBRD loan of EUR 320.75 million to the Republic of Türkiye and EUR 75 million to ILBANK with the Guarantee of the Republic of Türkiye (through the MoTF). The project will be implemented over a seven-year period given the nature of the proposed infrastructure investments and the design approach requiring coordinated feasibility studies involving multiple stakeholders. This timeframe will allow sufficient time for completion of ongoing feasibility studies as well as stakeholder engagement and tendering prior to construction and operationalization of the wastewater treatment and reuse investments. Completion of large irrigation schemes also requires several years for construction.

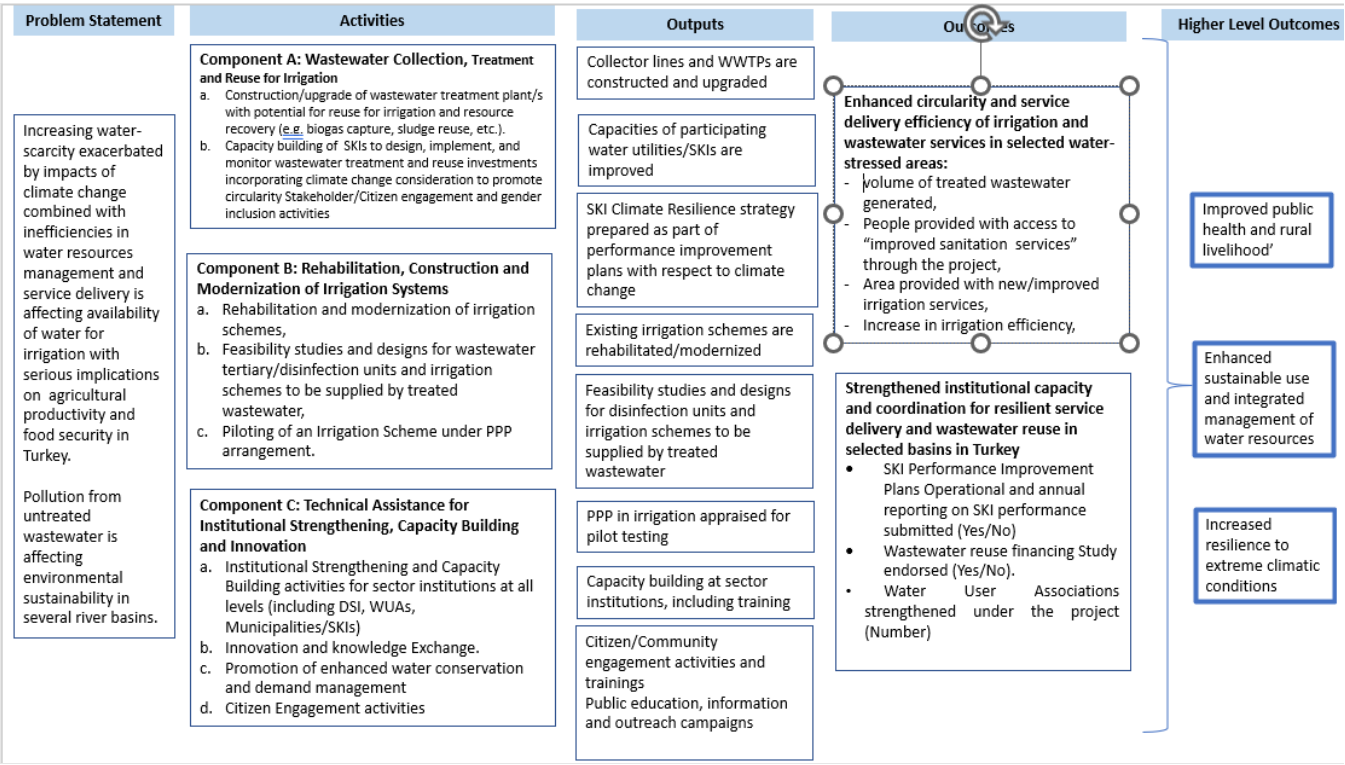
**Table 2. Estimated Cost Breakdown by Component**

| | Description | ILBANK Loan | GoT/MoTF/DSI loan | Estimated Cost |
|---|---|---|---|---|
| | | EUR, millions | | |
| 1 | Component A: Wastewater Collection, Treatment, and Reuse | 74.6 | 0 | 74.6 |
| 2 | Component B: Rehabilitation, Construction, and Modernization of Irrigation Schemes | 0 | 318.75 | 318.75 |
| 3 | Component C: Technical Assistance for Institutional Strengthening, Capacity Building, and Innovation | 0 | 1.0 | 1.0 |
| 4 | Component D: Project Management | 0.40 | 1.0 | 1.4 |
| | TOTAL | 75.00 | 320.75 | 395.75 |

## D. Results Chain

53. The project will support the GoT in addressing the challenges of increasing climate change induced water scarcity and reducing the wastewater pollution load in select water-stressed basins. The project will contribute to addressing these challenges by supporting the following innovative technical solutions and interrelated interventions: (a) upgrading wastewater collection, treatment, and provision of reclaimed wastewater for reuse; (b) rehabilitation and modernization of irrigation infrastructure to improve water and energy efficiency and productivity; and (c) strengthening institutional capacity and coordination at the national level, as well as at the local level for management of water resources in a circular economy and reducing point source pollution. In the long run, these outcomes will: contribute to improved public health, enhance sustainable use and integrated management of water resources, strengthen climate resilience, and reduce GHG emissions in selected basins of the country. Figure 1 illustrates the project's Theory of Change.

**Figure 1: Theory of Change**




## E. Rationale for Bank Involvement and Role of Partners

54. **The World Bank is a leading partner globally and in Türkiye in the water security agenda, including WSS service provision, water for agriculture, and water resources management as well as strengthening resilience to climate and non-climate risks in the sector.** The Bank has had a long-term engagement in Türkiye's water sector and is currently financing several infrastructure investment operations, including TIMP, the Sustainable Cities Series of Projects, and the Municipal Services Improvement Project (MSIP) for refugees in Türkiye. The Bank has also been engaged in policy dialogue and provision of technical assistance on various water-related topics, including PPP in irrigation. World Bank support for the proposed project will be instrumental in addressing water security and resilience while promoting low-carbon interventions in selected water-stressed basins. The proposed project is expected to present an opportunity to further this collaboration in strengthening sector resilience to climate change and other shocks.

55. **The World Bank's convening power and its ability to support countries in the implementation of 'proof-of-concept' approaches is critical in developing new programs that can be scaled up and potentially leverage additional financing from development partners for future rollout**. Given the water security challenges in Türkiye, the overall investment needs are much larger than existing government resources. The World Bank has had initial discussions with other development partners, including the Asian Infrastructure Investment Bank, about this project and potential co-financing opportunities for scaling up project activities in the future.

### F. Lessons Learned and Reflected in the Project Design

56. **The project design draws on global lessons implementing wastewater and irrigation projects**. These include the implementation of several wastewater treatment, reuse, and resource recovery operations in Mexico, Tunisia, USA, and Australia, as well as irrigation modernization activities implemented by DSI in Türkiye. The following are the main lessons reflected in the project design.

57. **Adequate stakeholder engagement and institutional coordination are critical for successful implementation of wastewater reuse and resource recovery operations.** Lessons from similar operations globally[57] show that reuse and resource recovery projects can be delayed or fail if stakeholders have not been adequately engaged in the process of assessing and addressing negative perceptions of reclaimed water and reuse products. Thus, the project includes stakeholder engagement activities to promote buy-in from stakeholders and ensure demand for treated wastewater prior to construction.

58. **More efficient water management by improving the performance of existing irrigation systems often has higher returns on investment than infrastructure expansion.** While Türkiye still has ambitious targets for expanding the area under irrigation, there is a growing realization that improving the performance of existing systems has higher returns on investment, and therefore should receive high priority. Thus, the World Bank's engagement in irrigation and the design of this specific project are accordingly focused on modernization of existing irrigation schemes.

59. **The introduction of efficient irrigation systems on total water use does not always lead to water savings without adequate controls.** In the absence of controls on water allocation, farmers often increase overall water consumption by expanding land under irrigation in response to the more productive technology. Therefore, the irrigation schemes to be financed under the project have been included in the respective basin management plans, which limit the amount of water that can be used for irrigation, while safeguarding the allocations for drinking water, environment, and other needs. The project is also supporting the introduction of smart water metering for irrigation schemes as part of the activities designed to encourage water conservation and savings.

60. **Based on lessons from Spain, Morocco, and other countries, risks linked to the financial viability of PPP in irrigation schemes can be substantial if the partnership is not professionally designed.** The lessons emphasize the need for appropriate revenue streams, and optimal risk transfer allocated among the public and private sector. Not having these elements in place hinders the bankability of PPP schemes in irrigation. Thus, the proposed project focuses on developing a bankable business case rather than being transaction driven.

## III. IMPLEMENTATION ARRANGEMENTS

### A. Institutional and Implementation Arrangements

[57] Delgado et.al. 2021." Water in Circular Economy and Resilience". World Bank, Washington, DC and Rodriguez et al. 2020. "From Waste to Resource: Shifting Paradigms for Smarter Wastewater Interventions in Latin America and the Caribbean." World Bank, Washington, DC.

61. **The project will have two Loan Agreements with different borrowers and implementing agencies.** A Loan Agreement for Components A and D1 will be signed between the World Bank and ILBANK as the Borrower and implementing agency under financial intermediary arrangements. Legal arrangements for these activities will also include a Guarantee Agreement between the Republic of Türkiye and the World Bank, as well as sub-financing agreements between ILBANK and beneficiary sub-borrowers (metropolitan municipalities as well as their affiliated SKIs) for subprojects under Component A. ILBANK will on-lend the loan proceeds to the SKIs or municipalities responsible for managing water and wastewater infrastructure in participating municipalities through the sub-financing agreements.

62. **A second Loan Agreement will be signed between the Republic of Türkiye and the World Bank with DSI as the implementing agency for activities under Components B, C and D2.** The Law on Public Finance and Debt Management No. 4749 (the Debt Law) describes the procedures for international borrowing in the Republic of Türkiye. The Debt Law classifies the international borrowing under three categories: allocation, on-lending, and guarantee. The debt law authorizes the MoTF to allocate foreign-financed loans to DSI, which is a special budget institution.

**Institutional and Implementation Arrangements under ILBANK**

63. **ILBANK will be the implementing financial intermediary for Components A and D1.** Implementation arrangements will be based on the existing, well-established model used under the ongoing World Bank-financed operations in the municipal sector such as the Sustainable Cities Series of Projects (SCP1,2 and AF) (P128605 and P161915) and the Municipal Services Project in Refugee Affected Areas (MSIP) (P169996) co-financed through an IBRD loan and the European Union's Facility for Refugees in Türkiye (FRIT). The project will be implemented through an existing Project Management Unit (PMU) established under ILBANK's International Relations Department, as is the case under the SCP 1 and 2 and MSIP. ILBANK has extensive experience managing the implementation of municipal infrastructure investments as a financial intermediary and has demonstrated its capacity for managing World Bank loans through these projects. The project will include capacity building measures to further strengthen ILBANK's capacity through training and additional staff deployment as required in view of its growing portfolio. ILBANK will maintain at all times the PMU for purposes of the project, with terms of reference and qualified staffing satisfactory to the Bank.

**Institutional and Implementation Arrangements under DSI**

64. **DSI will be responsible for implementing Components B, C, and D2, in close coordination with relevant stakeholders.** MoTF will allocate the loan proceeds to DSI to implement activities as described. DSI has a long history with the World Bank and is familiar with Bank's systems and procedures. It also is the implementing agency for the ongoing TIMP and was involved in previous World Bank-financed lending operations completed in the 1990s. In addition, DSI is one of the implementing agencies of the TULIP under the World Bank's Environmental and Social Framework (ESF). In DSI, the project will be implemented by the Project Management Team (PMT) established in the Department of Projects and Investments (*Proje ve Insaat Daire Baskanligi,* DPI) which is currently implementing the TIMP. However, it will be important to strengthen DSI's capacity for applying the World Bank's ESF because this will be only the second operation implemented by the agency to use this framework. DSI will be at all times the PMT for purposes of the project, with terms of reference and qualified staffing satisfactory to the Bank. WUAs will be responsible for O&M of irrigation systems after they are completed and transferred by DSI.

65. **Municipalities and SKIs.** At the subnational level, Component A of the project will be implemented by SKIs under their respective municipalities, with support from ILBANK. A Project Implementation Unit (PIU) will be established for the project in the participating SKIs to be responsible for implementation of the WWTP subcomponents with technical support from ILBANK. The SKIs will be responsible for O&M of these systems after completion.

66. **Wastewater Reuse Agreements.** Templates for wastewater reuse protocols (reuse agreements) between SKIs providing treated wastewater for reuse and potential end users such as DSI[58] for irrigation reuse. These protocols will clarify what would be the respective rights and institutional roles and responsibilities of these stakeholders and will seek to optimize the design and operation of wastewater treatment and reuse. The protocols will specify aspects such as future: (a) compliance with wastewater quality standards; (b) minimum wastewater quantities; (c) implementation and coordination roles and responsibilities by SKIs, DSI or other end user, such as WUAs;[59] (d) on-site supervision; (e); monitoring requirements and other aspects as will be defined in the protocols.

67. **Other agencies.** In light of the policy interventions required to address the water security challenges, as well as the related overlapping responsibilities for some of the water infrastructure development, O&M, and service delivery functions, other agencies or departments responsible for key aspects of water management may need to be consulted or involved in project activities such as knowledge sharing or capacity building events during implementation to achieve a satisfactory outcome. These may include the General Directorate of Water Management under the MoAF, MoEUCC, and MoTF.

68. **Project Operational Manual (POM).** ILBANK and DSI will develop detailed POMs for project implementation for each of the respective loans, setting out (a) policies and procedures relating to implementation of project components; (b) FM and procurement arrangements and procedures; (c) environmental and social risk management obligations and procedures; and (d) project coordination arrangements. Both ILBANK and DSI will have prepared and adopted POMs satisfactory to the Bank by loan effectiveness.

### B. Results Monitoring and Evaluation Arrangements

69. **ILBANK's PMU will ultimately be responsible for monitoring, evaluating, and reporting project performance, working in close collaboration with relevant SKI's PIU for Component A. Similarly, DSI's Project Management Team (PMT) will be responsible for monitoring, evaluating, and reporting project performance, working in close collaboration with DSI's regional departments for Components B and C.** In addition to professional staff from relevant DSI departments and regional offices, the PMT will include a full-time M&E officer. The activities implemented through DSI will be monitored through its existing management information system (MIS), which will be further enhanced by the implementation of the national, web-based, and geographic information system-enabled participatory water monitoring system for the WUAs being developed under TIMP. The PMT will be responsible for providing project performance reports to the World Bank semiannually.

[58] Under the framework approach, other end users could be eligible, for example for industrial or other purposes,

[59] Under the scope of this Project, Wastewater Reuse Agreements/Protocol templates will be drafted by DSI to inform development and operation of future wastewater reuse activities. While ILBANK will not be party to such Agreements/Protocols, DSI may directly study/receive comments and inputs from the water and wastewater administrations (SKIs) located in the agricultural areas.

70. **A mid-term review (MTR) of the project will be carried out around three years after commencement of the project.** The MTR will assess overall implementation progress and identify and resolve any key issues affecting implementation. An evaluation will also be carried out at the end of the project to provide input to the Implementation Completion and Results Report (ICR) which evaluates final results, assesses overall performance, and captures key lessons.

## C. Sustainability

71. **Institutional sustainability.** The project includes technical assistance activities aimed at addressing some of the binding policy, institutional, and regulatory constraints, and improving capacity and coordination across institutions for implementing circularity and efficiency improvements in water and wastewater services to improve water security in Türkiye**.** Targeted capacity building and SKI commitment to preparing and implementing performance improvement plans[60] to enhance asset management and overall O&M of the services will enhance sustainability.[61]

72. **Water resources and environmental sustainability.** The reuse of treated wastewater supported by DSI's clear water allocation process will augment freshwater supply in water scarce areas, attenuating the need for over-abstraction of groundwater by farmers and enabling further ecological flows. The project will contribute to reductions in GHG emissions and environmental pollution through improved management of wastewater to ensure compliance with required standards, and recovery of resources such as biogas. Conversion of open concrete-lined main, secondary, and tertiary canals to closed, buried, and pressurized pipeline irrigated land will result in reduced water losses. In addition, the metering of irrigation systems on an area of 387,964 ha will result in water saving by enabling adoption of efficient on-farm irrigation systems and practices (financed by other government programs as well as private investments). However, actual water saving will only be possible if the promotion of higher efficiency irrigation with the same amount of water withdrawals is complemented by regulation and control of total water consumption. Consumption-based water management is critical for regulating water consumption to ensure environmental sustainability in water scarce basins, as will be included in this project. The project will also introduce robust environmental and social management instruments for the selected schemes to protect the environmental and social integrity of the water resources.

73. **Financial and economic sustainability of wastewater investments and services will depend on the ability of the SKIs to mobilize the necessary technical and financial resources to manage the new assets effectively.** ILBANK conducts creditworthiness assessment of all participating SKIs as part of its selection criteria for sub-borrowers. The proposed project design also encourages subprojects which aim to either lower O&M costs (for example, by increased energy efficiency, generating energy from biogas, and reducing sludge management costs) or create additional revenue streams for the utility from treated wastewater or biosolids from sludge. For the irrigation schemes, the economic analysis of Component B indicates financial viability at the household level, and financial viability at the scheme level because of the expected agriculture benefits.

[60] SKIs may be supported through complementary technical assistance activities, such as the Utility of the Future[60] (UoF) Bank-executed trust fund, which provides support for utility performance improvement

[61] The Bank provided earlier support to Konya's utility (KOSKI) for preparing a diagnostic of its overall performance against several good practice utility matrix, and preparation of a 100 day and 3 to 5-year action plan for addressing critical priority actions identified by the utility. Through the project, additional UOF support will be provided to support the utility on aspects relating to enhancing implementation of its circular economy priorities and other priorities to be identified in a participatory manner.

Turkish law requires WUAs to repay the scheme modernization costs over a 25-year period, and the WUAs in successful irrigation schemes have a strong record of repayments. The high up-front costs of these schemes are typical of irrigation projects; however, their benefits are expected to positively transform the local economies over the long term.

## IV. PROJECT APPRAISAL SUMMARY

### A. Technical, Economic and Financial Analysis

**Technical Analysis**

74. The investments under Component A will be selected from eligible subprojects from interested municipalities/SKIs included in the Government's Annual Investment Program (AIP). The World Bank reviewed and conducted technical due diligence on potential sub-projects to be financed based on project information documents, and pre/-feasibility studies from SKIs, such as Konya Water and Wastewater Utility (KOSKI), which expressed demand for a sub-loan for the upgrade of its existing WWTP with the inclusion of circular economy principles, including watering of green areas, as well as the recovery of biogas from sludge. Detailed technical appraisal of the final selected sub-projects will be performed once approved by the Strategy and Budget Office of the Presidency (SBO).

75. The feasibility studies and existing design documents for the subprojects will be elaborated further considering the needs based on the key drivers of the project, including water scarcity, investment needs identified by municipalities/SKIs, and demand for treated wastewater, including for irrigation purposes as assessed by DSI, or required by irrigation unions or farmers. Other uses, such as the irrigation of municipal parks or industrial processes could also be considered, where feasible, including if combined with other uses such as irrigation for agriculture. The end-use will be identified and chosen before the design of the tertiary treatment to ensure a fit-for-purpose approach. Other factors to be considered will include an analysis of alternatives, soundness of the engineering designs, economic and financial analysis (EFA) of the projects, and soundness of the estimated budget compared to international and national benchmarks. The technical designs will explore innovative solutions that will promote cleaner technologies and resource recovery, energy efficiency improvement, and lower emissions. Procurement procedures for these WWTPs with the potential for reuse and resource recovery would consider appropriate approaches such as the Design and Build or Design, Build, Operate, and Transfer, allowing for technical innovation. Innovative technical solutions will seek to reduce operational costs and contribute to water and energy security while reducing GHG emissions. Knowledge sharing on innovative solutions to implement them will be promoted with relevant Turkish stakeholders through Component C.

76. **Readiness.** For Component A, technical assistance and consultancy activities to be financed during the first 18 months of implementation have been identified. Preliminary technical designs for the WWTPs have been prepared for sub-projects in several potential beneficiary municipalities, such as Konya. However, the feasibility studies for the tertiary/disinfection units for treating wastewater for reuse for irrigation are under preparation by DSI. For Component B, the technical aspects of the indicative list of irrigation schemes have been reviewed and conform to good practice. The schemes are located in various parts of the country with high agricultural production potential due to favorable local climates, soils, farming skills, and market links, all of which are demonstrated by a long period of continuing operation of the existing schemes. Farmer

willingness to adopt efficient on-farm irrigation systems is also readily evidenced in many areas by farmers using private assets to install pumps for operating drip irrigation systems.

77. **The engineering designs for modernizing the irrigation systems in each scheme have been optimized for local conditions, especially the expected cropping patterns.** The designs are fairly robust to adaptive changes in technology and farming models. In almost all places, they are designed for commercial agriculture instead of low-value crops. Further, the design parameters are conservative and robust to reduce O&M costs while allowing for gradual water efficiency improvements. Finally, the designs are being finalized based on consultations with WUAs, which have resulted in improvements that will make the investments more sustainable and reduce O&M costs.

78. **Due to the higher efficiency of modernized irrigation systems, there will eventually be an approximately 40 percent reduction in water use per hectare, compared to the current levels.** Reduction in water use will eventually result in a reduction in energy consumption. It will also reduce the level of groundwater use for irrigation. For example, in the Afyonkarahisar Dinar Irrigation Scheme, the use of groundwater will end in an area of 555 ha, corresponding to approximately 3 $hm^3$ of groundwater. Expected changes in cropping patterns will also help increase farmers' incomes. With the implementation of on-farm irrigation measures (not financed by the project but supported by Türkiye's national program and expected to happen gradually during and after the project), the total water demand for the schemes will be lowered from an estimated 286 MCM (original allocation) to 194 MCM, eventually creating a net water saving of 92 MCM. Proposed irrigation modernization schemes under Component B are ready to commence implementation in the first eighteen months.

**ECONOMIC AND FINANCIAL ANALYSIS (EFA)**

79. An indicative EFA was performed in two parts: first, separately for the major project components and subcomponents, to provide economic justifications for their inclusion in the project, and second, for the whole project, to assess its overall financial and economic viability. The cost-benefit analysis for the WWTP investments is exemplified by Konya WWTP because other WWTPs are in the early design stages with resulting data constraints and lack of preparedness. The detailed results are presented in a technical annex (not attached to this PAD).

**FINANCIAL ANALYSIS**

80. **Financial implications for water and sewerage administration for Konya.** The financial net present value (FNPV) was found to be US$27.4 million with a Financial Internal Rate of Return (FIRR) of 15.6 percent. In addition, the creditworthiness and cashflow analysis carried out for Konya utility indicate that the utility maintains the capacity to service its debts using its own operating surplus as indicated by a healthy debt service coverage ratio. Extrapolations of the results for Konya to Component A indicate that overall, the planned investment in WWTPs is financially viable with a combined FNPV of US$83 million.

81. **Impacts on farm-household incomes.** Farm income analysis with and without the project indicates that the project has significant impacts on the income of participating farmers. The change in income ranges from 14 percent to 42 percent (see table 3).

**Table 3. Expected Changes in Farm Household Income due to the Project**

| Irrigation Scheme | Household Land Size (Decare) | Average Net Household Income (US$) | | |
|---|---|---|---|---|
| | | Without Project | With Project | % Change |
| Karakuyu | 43 | 5,266 | 7,330 | 39 |
| Kahramanmaras-Kartalkaya | 16 | 4,691 | 6,647 | 42 |
| Sarmısaklı | 23 | 3,611 | 4,117 | 14 |

82. **Financial implications at scheme level.** The results of the scheme-by-scheme financial analysis are summarized in table 4. The results demonstrate that the modernization of irrigation schemes is financially viable, with Financial Internal Rate of Return (FIRR) ranging between 19 percent and 46 percent, and a Financial Net Present Value (FNPV) ranging between US$46 million and US$139.2 million. The sensitivity analyses show that these results remain robust to potential capital and O&M cost escalations and substantial reductions in benefits.

**Table 4. Summary Results of Scheme-Level Financial Analysis**

| Irrigation Scheme | Gross Irrigation Area (ha) | Net Irrigation Area (ha) | FNPV million US$ | FIRR (%) | Benefit-Cost Ratio |
|---|---|---|---|---|---|
| Karakuyu | 1100 | 960 | 46.5 | 46.48 | 1.71 |
| Kahramanmaras – Kartalkaya | 20,431 | 18,838 | 139.2 | 30.42 | 1.24 |
| Sarmısaklı | 8,865 | 7,979 | 62.0 | 19.85 | 1.38 |
| **Total** | 30,396 | 27,777 | 185.8 | 26.69% | 1.18 |

**ECONOMIC ANALYSIS**

83. **WWTPs.** Investments in WWTPs generate large positive externalities such as public health benefits and protection of surface and groundwater resources, which may be difficult to accurately value and monetize. Nonetheless, the economic analysis for the rehabilitation and upgrade of WWTPs is conducted assuming three scenarios for the without-project scenarios: (a) no septic tanks, (b) presence of low-cost septic tanks, and (c) presence of high-cost septic tanks. The results of the economic analysis show that the investments at the Konya and other WWTPs are economically viable (table 5). The sensitivity analysis shows that the results remain positive under plausible capital and O&M cost increases, but the project is most sensitive to changes in benefits.

**Table 5. Summary Results of the Economic Cost-Benefit Analysis of WWTPs**

| Indicators | No Septic Tanks | | Low-cost septic tanks | | High-cost sceptic tanks | |
|---|---|---|---|---|---|---|
| | Konya | Component A | Konya | Component A | Konya | Component A |
| ENPV (US$ million) | 1,357.9 | 2,504.5 | 1,389.22 | 2,654.5 | 1,420.5 | 2,804.6 |
| EIRR (%) | 69.8 | 50.6 | 70.8 | 52.5 | 72.0 | 54.5 |
| BCR | 11.01 | 6.75 | 24.42 | 7.09 | 24.90 | 7.44 |

84. **Irrigation schemes rehabilitation and modernization.** Investments in the modernization of irrigation schemes are economically viable. The estimation and inclusion of the GHG emission reduction benefits more than

double the ENPV (table 6). The results remain robust if the capital costs and O&M costs escalate by as much as 30 percent.

**Table 6. Summary Results of Economic Cost-Benefit Analysis for Irrigation Modernization Component**

| Indicator | No shadow price of carbon | Low shadow price of carbon | High shadow price of carbon |
|---|---|---|---|
| ENPV (US$ million) | 202 | 737 | 750 |
| EIRR (%) | 16.3 | 26.8 | 27.0 |

85. **Whole project.** Overall, the project is economically viable considering a discount rate of 6 percent. The estimation and inclusion of GHGs emission reduction benefits significantly enhances the economic viability of the project (table 7).

**Table 7. Results of the Economic Cost-Benefit Analysis for the Whole Project**

| Indicators | No shadow price of carbon | Low shadow price of carbon | High shadow price of carbon |
|---|---|---|---|
| ENPV (US$ million) | 2,792 | 4,928 | 5,102 |
| EIRR (%) | 29.1 | 273.9 | 741.2.0 |
| B/C Ratio | 3.12 | 34.65 | 47.99 |

*Note:* ENPV = Economic Net Present Value; EIRR = Economic Internal Rate of Return.

## B. Fiduciary

86. **Financial Management.** The proposed project FM arrangements are satisfactory to the World Bank. Both implementing entities have experience in implementing World Bank-financed projects. The current FM arrangements used by ILBANK for the implementation of SCP 1, 2, and AF 2 and MSIP and by DSI for the TIMP will be used for the proposed project. The PMU established under the International Relations Department of ILBANK will be responsible for the FM arrangements for parts implemented by ILBANK. Under Component A ILBANK will on-lend proceeds of the IBRD loan to the participating municipalities/SKIs and will provide technical support to these entities in implementing and overseeing implementation of the investments. Procurements will be conducted by the participating municipalities/SKIs. The concluded contracts will be signed by the relevant municipalities/SKIs. Payments to the suppliers/contractors/consultants will be registered directly by ILBANK upon submission of acceptable approval documents. The PMU in ILBANK will be responsible for the management of the Designated Account that will be opened for the part implemented by ILBANK and Project accounting and reporting of related parts (Component A and Subcomponent D1). The project financial statements that will be prepared separately for the part implemented by ILBANK will be subject to independent audit on an annual basis by the Treasury Controllers of the MoTF. The project audit report will be made publicly available on ILBANK's website in line with the World Bank's Access to Information Policy.

87. In DSI, the PMT established at the Department of Irrigation (*Sulama Dairesi Baskanligi,* DI) will be responsible for the project's FM arrangements. DSI's internal control systems will be utilized for this project. The DI (former Project Construction Department) with the support of the Strategy Development Unit will ensure that the annual investment budgets include allocations satisfactory for the timely implementation of project activities. The project procurement will be conducted centrally by the relevant departments of DSI. Relevant regional directorates will be responsible for construction oversight. There will be another Designated Account for the parts of the project implemented by DSI. Payments from the Designated Account that will be opened at the Central Bank will be registered by the PMT. The FM staff currently working on TIMP are qualified and have gained the required experience. The team might be supported with an additional FM expert if deemed necessary during implementation. Project accounting in the currency of the loan will be maintained by the PMT. The project financial statements will be audited by the Treasury Controllers of the MoTF. The project audit report will be made publicly available according to the Access to Information Policy of the World Bank.

88. **Procurement.** DSI and ILBANK[62] as well as the potential beneficiary municipalities/SKIs are all public entities and will be responsible for procurement implementation under their respective subcomponents of the project. Thus, the World Bank Procurement Regulations for IPF Borrowers, dated November 2020 (Procurement Regulations), will apply to the proposed project. The World Bank's Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006, and revised in January 2011 and as of July 1, 2016 (Anti-Corruption Guidelines), will also apply to the proposed project. A General Procurement Notice will be published on the World Bank's external website and United Nations Development Business online.

89. The World Bank has conducted a detailed procurement assessment for the project, with a specific focus on the operating environment of DSI and ILBANK (due to the framework approach adopted under the Project, the participating municipalities/SKIs will be assessed as they become certain during implementation) in terms of: (a) procurement regulatory framework and management capability, (b) integrity and oversight, (c) procurement process and market readiness, and (d) procurement complexity. The assessment concluded that: (a) applicable procurement policies and the regulatory system are designed broadly to meet procurement principles of value for money, economy, efficiency, effectiveness, integrity, transparency and fairness, and accountability; (b) all project implementing entities have a clear system of accountability with clearly defined responsibilities and delegation of authority on who has control of procurement decisions; (c) there is a clearly identified target market for all procurements; and (d) DSI/ILBANK effectively manage contracts to ensure delivery according to the contract conditions. The assessment has been recorded in the Procurement Risk Assessment and Management System of the World Bank.

90. PPSD(s) for both project implementing entities have been prepared based on paragraphs 4.1 and 4.2 of the Procurement Regulations applicable for the project and agreed by the Bank. On the other hand, PPSDs for each sub-project under Subcomponent A1 and activities to be implemented by participating Municipalities under Subcomponents A1 and A2 will be prepared by its own sub-borrower under the coordination and support of ILBANK. The Procurement Plan of the project according to paragraph 4.4 of the Procurement Regulations has also been prepared and finalized for mainly DSI-related subcomponents. The PPSD prepared by ILBANK proposed that all procurements relating to WWTPs and design and supervision services will be conducted by the beneficiary municipalities/SKIs with support to be provided by ILBANK PMU. In addition, DSI's relevant departments will handle the procurement activities for DSI subcomponents according to the

[62] As the financial intermediary.

DSI PPSD. The procurement activities for all project-financed schemes will be conducted at DSI Headquarters centrally, and the regional directorates will be involved with regular supervision of construction and O&M aspects of the activities.

91. In the DSI PPSD, DSI proposed to use higher thresholds for the procurement of civil works contracts in the national market under Subcomponent B1 of the Project - up to US$115 million. Such high thresholds have been successfully used under the World Bank-financed TIMP (P158418).

92. The World Bank's Systematic Tracking of Exchanges in Procurement (STEP) system will be used to prepare, clear, and update the project's Procurement Plan in line with the provisions stipulated in the Loan Agreements. Each implementing agency (ILBANK on behalf of the beneficiary municipalities/SKIs) and DSI (all relevant departments) will be given independent STEP access in the project portal and will create the Procurement Plan through STEP before initiating any procurement activity.

93. The World Bank's review thresholds and procurement methods to be applied will be set out in the Procurement Plans of the project. The procurements not previously reviewed by the World Bank will be subject to ex-post review on a random basis in accordance with the procedures set forth in paragraph 4 of the Procurement Regulations. More details on the findings of the procurement assessment, the proposed procurement supervision arrangements, risks, and relevant mitigation measures to address them are provided in annex 1.

## C. Legal Operational Policies

| | Triggered? |
|---|---|
| Projects on International Waterways OP 7.50 | No |
| Projects in Disputed Areas OP 7.60 | No |

## D. Environmental and Social

94. **The environmental risk rating of the project is Substantial.** The project's environmental risk is mainly attributed to the type and scale of the project activities (wastewater collection, treatment, and construction of new irrigation schemes, and modernization/rehabilitation of existing schemes) and their wide geographic coverage of different basins.

95. The long-term environmental impacts of the project activities are expected to be positive because they will result in an improved wastewater treatment system and irrigation services. However, potential adverse environmental risks and impacts are also expected and are mainly associated with the civil works for the construction of wastewater collection and WWTPs, and the construction and modernization of irrigation schemes, installation of smart water meters to the piped irrigation systems, and their O&M. The potential environmental risks associated with the above activities include: (a) generation of noise, dust, vehicle exhaust, wastewater, excess material, and other wastes in the construction phase; (b) sludge and solid waste generation from WWTPs; (c) emissions of hydrogen sulfide, methane, ozone, and gaseous or volatile

chemicals associated with WWTPs; (d) occupational health and safety impacts such as accidents and injuries; exposure to chemicals including pesticides; noise and vibration; exposure to pathogens and vectors; physical, chemical, biological hazards, and water-borne diseases due to the potential presence of pathogens; (e) discharge and/or reuse of treated wastewater; (f) ecological impacts on nearby receptors, biodiversity, rural livelihood resources, and biologically and ecologically important sites; (g) impacts on cultural heritage sites; (h) deterioration of groundwater quality and changes in soil quality due to re-use of treated wastewater for irrigation; and (i) impacts on resource use (water, energy, and raw materials). Although the above risks and impacts could be significant, they are predictable, site-specific, and manageable. They can be prevented, minimized, or mitigated by proper assessment and application of adequate mitigation measures in line with national regulations, the Environmental, Health, and Safety General and Specific Guidelines (EHSGs), and the Good International Industry Practice. Any investment with high environmental risks will be excluded from financing under the project.

96. **The social risk rating of the project is classified as Substantial.** The project will finance the construction of two WWTPs and rehabilitation and modernization of existing irrigation schemes. These investments will have positive impacts over the medium and long term in ensuring more efficient and sustainable use of water resources. During the construction and operation stages, however, the investments carry substantial social risks. Specifically, the construction of WWTPs can pose the following social risks and impacts: (a) social tension and resistance regarding the siting of WWTPs and of potential use of treated wastewater due to lack of adequate stakeholder engagement; (b) adverse impacts to disadvantaged/vulnerable communities depending on siting choices; (d) labor and working conditions risks during construction; (e) community health and safety risks during construction and operation; (f) sexual exploitation and abuse/sexual harassment (SEA/SH) risks during construction depending on the size and sourcing of the workforce; (g) involuntary acquisition of agricultural land, loss of livelihoods, and possibly physical resettlement; and (h) risks relating to inadequate stakeholder engagement and grievance management. Rehabilitation and modernization of existing irrigation schemes can pose the following social risks and impacts: (a) labor and working conditions risks during construction, (b) community health and safety risks during construction and operation, (c) SEA/SH risks during construction based on workers travelling to remote/rural areas, (d) minor permanent and temporary land acquisition or easement restrictions affecting agricultural livelihoods, (e) risks regarding ability to pay based on installation of new water meters, (f) risks regarding willingness of farmers to use reclaimed wastewater, and (g) risks relating to inadequate stakeholder engagement and grievance management.

97. **The environmental and social impacts are expected to be mostly temporary and predictable, and can be managed with adequate management plans, as well as human and financial resources.** Management plans prepared for the project during preparation, by both DSI and ILBANK, include Environmental and Social Management Frameworks (ESMFs), Stakeholder Engagement Plans (SEPs), Ex-post Social Audit Reports, Labor Management Procedures (LMPs), and Resettlement Framework (RFs). During implementation, site-specific Environmental and Social Impact Assessments (ESIAs), Environmental and Social Management Plans (ESMPs), SEPs, Resettlement Action Plans (RAPs) and contractors' LMPs will be prepared for sub-projects. ILBANK currently does not have an integrated environmental and social management system (ESMS) sufficient to satisfy the requirements of Environmental and Social Standard (ESS) 9 on Financial Intermediaries. Thus, ILBANK is in the process of developing an ESMS with support from the World Bank to manage the environmental and social risks of its lending activities. The ESMS will be adopted no later than 60 days after loan effectiveness with no disbursements to take place until the ESMS is established. In addition, outputs of the technical assistance activities under the project may lead to downstream impacts regarding resettlement

and other social issues. These will be addressed through the integration of the relevant ESSs and mitigation measures in the relevant Terms of References for the activities.

98. **Specific locations and final designs of the investments are not known at this stage but will be finalized during project implementation**. The final selection of subprojects to be financed is subject to a decision to be made by national authorizing entities, including the SBO based on recommendations from DSI and ILBANK. The project will not finance any sub-projects categorized as having high environmental and social risk, such as those that may require significant involuntary land acquisition and physical displacement or that may have significant impacts on sensitive environments, such as natural and critical habitats as per ESS6. Further, any sub-project on International Waterways (OP/BP 7.50) will not be eligible for financing. The ESMF provides a screening mechanism to ensure such activities are screened out.

99. **Consultation of the draft environmental and social documents has not yet taken place.** ILBANK disclosed the draft E&S documents for the project starting February 03, 2023 on its website. DSI disclosed the draft documents starting January 31, 2023 on its website. The consultations should take place at the local level and include those benefitting and impacted by the investments or their representatives. The feedback from the consultations will need to be reflected in the assessment and summarized in the documents, and the documents finalized and redisclosed.

100. **Safety of Dams**. The project will finance rehabilitation, construction, and modernization of irrigation systems. Some of the irrigation systems draw water from existing upstream reservoirs and will depend on the storage and operation of the upstream dams for supply of water, and could not function if the dam failed. To ensure the safety of upstream dams, the borrower (GoT/DSI) will hire one independent dam safety expert with expertise in the technical fields relevant to the safety aspects of the dams, to: (a) inspect and evaluate the safety status of the existing dams, their appurtenances, and performance history; (b) review and evaluate the owners' O&M procedures; and (c) provide a written report of the findings and recommendations for any remedial work or safety related measures necessary to upgrade the existing dam or DUC to an acceptable standard of safety. The Bank task team will work with the borrower and independent dam safety experts in applying the Good Practice Note on Dam Safety and the series of Technical Notes on Dam Safety to ensure that the recommended actions are being properly addressed and that project preparation and implementation are in compliance with the requirement of ESF/ESS4/Annex1 on Safety of Dams. DSI shall conduct dam safety assessments for all associated dams under Component B of the project and submit them to the Bank within 18 months of loan effectiveness.

**GENDER**

101. **There is a wide gender gap in access to economic opportunities.** Women in Türkiye are much less likely than men to participate in the labor force (30.8 percent for women versus 68.2 percent for men in 2020)[63] or to engage in entrepreneurial activities.[64] Women's lower participation in the workforce is particularly visible in technical (women comprise 36.2 percent of professional and technical workers) and managerial positions (the share of females at upper and middle-level management position is at 17.3 percent).[65] These patterns

[63] World Development Indicators (WDI), based on national data.
[64] UN Women 2020. *The Economic and Social Impact of COVID-19 on Women and Men: Rapid Gender Assessment of COVID-19 Implications in Turkey*.
[65] Turkish Statistical Institute.

are also visible in the water sector, where women are largely underrepresented in design/supervision firms, SKIs and WUAs.

102. **Based on the 2017 Gender Assessment, Türkiye lags behind the upper-middle income countries in the Europe and Central Asia region in terms of gender aspects**.[66] Employment in the science, technology, engineering, and mathematics (STEM) fields is particularly relevant for advancing women's employment and their income earning opportunities. The Türkiye Gender Assessment shows that in 2016, women employed in the electricity, gas, and air conditioning sectors earned more than their male counterparts because women tend to work mostly in white-collar positions.[67] However, 2020 data show that women make up only 34 percent of the STEM workforce.[68] At this rate, they will be left behind as digitalization and automation transform the world of work. The Covid-19 pandemic will only intensify the demands for higher STEM skills. According to research by the Turkish Industry and Business Association in 2014 on gender distribution among STEM graduates working in companies in STEM fields, the rate of male graduates was higher (64 percent) compared to women (36 percent), a finding that in part relates to a lower expressed preference of women to enter STEM related fields[69].

103. **In 2010, women in water and sewerage earned 10.2 percent less than men**. The gender wage gap is due to, among other factors, segregation of occupations by gender, where women are in the less well-paid positions.[70] During project preparation, a rapid survey was undertaken in one SKI[71], which found that women comprised only 9 percent of staff overall, 11 percent of staff in engineering positions, and 19 percent of managers. Women accounted for 8 percent of new recruits in the past 12 months, and 25 percent of promotions in the last year were granted to female staff. The survey further found that some of the reasons behind women's lower employment in the SKI, particularly in technical and managerial positions, could be explained by lower access to technical and leadership training,[72] lack of flexible work arrangements, and lack of specific workplace facilities and amenities valued by female employees.[73] Further, while women are more likely than men to complete tertiary education, they are less likely to be in the STEM fields. [74]

104. **Overall, there is a lack of data on female and male employment in water management or membership of WUAs in Türkiye.** Gender-disaggregated data are not routinely collected by DSI. However, the Social Impact and Gender Assessment (SIGA) conducted for the TIMP (P158418) found that women represent between 7 percent to 18 percent of WUA members (that is, in the set of schemes where SIGA was conducted). While female farmers are extensively involved in agricultural production, they participate very little in decisions concerning irrigation.[75] WUA membership does not translate into participation in decision-making and less

[66] World Bank, 2018. Turkey – Country Gender Assessment 2017 (*https://openknowledge.worldbank.org/handle/10986/35974*)
[67] 2018 Women in Tech Index: *https://www.honeypot.io/women-in-tech-2018/*
[68] ILOSTAT data: https://ilostat.ilo.org/how-many-women-work-in-stem/
[69] https://files.eric.ed.gov/fulltext/EJ1256296.pdf
[70] EPSU. 2013. *The Gender Pay Gap in Public Services*.
(https://www.epsu.org/sites/default/files/article/files/Gender_pay_gap_FINAL_report.pdf).
[71] The survey was conducted in Denizli SKI (DESKI)
[72] Women comprise only 6 percent of leadership training participants and 20 percent of communications training participants
[73] For example, the SKI has separate sanitation facilities for women and men (with the exception of at pumping stations), but these do not have safe locks. There are also no childcare facilities or lactation rooms on-site.
[74] ILO STEM data, 2020. (https://ilostat.ilo.org/how-many-women-work-in-stem/). Women are underrepresented in STEM occupations (that is, the percentage of female STEM tertiary graduates is 34.7 percent and the percentage of STEM occupations for women is 33.7 percent).
[75] FAO, National Gender Profile of Agricultural and Rural Livelihoods - Türkiye, 2016. (https://www.fao.org/3/i6192e/i6192e.pdf).

than two percent of WUA councilors were women (for example, in Atabey).[76] Women's lower membership and leadership in WUAs is explained by factors such as sociocultural norms that often assign leadership roles to men, lack of access to information and consultation platforms, and limited access to WUA training for women.

105. **The project will address the above gender gaps through several actions under project subcomponents**. Subcomponent A3 (iv) will promote equal opportunities for women through such actions as: (a) the ILBANK PMU and the municipal PIUs encouraging design and supervision firms to include more female experts in their staff by receiving additional technical points during reviews; (b) implementing the Equal Aqua surveys in the SKI/s in the project to capture data on female and male employment in the utilities and diagnose the barriers; (c) providing targeted training for female staff in technical, communications, negotiations, public speaking, management, and decision-making and leadership skills (provided at times and locations that facilitate female staff participation and targeted outreach to female staff to encourage their application to training programs); (d) providing gender diversity training and gender sensitization for all employees and management; and (e) establishing mentorship programs that match senior female employees with junior female employees with the aim of achieving better coordination and relations among the female staff in the utilities.

106. Subcomponent B4 (b) will promote gender equality activities in the WUAs and related institutions (for example, DSI), including:

(a) Preparing and implementing an action plan in DSI regional branches and WUAs to explore and accommodate women's professional needs and demands and help increase women's participation in the decision-making positions in WUAs (WUAs in Türkiye are required by law to have at least one agricultural engineer as a member of staff. Reportedly, there are women engineers, managers, and technicians in state-run institutions that oversee irrigation, and these women may have opportunities to find technical and managerial positions in the WUAs);

(b) Raising awareness about women's knowledge and experience in irrigation and water management as well as the importance and benefits of women's membership and leadership in WUAs;

(c) Setting up separate women's only WUA training to create a safe space for women to voice their concerns and priorities, and propose actions as a group; and

(d) Providing targeted skills training to female WUA members, staff, and women farmers that informally use the irrigation system (for example, smart agricultural and irrigation technologies, products and markets, leadership skills, and communication) to enhance opportunities for women in field positions. The outcomes of these actions will be measured through two indicators: (a) increase in share of women in design and supervision consultancies contracted under the project who are technical staff and (b) increase in share of new staff positions created in WUAs held by women. Both indicators will be measured by percent of total new staff positions.

**CITIZEN ENGAGEMENT**

107. **Wastewater reuse projects are too often planned and implemented on the basis of mainly technical and financial feasibility studies.** Planners tend to discard the relevance of the beliefs and values of a culture that determine the perceived need for reclaimed wastewater and the degree of acceptability of reuse by the

[76] Türkiye Irrigation Modernization PAD.

people the project intends benefit, mainly farmers and consumers of crops irrigated with reclaimed water. In this regard, the International Water Association (IWA) Publishing's Water Reuse Study in Türkiye 2020 and previous experience provided evidence that acceptability is conditioned by factors such as the type of crop, farmer water demand and freshwater availability, water tariffs, and farm revenue as well as other factors such as the socioeconomic status of the farmer, level of education, information available on the reuse project, cultural background, and the opinions of reference or peer groups. Considering these factors, the project will support the design and implementation of a public awareness campaign to provide information and raise awareness about the benefits of water reuse for irrigation and reduce negative public perceptions about food and crops irrigated by wastewater. The campaign will be in Turkish; use a mix of traditional and digital communication products; advertise the community scorecard; and disseminate information on project investments.

108. **Adopting strong citizen engagement mechanisms to address the main determinants of reclaimed water acceptability in project design is essential to ensure the success of the reuse initiatives**. Thus, the design of the project's information and consultation activities will be based on a clear understanding of farmers' preconceived opinions and attitudes toward reclaimed water reuse for irrigation. For this purpose, the project will include several citizen engagement activities targeted to irrigation perimeters and WUAs (for DSI irrigation schemes):

(a) A survey among benefiting famers will gather information about their current agricultural activities (farm size, crops, production, irrigation practices and volumes, and cost of production factors), perceptions and opinions on reclaimed water irrigation (unsatisfied water demand, perceived risks and benefits of reuse, willingness to use and pay for reclaimed water), and demographic and socioeconomic data. Focus group discussions targeting local water users and WUA members (including those representing vulnerable groups) will gather qualitative information to help interpret the survey. The information gathered through this survey will also be instrumental to fine-tune the technical and institutional solutions to be presented and discussed with the farmers.

(b) Community scorecards will facilitate regular participatory planning and implementation of wastewater reuse for irrigation investments and help assess users' satisfaction with the performance of the reused wastewater schemes, collect feedback from irrigation users, and improve communication between DSI and WUAs. The scorecard initiatives will be conducted at regular intervals to track performance and identify additional ways to improve the performance of the schemes.

(c) Frequent community roundtables will share information on project activities and disseminate and discuss the results of the scorecards and monitoring so beneficiaries know how the feedback was used to shape the design of the project, as well as any recommended changes.

(d) A beneficiary feedback system will allow a timely response to community-level grievances and issues. In designing the system, the GRMs of the SKIs and DSI will be analyzed and strengthened as needed. The use of photographic evidence from community members will be encouraged. The results will be reported on a semi-annual basis and posted on the SKI/DSI websites.

109. **In terms of empowerment, the project will explore the potential interest of expanding WUAs' responsibilities beyond management of irrigation systems.** Turkish WUAs have a long history of involvement in the management of irrigation infrastructure. Until relatively recently, however, O&M of these systems was centralized and imposed an increasing institutional and financial burden on the Government. Low billing and

collection ratios, inefficient water use by famers, no capex recovery, and lack of incentives for farmers to maintain the infrastructure were some of the key factors that led the GoT to hand over O&M responsibilities to WUAs in the early 1990s, with World Bank support. Consequently, the recovery rate for O&M costs increased from less than 40 percent to more than 80 percent, and water overuse and the resulting negative environmental impacts (for example, salinity) have gradually decreased (GWP 2013).[77] Building on the demonstrated management capacity of WUAs, the project will explore the possibility of expanding their responsibilities to other areas such as the monitoring of treated wastewater effluent quality made available by the SKI, and outreach to local water users, specifically socially vulnerable persons, to obtain feedback on the rehabilitation and modernization of the irrigation schemes.

## V. GRIEVANCE REDRESS SERVICES

110. ***Grievance Redress.*** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit https://accountability.worldbank.org.

## VI. KEY RISKS

111. **The overall residual project risk is rated Substantial given the substantial political and governance, macroeconomic, environmental and social, fiduciary and stakeholder risks.** Other risks, including technical and institutional capacity for implementation risks, are considered Moderate. Only the Substantial risks and their mitigation measures are described below.

112. **Residual Political and governance risks are considered Substantial.** Türkiye's complex water sector governance framework, which involve multiple entities with overlapping mandates for some functions at national, local, and river basin levels, poses a risk to efficient project coordination and implementation. Although the draft Water Law is expected to address some of the institutional challenges, it has been under Government review since 2018 and it is unclear when it will be approved. While ILBANK, larger metropolitan municipalities, and DSI have experience in planning and implementing large-scale infrastructure investment projects (such as, municipal water supply, wastewater treatment plants, and irrigation and drainage systems),

[77] https://www.gwp.org/en/learn/KNOWLEDGE_RESOURCES/Case_Studies/Mediterranean--Middle-East/Türkiye-Transfer-of-irrigation-management-to-water-users-associations-57/.

the operating modality that involves these institutions in one operation requires close coordination and agreement on various aspects (for example, design and location of reuse sub-projects) is new to these institutions. Thus, the project will support more effective coordination and engagement with key stakeholders during implementation through: (a) periodic project coordination meetings, and (b) development of templates for Wastewater Reuse Protocol Agreements between DSI and participating SKIs, to optimize the design of all treatment, reuse, and irrigation systems as well as to ensure effective O&M of the facilities. The main political risks relate to the need to ensure continued ownership and commitment to project objectives at the local level, regardless of changes in political leadership. Mitigation measures for these risks will include efforts to reestablish support for the main project activities soon after high-level changes occur through extensive stakeholder engagement and knowledge sharing activities to ensure exposure to global and local good practices.

113. **Residual Macroeconomic risk is considered Substantial.** There are three main macroeconomic risks for the project: (a) a challenging macro-economic outlook and any further significant depreciation of the currency that could raise already elevated construction costs and foreign exchange risks faced by contractors and SKIs; (b) increased supply-side constraints due to heightened pricing uncertainties that could lead to delays in project delivery; and (c) further currency depreciation that could heighten foreign exchange risks of metropolitan municipalities, put pressure on their already stretched budget, and lead to debt service problems. This risk is partially mitigated by ILBANK's guarantee as a financial intermediary. ILBANK also has an option of using partial currency conversion swaps offered by World Bank Treasury at any time during project implementation to hedge foreign exchange risks. The macro risks should be mitigated by returning to a macro policy framework supporting macro stabilization, and implementation of ongoing corporate debt restructuring. The World Bank will continue to conduct macro-financial analysis, maintain policy dialogue with economic agencies, and offer technical assistance as requested by the Government.

114. **Environment and Social risks are considered Substantial.** These risks are discussed in the section on environmental and social risks above.

115. **Residual Fiduciary risks are Substantial.** The risks and mitigation measures are discussed in Annex 1. Implementation Arrangements and Support Plan.

116. **Residual Stakeholder risks are Substantial.** Stakeholder risks are mainly associated with the multiple beneficiary groups and stakeholders involved in the development, planning, O&M, and management of the proposed investments, especially given the limited prior direct collaboration among some of the key stakeholders. They include: (a) the SKIs of project metropolitan municipalities; (b) ILBANK and DSI; and (c) beneficiaries such as the population that will eventually benefit from treated wastewater, farmers that would eventually use reclaimed wastewater for farming, and their customers. The project preparation process has been instrumental in bringing together key stakeholders, such as DSI and ILBANK, to work in close collaboration in project design, and efforts will be made to maintain this engagement throughout project implementation. Design and construction of WWTPs under Component A will be coordinated by ILBANK (responsible for managing planning and construction), and the SKIs (the operators), and properly sequenced as needed. Stakeholder Engagement Plans of DSI will include outreach to potential and actual beneficiaries to promote broad understanding and buy-in to project interventions and ensure citizen engagement in project design to promote acceptability and sustainable uptake. Given the number of stakeholders involved, however, the rating remains Substantial.

## VII. RESULTS FRAMEWORK AND MONITORING

**Results Framework**
**COUNTRY: Turkiye**
**Türkiye Water Circularity and Efficiency Improvement Project**

### Project Development Objectives(s)

The Project Development Objectives (PDOs) are: (a) to improve wastewater services and reuse; (b) to increase irrigation services and efficiency; and (c) to strengthen institutional capacity and coordination for managing water circularity and point source pollution reduction in selected water-stressed areas in Türkiye.

### Project Development Objective Indicators

| Indicator Name | PBC | Baseline | End Target |
|---|---|---|---|
| **Improve wastewater services and reuse** | | | |
| Volume of treated wastewater to be generated (m3/day) (Cubic Meter(m3)) | | 200,000.00 | 400,000.00 |
| People provided with access to safely managed sanitation services under the project (Number) | | 0.00 | 1,000,000.00 |
| People provided with access to safely managed sanitation services under the project (Female) (Percentage) | | 0.00 | 50.00 |
| **Increase Irrigation Services and Efficiency** | | | |
| Water users provided with new/improved irrigation and drainage services under the project (Number) | | 0.00 | 4,880.00 |
| Water users provided with new/improved irrigation and drainage services under the project (Female) (Number) | | 0.00 | 520.00 |

| Indicator Name | PBC | Baseline | End Target |
|---|---|---|---|
| Irrigation efficiency (Percentage) | | 55.00 | 70.00 |
| **Strengthen Institutional Capacity and Coordination for Managing Water Circularity and Pollution Mgmt** | | | |
| Template for protocol for wastewater re-use between participating SKI and DSI developed (Yes/No) | | No | Yes |

## Intermediate Results Indicators by Components

| Indicator Name | PBC | Baseline | End Target |
|---|---|---|---|
| **Component A: Wastewater Collection, Treatment and Reuse** | | | |
| Wastewater treatment capacity constructed or rehabilitated - cubic meter per day (Cubic Meter(m3)) | | 0.00 | 200,000.00 |
| Volume -mass BOD pollution load removed by treatment plants supported under project (Tons/year) | | 0.00 | 55,000.00 |
| SKIs with Performance Improvement Action Plans for sustainable O&M and climate resilient wastewater systems developed (Number) | | 0.00 | 1.00 |
| Share of women in design and supervision consultancies contracted under the project who are technical staff - ILBANK (Percentage) | | 0.00 | 20.00 |
| Technical staff trained on wastewater reuse and other aspects under the Project for Ilbank and SKIs (Number) (Number) | | 0.00 | 50.00 |
| Energy Audit conducted for wastewater treatment plant (Yes/No) | | No | Yes |
| Grievances addressed by SKI in accordance with the stipulated service standards (%) (Percentage) | | 0.00 | 90.00 |
| **Component B: Rehabilitation and modernization of irrigation schemes and reuse of treated wastewater** | | | |

| Indicator Name | PBC | Baseline | End Target |
|---|---|---|---|
| Area provided with new/improved irrigation or drainage services (CRI, Hectare(Ha)) | | 0.00 | 30,396.00 |
| Area provided with improved irrigation or drainage services (CRI, Hectare(Ha)) | | 0.00 | 30,396.00 |
| Feasibility studies and technical designs for reuse of treated wastewater for irrigation' under the project completed (Yes/No) | | No | Yes |
| Smart water meters installed for irrigation (Number) | | 0.00 | 50,000.00 |
| Reduction in energy use in pumped irrigation systems (Megawatt hour(MWh)) | | 6.55 | 4.40 |
| Operational Water User Associations strengthened and reporting on water use (Number) | | 0.00 | 3.00 |
| **Component C: Technical Assistance for Institutional Strengthening, Capacity Building and Innovation** | | | |
| Study and Roadmap for Strengthening Reused Wastewater Financing and Regulatory Mechanisms completed (Yes/No) | | No | Yes |
| Technical staff trained on wastewater reuse and other aspects under the project for DSI and WUAs (Number) | | 0.00 | 100.00 |
| -Technical staff trained on wastewater reuse and other aspects under the project – (Female) (Number) | | 0.00 | 20.00 |
| PPP in irrigation appraised for pilot testing (Yes/No) | | No | Yes |
| Energy audit conducted for irrigation schemes (Yes/No) | | No | Yes |
| Information campaign on water scarcity and wastewater reuse implemented (Yes/No) | | No | Yes |
| Water-users who report that the Project has established effective citizen engagement processes/ tools (Percentage) | | 0.00 | 75.00 |
| Grievances addressed by DSI in accordance with the stipulated service standards (%) (Percentage) | | 0.00 | 90.00 |
| Share of new staff positions created in WUAs held by women (Percentage) | | 0.00 | 5.00 |

| Monitoring & Evaluation Plan: PDO Indicators | | | | | |
|---|---|---|---|---|---|
| **Indicator Name** | **Definition/Description** | **Frequency** | **Datasource** | **Methodology for Data Collection** | **Responsibility for Data Collection** |
| Volume of treated wastewater to be generated (m3/day) | This indicator measures volume of treated wastewater generated during the project period. | Biannual | Technical reports and progress reports | Data drawn from progress reports. | Ilbank PMU with municipal/SKI PIUs |
| People provided with access to safely managed sanitation services under the project | This indicator measures the number people provided with access to wastewater services as a result of the wastewater treatment facilities provided under the project. This is aligned with the SDG definition of improved sanitation facility at the household level that is not shared with other households and where excreta is safely disposed of in situ or treated off site. | Biannual | Technical reports and progress reports | Data drawn from progress reports | Ilbank PMU and municipal/SKI PIUs |
| People provided with access to safely managed sanitation services under the project (Female) | This supplemental indicator measures the percentage of females provided with access to improved wastewater services under | Biannual | Technical reports and progress reports | Data drawn from progress reports | Ilbank PMU and municipal PIUs |

| | | | | | |
|---|---|---|---|---|---|
| | the project as defined above. | | | | |
| Water users provided with new/improved irrigation and drainage services under the project | This indicator measures the number of water users who are provided with irrigation and drainage services under the project. Water users refers to the recipients of irrigation and drainage services, i.e. the owners or, in case the land is leased, the lessees of the land provided with irrigation and drainage services. | Biannual | Technical Reports and progress reports | Progress reports drawing on data provided by participating WUAs and DSI | DSI |
| Template for protocol for wastewater re-use between participating SKI and DSI developed | This indicator captures the development of a template for the protocols between SKI/s and DSI on the reuse of wastewater for irrigation for future use. | Annual | Progress reports | Data drawn from progress reports | DSI |
| Water users provided with new/improved irrigation and drainage services under the project (Female) | This supplemental indicator measures the number of female water users who are provided with irrigation and drainage services under the project. | Biannual | Technical Reports and progress reports | Progress reports drawing on data provided by participating WUAs and DSI | DSI |
| Irrigation efficiency | This indicator refers to the increase in irrigation efficiency realized by the reduction of conveyance losses by use of modern | Biannual | Technical reports and progress reports | Progress reports drawing on data from WUAs monitoring water use. | DSI |

| | | | | | |
|---|---|---|---|---|---|
| | irrigation methods based on closed rather than open channel methods as well as use of sprinkling and drip irrigation which will help reduce water losses and GHG emissions. It is estimated as the water used as percentage of the water delivered. Values and targets refer to efficiency increase, in absolute percentage points from baseline, averaged over project schemes. | | | | |

**Monitoring & Evaluation Plan: Intermediate Results Indicators**

| Indicator Name | Definition/Description | Frequency | Datasource | Methodology for Data Collection | Responsibility for Data Collection |
|---|---|---|---|---|---|
| Wastewater treatment capacity constructed or rehabilitated - cubic meter per day | This indicators measures the capacity of wastewater treatment constructed or rehabilitated under the project. | Biannual | Technical reports and progress reports | Data drawn from progress reports | Ilbank PMU and municipal PIUs |
| Volume -mass BOD pollution load removed by treatment plants supported under project | This indicator measure the cumulative volume (mass) of Biological Oxygen Demand (BOD) pollution loads removed by the treatment plant supported | Biannual | Technical reports and progress reports | Data drawn from progress reports | Ilbank PMU and municipal PIUs |

| | | | | | |
|---|---|---|---|---|---|
| | under the project. Project support may include construction, expansion or rehabilitation of the treatment plant. | | | | |
| SKIs with Performance Improvement Action Plans for sustainable O&M and climate resilient wastewater systems developed | This indicator measures the number of SKIs which have Performance Improvement Action Plans developed that incorporate considerations for sustainable operations and management of wastewater systems, circularity, and resilience (to climatic and non-climatic events) | Annual | Technical reports and progress reports | Data drawn from progress reports | Ilbank PMU and municipal PIUs |
| Share of women in design and supervision consultancies contracted under the project who are technical staff - ILBANK | This indicator will measure the number of women participating in the implementation of the project via appointed consultancy firms for design and supervision under Component A, who are technical staff. | Annual | Progress reports | Progress reports | ILBANK PMU and municipal PIUs |
| Technical staff trained on wastewater reuse and other aspects under the Project for Ilbank and SKIs (Number) | Number of technical staff that undergo training on wastewater reuse and resource recovery with the technical support under the Project. | Bi-annual | Ilbank and SKIs | Progress reports by Ilbank | Ilbank and SKIs |

| | | | | | |
|---|---|---|---|---|---|
| Energy Audit conducted for wastewater treatment plant | This indicator measures the conduct of energy audit by SKI to help identify opportunities for improving the efficiency of wastewater treatment plant. The assessment shall include estimation of the potential reduction in energy use, peak demands, water losses, and GHG emissions. | Once in the project period, within the first three years. | Progress report by Ilbank | Progress report by Ilbank | SKI and Ilbank |
| Grievances addressed by SKI in accordance with the stipulated service standards (%) | This indicator measures the percentage of grievances addressed and responded by SKI in accordance with stipulated service standards. | Annual | Ilbank progress reports | SKI reports on grievance redress systems | SKI and Ilbank |
| Area provided with new/improved irrigation or drainage services | This indicator measures the total area of land provided with irrigation and drainage services under the project, including in (i) the area provided with new irrigation and drainage services, and (ii) the area provided with improved irrigation and drainage services, expressed in hectare (ha). | Biannual | Technical Reports and progress reports | Progress reports drawing on data provided by participating WUAs | DSI |
| Area provided with improved irrigation or drainage services | Measures in hectares the total area of land provided with new or improved irrigation or drainage services in operations | Biannual | Technical Reports and progress reports | Progress reports drawing on data provided by participating WUAs | DSI |

| | | | | | |
|---|---|---|---|---|---|
| | supported by the World Bank. | | | | |
| Feasibility studies and technical designs for reuse of treated wastewater for irrigation' under the project completed | This indicator measures the completion of the feasibility studies and technical designs for the disinfection units and irrigation networks to benefit from potential reuse of treated wastewater under the Project. | Annual | Technical reports and progress reports | Data drawn from progress reports | DSI |
| Smart water meters installed for irrigation | This indicator measures the number of smart water meters installed for the end users of treated water for irrigation. | Biannual | Technical Reports and progress reports | Progress reports | DSI |
| Reduction in energy use in pumped irrigation systems | This indicator measures the energy savings as a result of installation of more efficient pumping stations and use of metering for demand management. | Biannual | Technical Reports and progress reports | Progress reports drawing on data provided by participating WUAs | DSI |
| Operational Water User Associations strengthened and reporting on water use | This indicator measures the number of WUAs within the project area which have O&M plan, received the equipment and trainings needed for using the SUTEM Management Information System and regularly reporting on water use data. | Biannual | Technical reports and progress reports | Data drawn from progress reports | DSI |

| | | | | | |
|---|---|---|---|---|---|
| Study and Roadmap for Strengthening Reused Wastewater Financing and Regulatory Mechanisms completed | This indicator measures the completion of the study to develop appropriate financing mechanisms for wastewater reuse and resource recovery through a consultative process with support from the project and submission for endorsement. | Annual | Government official report | Government official report | DSI |
| Technical staff trained on wastewater reuse and other aspects under the project for DSI and WUAs | This indicator measures the number of municipalities, SKI, DSI, Ilbank staff trained in areas of reuse of treated wastewater and other aspects. Data will be measured by male/female. | Biannual | Progress reports | Data drawn from progress reports | DSI |
| -Technical staff trained on wastewater reuse and other aspects under the project – (Female) | | | | | |
| PPP in irrigation appraised for pilot testing | The indicator measures the production of one assessment report on evaluation of Public Private Partnership in selected irrigation schemes. | Annual | Progress report | Progress report | DSI |
| Energy audit conducted for irrigation schemes | This indicator measures the conduct of energy audit by DSI to help identify opportunities for improving the efficiency of irrigation schemes. The assessment | Once in Project period; wit hin the first three years of | Progress report by DSI | Progress report by DSI | DSI |

| | | | | | |
|---|---|---|---|---|---|
| | shall include estimation of the potential reduction in energy use, peak demands, water losses, and GHG emissions. | implement ation. | | | |
| Information campaign on water scarcity and wastewater reuse implemented | This indicator measures the implementation of the information campaign. Implementation will include (i)strategy developed; (ii) dedicated personnel/firm in place; (iii) materials developed/ disseminated; (iv) workshops/training conducted; and (v) M&E mechanism in place to measure effectiveness through shifts in people behavior/beliefs | Annual | Progress report | Progress report | DSI |
| Water-users who report that the Project has established effective citizen engagement processes/ tools | This indicators measures the effectiveness of citizen engagement process throughout the project cycle(through SMS/ web-based questionnaires) | Annual | Beneficiary feedback survey | Data drawn from survey conducted | DSI |
| Grievances addressed by DSI in accordance with the stipulated service standards (%) | This indicator measures the percentage of grievances addressed and responded by DSI in accordance with stipulated service standards. | Biannual | Reports by DSI on grievance redress | Data drawn from reports on DSI grievance redress systems | DSI |
| Share of new staff positions created in WUAs held by women | This indicator measures the share of women hired in | Biannual | Progress reports | Progress reports drawing on data | DSI |

| | | | | | |
|---|---|---|---|---|---|
| | WUAs – field staff and women engineers as percentage of total new staff hired. | | | provided by participating WUAs | |

## ANNEX 1: Implementation Arrangements and Support Plan

### COUNTRY: Türkiye
### Türkiye Water Circularity and Efficiency Improvement Project

1. **The project will be implemented through two main agencies at the central level, DSI and ILBANK, and by the respective water and wastewater utilities (SKIs) and WUAs at the local levels.** There will be two Loan Agreements at the central level: Loan A with ILBANK as the borrower, with the guarantee of the GoT through MoTF, and Loan B, with MoTF as the borrower. The Debt Law describes the procedures for international borrowing in the Republic of Türkiye. The Debt Law classifies the international borrowing under three categories: allocation, on-lending, and guarantee. The Debt Law authorizes the MoTF to allocate foreign-financed loans to DSI.

2. **Loan A with ILBANK.** Under Loan A, ILBANK will be the borrower as a financial intermediary for relevant activities outlined in the project description, with the GoT guarantee. Loan proceeds will finance activities relating to Subcomponents defined in the Component description in this PAD, and as will be defined in the Legal Agreement and the POM. ILBANK will on-lend the loan proceeds to water and wastewater administrations (SKIs) through individual sub-financing agreements.

3. **ILBANK is a state-owned municipal development and investment bank based in Ankara, affiliated institution to the MoEUCC.** The project will be implemented through an existing PMU established under ILBANK's International Relations Department, as is the case under the ongoing Sustainable Cities series of projects and the MSIP in refugee-affected areas financed through IBRD loans. ILBANK has experience with managing implementation of municipal infrastructure investments as a financial intermediary and has demonstrated its capacity for managing World Bank loans through the now closed MSP (2004–2016) and the ongoing Projects.

4. **Loan B with the MoTF.** Under Loan B, the MoTF will be the borrower. The MoTF will allocate the loan proceeds to DSI to implement activities related to Subcomponents defined in the Component description in this PAD, and as will be defined in the Legal Agreement and the POM.

5. **DSI has a long history with the World Bank, is currently working with the World Bank, and is familiar with the World Bank systems and procedures.** It is the implementing agency for the ongoing Türkiye Irrigation Modernization Project (TIMP) (P158418) approved in January 2019 and was also involved with previous World Bank-financed lending operations completed in the 1990s. DSI is also one of the implementing agencies of the Türkiye Resilient Landscape Integration Project (TULIP) (P172562), implemented under the World Bank's new ESF. However, it will be important to strengthen DSI's capacity for application of the World Bank's ESF because this will be the second operation implemented by the agency that would use this framework.

6. **Municipalities and SKIs.** At the subnational level, Component A of the project will be implemented by SKIs under respective municipalities, with support from ILBANK. A PIU will be established for the project in the participating SKIs to be responsible for implementation of the WWTP subcomponents with technical support from ILBANK.

7. **WUAs.** WUAs will be responsible for O&M of irrigation systems after they are completed and transferred by DSI.

### Implementation Arrangements under ILBANK

8. The project will be implemented by an existing PMU established under ILBANK's International Relations Department, as is the case under the ongoing Sustainable Cities series of projects at the central level, and by PIUs to be set up within the participating municipalities and/or SKIs at the local level. ILBANK establishes the creditworthiness of all local authorities in Türkiye, provides loans (or grants for small municipalities and local authorities) and guarantees, channels funding from IFIs, and carries out all required due diligence. ILBANK's performance on past and ongoing operations has consistently been rated in the 'Satisfactory' range by the World Bank in its Implementation Status and Results Reports and its Implementation Completion Reports (ICRs). The ILBANK PMU shall be responsible for day-to-day management and implementation of the Component A and Subcomponent D1 of the project, in accordance with the provisions of the POM, including the responsibility for FM, provision of procurement implementation support/procurement implementation, disbursement, monitoring of environmental and social risk management, reporting, and M&E of the project activities. The existing PMU has qualified staff responsible for management of core project management functions, including procurement, FM, and environmental and social risk management in line with ESF requirements,[78] and M&E.

### Implementation Arrangements under DSI

9. DSI has an established PMT that will be responsible for managing all aspects of project implementation. This PMT is currently managing the ongoing TIMP within DSI; however, its capacity will be strengthened to be able to manage implementation of both projects. The PMT through DSI's relevant departments will manage, among others, finalization of designs, consultations, contracting, construction supervision, operations and maintenance, fiduciary management, citizen engagement, and management of the ESF compliance aspects for this project. The PMT is headed by DSI's Head of the Department of Irrigation, who will serve as Project Director for both projects. The PMT will include professional staff from all the DSI departments that are relevant to project implementation. The three main implementing departments are the Department of Irrigation, the Department of Potable Water and Wastewater, and the Department of Operations and Maintenance. Other relevant departments include (a) Department of Strategy Development; (b) Department of Land Consolidation and On-Farm Development Services; (c) Department of Real Estate and Expropriation; (d) Department of Dams and (e) Department of Investigation, Planning and Allocation.

10. In addition to DSI's professional staff, the PMT will include competitively recruited experts in the areas where DSI staff may not be able to designate sufficient staff. These areas include environmental and social aspects, FM, procurement, citizen engagement, and M&E. The implementation of the project will be aligned with the regular administration procedures of DSI; therefore, no project-specific Implementation Unit will be established.

11. While most of the PMT will be located at the DSI headquarters in Ankara, it will include regional staff located in each of the DSI regional directorates corresponding to the project-financed schemes for

[78] Responsibilities for management of environmental and social risk will be outlined in relevant instruments prepared in line with the requirements of the ESF and will also include the municipal-level PIUs and contractors.

both the WWTPs with reuse for irrigation and the irrigation modernization schemes. Each relevant DSI Regional Directorate will have a Coordinator and an Environmental and Social Focal Point, who are members of the PMT. The procurement for all project-financed schemes will be conducted from the DSI headquarters, but the PMT staff from regional directorates will be responsible for regular supervision of construction, O&M, and the social and environmental aspects of the activities. The operational modalities are described in the POM. At the field level, the PMT will work closely with WUAs at all stages of implementation, to ensure that local knowledge is able to enhance the final design, social acceptance, and economic potential of the modernization activities in the financed schemes.

12. **POM.** By project effectiveness, DSI and ILBANK will develop a detailed POM for project implementation, setting out: (a) policies and procedures relating to implementation of project components, (b) FM and procurement arrangements and procedures, (c) environmental and social risk management obligations and procedures, and (d) coordination arrangements under the project.

**FINANCIAL MANAGEMENT**

13. **The project FM arrangements are satisfactory to the World Bank.** Both implementing entities have experience in implementing World Bank-financed projects. The current FM arrangements utilized by ILBANK for the implementation of SCP1, SCP2 and SCP2 AF and MSIP and by DSI for the TIMP will be used for the proposed project.

14. **Implementing Entity.** The project will be implemented by ILBANK and DSI for specified subcomponents as indicated above. ILBANK was first established as Belediyeler Bankasi in 1933 to finance the reconstruction activities of municipalities. Iller Bankasi law (Law 4759) has been updated in 2011, making it a joint stock development and investment bank that is subject to the banking law. Its objectives are to meet the financing needs of special provincial authorities, municipalities, and their affiliated organizations and of local administrative associations and provide consultancy services to these organizations on urban projects. ILBANK is the affiliated institution of the MoEUCC. The shareholders of ILBANK are the municipalities and special provincial administrations. Law 5779 on Allotments of General Budget Revenues to be allocated to special provincial authorities and municipalities (2008) requires two percent of total tax allotment revenues distributed by the MoTF through ILBANK to be deducted to contribute as capital to ILBANK.

15. As mentioned above, ILBANK has a PMU under its International Relations Department responsible for foreign-financed projects including SCP1, SCP2, SCP2 AF, and MSIP. The PMU is organized according to function and its FM department is responsible for such arrangements under all loans. They will continue to have this responsibility under the Project. ILBANK will provide technical support to the related water and sewerage utilities in appraising investments. ILBANK will provide funding for the defined investment projects from the World Bank loan. ILBANK will provide implementation support to participating municipalities/SKIs who will be responsible for the procurement of all activities under Component A except for Subcomponent A3.3. The eventual contracts will be signed between the SKI and the firm. Payments to the suppliers/contractors/consultants will be registered directly by ILBANK upon submission of acceptable approval documents. The PMU in ILBANK will be responsible for the management of the Designated Account, and project accounting and reporting.

16. The MoTF will sign the Loan Agreement with the World Bank for the part that will be implemented by DSI. The Debt Law describes the procedures for international borrowing in the Republic of Türkiye. The

Debt Law classifies the international borrowing under three categories: allocation, on-lending, and guarantee. The Debt Law authorizes the MoTF to allocate foreign-financed loans to general budget institutions. Although DSI is a special budget institution, the specific reference to DSI in the Debt Law enables MoTF to allocate loans for DSI.

17. As mentioned above, DSI has a PMT housed in its General Directorate of Irrigation (*Sulama Daire Baskanligi*, (GDI) that is functioning well under the TIMP. The PMT has DSI staff assigned for the FM of the project. The capacity will be enhanced with a dedicated FM consultant with satisfactory experience and qualifications if deemed necessary. The GDI will again assume the leading role in the implementation of current project.

18. **Budgeting.** The investments that are proposed to be financed by the IBRD loan must be in the Government's investment program. The SBO has confirmed that the proposed investments by DSI are included in the investment plan, and also ILBANK's investment for Konya (KOSKİ) is included the investment program. The requirements of the PFMC Law are applicable to DSI for the World Bank-financed projects. In addition to having the overall investment approved by the SBO, DSI has to project its expected investment expenditures annually and have a budget allocation for such expenditures in the annual budget law. The project budget expenditures are considered within the overall budget ceiling of DSI. The project was prepared as a Framework (or 'Umbrella') project based on a long list of eligible subprojects under each component, where the specific subprojects would be confirmed after approval.

19. **Staffing.** The PMU at the ILBANK has a dedicated FM unit responsible for FM functions of all foreign-financed projects. There are currently 17 staff working in this department and ILBANK will assign at least one FM specialist to work solely on the FM aspects of the WCEIP. The qualifications and experience of the current staff are satisfactory to the World Bank. They have worked in the implementation of the MSP, its additional financing and currently working for SCP1, SCP2, SCP2 AF, and MSIP. The experience they have gained in the implementation of these projects will be utilized in conducting the FM arrangements of the WCEIP. DSI staff working on the FM of the current TIMP has satisfactory qualifications and experience. DSI will support the current capacity with an additional staff/consultant after the project becomes effective if deemed necessary. Current FM staff working on TIMP will work on FM procedures during project preparation.

20. **Accounting Procedures and Internal Controls.** ILBANK has a web-based information system (IL_BIS) that links all departments of the institution, allowing them to execute, monitor, and report using the same data source. All the regional offices are also connected to the central IL_BIS system. Project accounting for the current loans is integrated into this system using sub-accounts that were created under the World Bank's main chart of accounts. The PMU staff prepares the payment orders and the accounting entries into the World Bank's main accounting system are made by the Accounting Department's staff. Unaudited Interim Financial Reports (IFRs) are also generated automatically through the system. The WCEIP will also rely on the same systems and the accounting and reporting for the project will be fully integrated into the IL_BIS system. ILBANK will conduct the necessary modifications/additions to the IL_BIS system and these arrangements are expected to be in place before project effectiveness.

21. ILBANK has robust systems, manuals, and guidelines regulating the internal controls environment. The accounting and reporting systems at ILBANK are geared toward producing statements and information as required by Turkish laws and regulations. Additionally, ILBANK has developed and executed specific internal control procedures for the implementation of the foreign-financed projects including the

SCP Program and these procedures are clearly defined in the project FM Manual which is available in the ILBANK website. ILBANK will prepare an FM Manual for WCEIP early during implementation. The FM Manual of current projects implemented by ILBANK will be taken as the basis for WCEIP FM Manual. The PMU at ILBANK has been utilizing detailed checklists that are completed and signed by the relevant staff before processing payments. Those checklists include financial controls on advance payments made for works in progress, financial controls on payments to individual consultants and corporate consultants, financial controls on works progress payments, and financial controls on goods purchases. These checklists with a few modifications to enable funding source identification will also be utilized for WCEIP.

22. The ILBANK-implemented part of WCEIP will disburse through sub-loan agreements that will be made between ILBANK and qualifying utility companies. The utilities will submit the payment requests to the PMU after verifying completeness of all documentation. The payment will be made directly from the Designated Accounts to the constructor's bank account.

23. The project transactions that will be made by the DSI will be processed through the Public Expenditure and Accounting Information System (KBS). Departments responsible for implementation in DSI will send payment orders together with the supporting documents to the Ministry of Treasury and Finance Accounting Office (MOF-AO) in DSI. The accountant at the MOF-AO will enter the transactions into the KBS and will approve the payment order for processing from the Designated Account at the Central Bank of Türkiye. The Central Bank will register the payment from the Designated Account based on the approval of the MOF-AO accountant. The transactions will be entered into KBS in Turkish lira equivalent and will also be recorded under the account code dedicated to the project.

24. The PMU will maintain detailed accounts of the project in foreign currency. DSI has purchased and customized LOGO accounting software and actively uses it for recording project transactions separately for the IBRD and grant parts under IMP. DSI will integrate WCEIP to the LOGO software. The software includes adequate security levels and facilitates for reporting in foreign currency and the IFRs as well as the end-of-the-year financial reports are generated automatically from the system. The accounting entries will be based on the information received from the Central Bank payment confirmations.

25. For the DSI-implemented part of the project, the relevant departments under the coordination of the PMT will be responsible for all stages of procurement. The departments will plan for their investments included within the scope of the project and liaise with the PMT and the Strategy Development General Directorate to ensure budget is allocated for their planned expenditures. The technical specifications of the planned investments will be prepared by the related department and shared with the PMT for their coordination and communication with the Bank. All relevant departments, including the DI will conduct the procurement of the investment in line with the Procurement Regulations and will sign the agreement with the consultant/supplier/constructing company. The relevant departments will share copies of the agreement with the PMT and the Foreign Loans Department. The related department will also share a copy of the agreement, technical specifications, and all supporting documentation with the Regional Directorate where the investment will be done. The regional directorates will be responsible for controlling the progress and approving progress payment requests. The progress payment requests will be sent to the related department of the General Directorate for next stage of controls and processing for payment. The progress payment requests will be rechecked at the related department. The payment request from the Designated Account will be prepared by the PMT and sent to the central accounting office of DSI for processing. The system described is utilized by DSI for TIMP and functioning satisfactorily.

Both ILBANK and DSI have functioning Internal Audit Departments and the project transactions will be considered under their regular systems audits.

26. **Funds flow.** There will be two Designated Accounts for the project, one will be under the name of ILBANK at a commercial bank and one at the Central Bank of Türkiye for DSI. MoTF will endorse the opening of the Designated Account one at the Central Bank of Türkiye for DSI. All payments to the contractors, suppliers, and consultants will either be made directly from the loan/grant account or from the Designated Accounts with the authorization of the responsible personnel. Traditional disbursement methods will be utilized.

27. **Reporting and auditing.** ILBANK will prepare unaudited IFRs for the project following the same format utilized for SCP1 and SCP2. DSI will likewise use the same format as the IMP. The agreed formats of the IFRs will be attached to the negotiation minutes. The implementing entities will prepare project financial statements separately for the part of the project they are implementing. Consolidated financial statements will not be required as there will be two Designated Accounts and strict differentiation between the project transactions of ILBANK and DSI. As part of the World Bank's auditing requirements, project financial statements will be subject to external and independent auditing. The first set of audit reports will be submitted to the World Bank before June 30 of the year following the calendar year in which the first disbursement from the loan or grant has been made. The project financial statements will be audited by the MoTF Controllers in accordance with International Auditing Standards. The ToRs for the audit will be attached to the minutes of negotiations. ILBANK will also be required to submit its audited entity financial statements prepared in accordance with Turkish Accounting Standards (which are fully compatible with International Financial Reporting Standards).

28. The project financial statements are required to be made publicly available in accordance with the World Bank Guidelines. Table 1.1 identifies the audit reports and their due dates:

**Table 1.1. Audit Reports and Due Dates**

| Type of Audit Report | Due Date |
|---|---|
| ILBANK Entity Financial Statements | Within six months after the end of each calendar year and also at the closing of the project |
| Project Financial Statements (PFS) for ILBANK | Within six months after the end of each calendar year, and also at the closing of the project |
| Project Financial Statements (PFS) for DSI | Within six months after the end of each calendar year and also at the closing of the project |

29. There are no outstanding audit reports related to the project implemented by ILBANK or DSI. The auditors have issued clean audit opinions on the project financial statements of SCP and SCP2 and IMP for the year ended December 31, 2021.

30. **Disbursement arrangements.** The project will use traditional disbursement methods: designated accounts, reimbursements, direct payments, and special commitments. The minimum application size for payments directly from the Loan Account, for issuance of special commitments and for reimbursements, as well as the Designated Accounts ceilings, will be provided in the Disbursement and Financial Information Letters. Eligible expenditures paid from the Designated Accounts will be documented to the World Bank through SOEs. Full documentation in support of SOEs would be retained by DSI for at least two years after the World Bank has received the audit report for the fiscal year in which the last

withdrawal from the Loan Account was made. This information will be made available for review during supervision by World Bank staff and for annual audits.

**PROCUREMENT**

31. **Applicable regulations.** The project will follow the World Bank Procurement Regulations for IPF Borrowers (November 2020 version). A General Procurement Notice will be published on the World Bank's external website and United Nations Development Business online.

32. **Anti-Corruption Guidelines**. The World Bank's 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', (revised as of July 1, 2016) (Anticorruption Guidelines), will apply to the project.

33. **Project Procurement Strategy for Development (PPSD).** The Procurement Regulations requires the Borrower to develop a PPSD for the Project. The PPSD(s) - a framework PPSD in the case of ILBANK have been prepared by both project implementing entities based on paragraphs 4.1 and 4.2 of the Procurement Regulations applicable for the Project and agreed by the Bank. The additional feasibility studies required for the associated activities under Subcomponent B3 and participation of municipalities and utilities that will be selected according to the eligibility criteria under Subcomponent A1 preclude an estimation of the sub-borrowers and their procurement requirements at the appraisal stage, thus rendering it impossible for ILBANK to share individual Procurement Plans and PPSDs that will be developed by respective participating municipalities and utilities. Thus, supplementary PPSD(s) will be prepared by the participating municipalities/SKIs when the subprojects to be financed under Subcomponent A1 are identified and become clear. These supplementary PPSDs are also relevant and required in the case of activities of Subcomponent B3 whose financing is dependent on the outcome of the Feasibility Studies conducted for the same. The project will build on the existing implementation arrangements of DSI (however, in this case additional DSI departments will also be responsible for procurement implementation) and ILBANK similar to their ongoing operations. According to the World Bank's procurement assessment at national and agency level, DSI and ILBANK have been found as well-performing institutions in Türkiye with high engineering capacities. Considering the limited implementation duration of the project, the participating municipalities/utilities - when identified will establish dedicated project implementation units comprised of procurement and technical experts. These experts will be involved in the selection process of the design review and supervision consultants, works contractors, good suppliers and management of concluded contracts. The participating municipalities/utilities will hire experts experienced in the procurement and management of the contracts in the Bank financed projects, if such staff already does not exist in their teams.

34. In terms of procurement capacity assessment, DSI, ILBANK, and the participating municipalities/utilities, as government institutions, follow the national regulations on the procurement policies and procedures and both at national and agency level, these are well and efficiently applied.

35. **Staffing and contract management capacity.** DSI has 17 separate departments, with 1,826 staff at headquarters and 20,178 staff at 26 regional offices. About 29.3 percent of the total 22,004 staff are technical staff with 1,035 staff at headquarters and 5,413 regional staff. About 1,608 of the total 6,448 technical staff are civil engineers responsible for design, construction, and maintenance of investment works in 2022. The procurement activities under the project will be conducted by the relevant department/s of DSI in line with their areas of responsibilities, except for the departments without

purchasing units whose procurements will be handled by the DI. The DI will provide hands-on implementation support to the other departments in WB procurement implementation. Additionally, regional directorates will supervise the construction works for the major works contracts.

36. The ILBANK PMU, as being responsible for the coordination and management of the project, has four separate units: Business Development Unit, Contract Management Unit, FM Unit, and Technical Management Unit. The Contract Management Unit will be mainly responsible for the coordination of the procurement activities in the scope of the project. This unit includes one contract management director and eight procurement-related staff. The ILBANK PMU has vast experience on Bank procurement procedures having managed and coordinated the completed MSP1 and MSP-AF projects. The ILBANK PMU is still in charge of the ongoing SCP1, SCP2 financed by the Bank and MSIP financed/administered by the Bank. Also, the FM Unit and Technical Management Unit will support the Contract Management Unit for project-related procurement processes. Because the participating municipalities/utilities are not yet identified, no assessment was made for their capability for staffing and contract management. However, recent experience from projects implemented by ILBANK shows that strong sub-borrower staffing capacity is rare, and staff are not dedicated to dealing with project procurement activities. Thus, together with the identification of participating municipalities/utilities, ILBANK will be conducting an assessment on staffing and implementation capacity needs and identify the detailed risks and related mitigation measures for the sub-loans to be financed under the project.

37. **Past performance.** During 2020–2021, DSI's DPI has successfully concluded the contract awards of all irrigation modernization contracts under World Bank-financed TIMP (P158418) similar to the ones under the scope of the Project. Regarding the project's scope, the number of contracts (three major contracts as irrigation modernization schemes) and the overall costing, DSI is expected to handle procurements under the project in a satisfactory manner. ILBANK has also managed and awarded quite a large number of works and services contracts both through the Public Procurement Law and the World Bank's Procurement Regulations. ILBANK has long experience with managing implementation of municipal infrastructure investments as a financial intermediary and has demonstrated its capacity for managing World Bank loans through the MSP (2006–2016), the ongoing Sustainable Cities Series of Projects and the MSIP.

38. **Market analysis and contracting strategy.** In the last five years, similar irrigation contracts were awarded to 18 local firms for civil works. Participation of the international bidders was allowed for all of the awarded contracts but the participation by foreign firms is very limited with only one foreign bidder in two tenders of the TIMP (P158418). The activities under the irrigation-related contracts in nature do not attract foreign participation, as they are not complex, geographically distributed and at remote areas, and do not require international expertise although the contract sizes are relatively high. The market sounding made for Subcomponent A1 concluded that there is a highly competitive local and international market in the wastewater sector who may be qualified alone or in association with others for the proposed contracts under Subcomponent A1 as further evidenced through tender participations in World Bank-financed Municipal Services Project - MSP-1 and MSP-2. Also, it has been observed in the procurements of World Bank-financed MSP-1, MSP-2, and SCP projects that the interest of the foreign bidders was very limited in these tenders. Nonetheless, the indicative country thresholds for use of national/international market approach shall be used for procurements under Subcomponent A1.

39. **Procurement Plan and Procurement Tracking.** In accordance with paragraph 5.9 of the Procurement Regulations, the World Bank's STEP system will be used to prepare, clear, and update the

Procurement Plan and conduct all procurement transactions for the project together with the provisions stipulated in the Loan Agreement. ILBANK/DSI will create the procurement plan through STEP prior to initiating any procurement. The PPSD and the underlying Procurement Plan will be updated at least annually or as required to reflect actual project implementation needs. The Procurement Plan/s under Subcomponents A1 and B3 will be discussed and agreed with the World Bank when the sub projects are identified/feasibility studies are completed. Some of the major activities under the DSI Procurement Plan are as follows:

| Activity Description: | Reference No | Market Approach | Procurement Selection Method | Review Method | Estimated procurement Notice/ Invitation Date | Signed Contract (Planned Date) | Contract Completion (Planned Date) |
|---|---|---|---|---|---|---|---|
| Pazarcık Kartalkaya Dam Left Bank Irrigation Scheme Modernization Project | TWCEIP-B1-YAP-01 | Open - National | Request for Bids (RFB) Works | Post | Jun.24 | Oct.24 | Oct.28 |
| Pazarcık Kartalkaya Dam Right Bank Irrigation Scheme Modernization Project | TWCEIP-B1-YAP-02 | Open - National | Request for Bids (RFB) Works | Post | Jun.25 | Oct.25 | Oct.29 |
| Sarimsakli Dam Irrigation Scheme Modernization Project | TWCEIP-B1-YAP-03 | Open - National | Request for Bids (RFB) Works | Post | Aug.24 | Dec.24 | Apr.29 |
| Karakuyu (Dombay) Pumping Irrigation Scheme Modernization Project | TWCEIP-B1-YAP-04 | Open - National | Request for Bids (RFB) Works | Post | Oct.24 | Feb.25 | Feb.28 |
| Procurement of Irrigation Hydrants with Water meters (Supply and Installation) Part 1 | TWCEIP-B2`-MAL-01 | Open - Internatio nal | Request for Bids (RFB) Goods | Prior | Nov.23 | Mar.24 | Mar.26 |
| Procurement of Irrigation Hydrants with Water meters (Supply and Installation) Part 2 | TWCEIP-B2-MAL-02 | Open - Internatio nal | Request for Bids (RFB) Goods | Prior | Jul.24 | Nov.24 | Nov.25 |

40. **Special procurement arrangements.** Based on the findings of the PPSD and performance of DSI on past contracts, National Procurement Procedures will be applied for all procurements up to US$ 115 million under Subcomponents B1 when approaching the local market as specified in paragraphs 5.3 through 5.6 of the Procurement Regulations, subject to the provisions provided in the Procurement Plan and through the use of the sample bidding documents agreed between the World Bank and DSI.

41. **Other procurement methods.** The methods defined in the Procurement Plan will be followed for the procurement of goods and non-consulting services (including logistics and organization services for

training and workshops) such as Request for Quotation procedures in accordance with the provisions of section 6.7 of the Procurement Regulations, where appropriate, and other methods as agreed in the Procurement Plan.

42. **Selection of consultants.** The methods defined in the Procurement Plan will be followed for the selection of the consultants, such as Quality- and Cost-Based Selection (QCBS), Selection Based on Consultants' Qualification (CQS) in line with sections 7.3 and 7.12 of the Procurement Regulations, and other methods as agreed in the Procurement Plan. For the employment of experts, selection of individual consultants may be used. Subject to justification in terms of economy, efficiency, and equal opportunity to all qualified eligible consultants, the Direct Selection method for consultant firms and individuals may be used. ToRs for FM, audit, procurement, or legal contracts financed by the project shall be subject to the World Bank's review.

43. Domestic preference as specified under paragraph 5.51 of the Procurement Regulations will not be applicable for contracts identified in the Procurement Plan.

44. **Risk and mitigation measures.** Overall project risk for procurement is rated as substantial. After mitigation measures are implemented, the residual risk would be moderate. The assessment will be recorded in the Procurement Risk Assessment and Management System of the World Bank.

**Table 1.2. Identified Risks and Agreed Action Plan**

| Action No. | Identified Risk | Mitigation Measure | Responsible Party | Time Frame |
|---|---|---|---|---|
| 1. | ILBANK has been implementing four World Bank-financed projects and the projects financed by other IFIs simultaneously. The teams in the PMU are overloaded. PMU may not be able to meet the procurement deadlines. | ILBANK will support its existing PMU with a procurement specialist responsible for the project.<br><br>The ToRs of the design and supervision consultants for the SKIs will include the provision of technical assistance and support to procurement implementation. | ILBANK/SKIs | The PMU will be supported with an additional procurement specialist as and when needed by ILBANK to support procurement implementation.<br><br>ToRs will be prepared by ILBANK/SKIs in advance before the project effectiveness and advertised after the project effectiveness. |
| 2. | Inadequate coordination of contract activities | Synchronization among land consolidation and works, regular inspections/meetings, deliverables linked to payments, timely action in giving notice to contractors for remedying the delays and defaults, timely follow-up and monitoring | DSI | During/throughout contract implementation |

| Action No. | Identified Risk | Mitigation Measure | Responsible Party | Time Frame |
|---|---|---|---|---|
| 3. | Mismatch between contracts' price adjustment clauses and changes in major cost components | Using index and/or currency indexes reflecting market conditions | DSI/ILBANK/SKIs | During preparation of bidding documents |
| 4. | Time extension of contracts | Defining realistic contract duration considering site conditions, scope and phases of the contract, strong project management, and supervision mechanism. | DSI/ILBANK/SKIs | During preparation of bidding documents and contract supervision |
| 5. | Cost overruns of contracts | Preparation of designs and Bills of Quantities to reflect site conditions, scope, and phases of the contract, realistic market survey during cost estimation, and efficient supervision. | DSI/ILBANK/SKIs | During preparation of bidding documents and contract supervision |
| 6. | SKIs/new implementing units of DSI are unfamiliar/ have limited familiarity with the World Bank Procurement Regulations and contract provisions. It may cause misinterpretation of procurement provisions and contract implementations. | SKIs will employ staff knowledgeable in procurement and contract implementation.<br><br>The staff to be involved in WB procurement implementation will be trained by/provided support by ILBANK PMU procurement specialists/DSI DI. | DSI/ILBANK/SKIs | Before initiating each tendering process |
| 7. | Differentiation of procurement implementations among the implementation entities. It may create unnecessary questions from the procurement stakeholders. | Develop a POM. | DSI/ILBANK | Before the project effectiveness |
| 8. | Incomplete environmental and social assessments and plans may delay commencement of the contract implementation. | All E&S assessments and plans will be completed before signing the contracts. | DSI/ILBANK/ SKIs | Throughout the project |

| Action No. | Identified Risk | Mitigation Measure | Responsible Party | Time Frame |
|---|---|---|---|---|
| 9. | Misinterpretation of the Procurement Regulations and terms and conditions of the contracts. It may cause noncompliance and also time and cost overruns in the contract implementation. | Work closely with World Bank Procurement Specialist | DSI/ILBANK/SKIs | Throughout the project |
| 10. | Supply chain disruptions will impact procurement processes | Special procurement arrangements to address this risk will be applied as deemed appropriate in the POM and introduction of changes in the procurement strategy. | DSI/ILBANK/ SKIs | Throughout the project. |

45. **Procurement supervision frequency.** The World Bank will review the procurement arrangements performed by the implementing agencies, including contract packaging, applicable procedures, and the scheduling of the procurement processes, for their conformity with the Legal Agreement. Those procurements did not have ex ante due diligence by the World Bank will be subject to ex post due diligence on a sampling basis in accordance with the procedures set forth in paragraph 4 of Annex II to the Procurement Regulations. A post review of the procurement documents will normally be undertaken annually during the World Bank's supervision mission/s or the World Bank may request to review any particular contract at any time. In such cases, the project implementing entities shall provide the World Bank the relevant documentation for its review.

46. **Complaint review.** The procurement complaints other than covered under Annex III of the Procurement Regulations are to be handled by the project implementing entities in accordance with the procedures agreed by the World Bank and stipulated in the POM. Immediately upon receipt, the complaints will be recorded in the STEP complaint module by project implementing entities. Project implementing entities will not proceed with the next stage/phase of the procurement process, including with awarding a contract without satisfactory resolution of the complaint(s).

47. Operational costs will not be considered under World Bank procurement implementation.

**WORLD BANK PROJECT IMPLEMENTATION SUPPORT PLAN**

48. The Implementation Support Plan (ISP) is tailored to the specific context and characteristics of the project, based on the dispersed geographic scale of investments, and existing capacity of the implementing agencies and arrangements. The ISP will be reviewed periodically to ensure that it remains fit for purpose and responsive to the project's implementation support needs over its lifetime.

49. **Project Launch Workshop.** A project launch workshop will be held soon after project approval. It will bring all project stakeholders together to ensure that the project scope, design, process, and

responsibilities are understood. This workshop will be coordinated by MoTF and organized jointly with DSI, ILBANK and the World Bank.

50. **Implementation support missions.** The project would be supervised at least twice a year and the recommendations of such supervisions would be presented to DSI and ILBANK and recorded in an Aide Memoire. The World Bank would be represented by a task team leader, supported by a team of experts with various skills as needed, including fiduciary (procurement and FM), social and environmental risk management, M&E, and technical specialists. The goal would be to (a) undertake required policy dialogue with the GoT, MoAF/DSI, ILBANK/MoEUCC, and municipalities/SKIs, related to the project and the sector and (b) coordinate with other development partners and stakeholders.

51. The semiannual supervision missions and short/ follow-up technical missions as needed in specific areas, will focus on the following areas:

(a) **Strategic support.** Supervision missions will meet with DSI PMT, ILBANK PMU, and relevant SKI/municipality PIU representatives to (i) review progress on the project's activities; (ii) discuss strategic alignment of the project's different activities, especially at the planning level, between the relevant stakeholders; and (iii) evaluate progress on cross-cutting issues such as M&E, training, communication, knowledge exchange, innovation, dissemination of project results and experiences, and coordination between the relevant stakeholders.

(b) **Technical support.** Supervision will concentrate on ensuring the technical quality of bidding documents, ToRs, evaluation reports, construction plans, products delivered by consultants, and investment activities/targets, working in close collaboration with ILBANK and the design review and construction supervision consultants. During construction and commissioning, technical supervision will be provided to ensure that technical contractual obligations are met. Regular site visits will be carried out during project implementation and will involve technical specialists from the World Bank, DSI, ILBANK, and consultant teams as needed.

(c) **Fiduciary support.** Periodic supervision of procurement and FM support will be carried out by the World Bank semiannually to (i) perform desk reviews of project IFRs and audit reports, following up on any issues raised by auditors, as appropriate; (ii) assess the performance of control systems and arrangements; (iii) update the FM rating in the FM Implementation Support and Status Report as needed; (iv) provide training and guidance on carrying out procurement processes in compliance with the applicable Procurement Regulations and Anticorruption Guidelines and the POM; (v) review procurement documents of prior review contracts and provide timely feedback to the project implementing entities; (vi) carry out the post review of procurement actions; and (vii) help monitor project progress against the Procurement Plan and identified performance indicators of the contracts.

(d) **Environmental and social risk management support.** The coordination that began during preparation will continue throughout project implementation, especially to ensure that the measures to address environmental and social risks and impacts are included in the works financed under the project through due diligence from applications of the site-specific ESIAs, ESMPs, and Resettlement Policy Framework and effective mitigation measures. Supervision from the World Bank environmental and social risk management specialists will take place at least twice a year.

52. **Mid-term Review (MTR).** An MTR of the project will be carried out about three and a half years into implementation to assess overall progress toward meeting the development objective and to address any changes to project design or implementation required to meet the objectives.

53. **Implementation Completion and Results Report (ICR).** An ICR will be drafted by the Bank and the borrower within six months of project completion to satisfy accountability needs and provide lessons from completed operations. ICRs are tailored to enhance development effectiveness through a continuous process of self-evaluation, lesson learning and application, sharing of knowledge, and being accountable for results. The lessons learned from the ICR will improve the quality and effectiveness of similar WB operations, while borrower/stakeholder participation in the ICR process would inform design, preparation, and implementation of follow-up projects.

54. **Implementation resource requirements.** Table 1.2 reflects estimates of skill requirements, timing, and resource requirements over the life of the project. These projections are subject to modification as needed over the course of implementation.

55. **Table 1.2. Implementation Support Resource Estimates**

| Time | Focus | Skills Needed | Resource Estimates (Staff Weeks) |
|---|---|---|---|
| First 12 months | Project rollout, management, and implementation support coordination | Task team leads | 6 |
| | Refine subcomponent activities and ensure quality of detailed designs | Task team leads/technical specialists | 6 |
| | Social and environmental risk management | Social and environmental specialist | 6 |
| | Technical and procurement review of ToRs and bidding document | Task team leads, technical specialists, and procurement specialists | 4 |
| | Fiduciary arrangements and FM systems | FM specialist | 2 |
| | Promoting innovation in the project | Task team leads/technical specialists | 2 |
| Remaining period | Procurement review of prior review contracts and feedback of bidding documents and consultant contracts | Procurement specialist | 20 |
| | Technical review of ToRs, technical reports, and bidding documents | Task team leads, technical specialists | 20 |
| | Non-lending technical assistance, capacity and institutional strengthening efforts | Task team leads, technical specialists | 21 |
| | FM supervision | FM specialist | 12 |
| | Social risks management - supervision | Social development specialist | 20 |
| | Environmental risk management - supervision | Environmental specialist | 20 |
| | Project management, M&E, and project supervision coordination | Task team leads, technical specialists | 14 |

| Time | Focus | Skills Needed | Resource Estimates (Staff Weeks) |
|---|---|---|---|
| | Operational support, M&E, lessons learned, progress, and final reporting | Technical specialists and operations officer | 16 |

**Table 1.3. Skill Mix Requirements**

| Skill Needs for Supervision | Comment |
|---|---|
| Task team leader/co-task team leaders | Headquarters (HQ) and country based |
| Co-task team leader | HQ based |
| Co-task team leader | Country based |
| WSS/technical specialist | Country based (including consultants) |
| Irrigation specialist | Region based (including consultant) |
| FM specialist | Region based |
| Procurement specialists | Region based |
| Social development specialist | HQ/country based |
| Gender Specialist | Country/HQ based |
| Environmental specialist | HQ/country based |
| Lawyer | HQ based |
| Disbursement officer | HQ based |

## ANNEX 2: GREEN HOUSE GAS ANALYSIS

1. **Component A** investments will finance construction of WWTPs in selected urban settlement areas. This component will be implemented by ILBANK, which presented a shortlist of metropolitan water and wastewater entities with high demand for modernization of WWTPs and potential for reuse of treated wastewater. The investment list, after finalizing this analysis, is indicative and includes construction and rehabilitation of WWTPs with tertiary treatment/disinfection processes to allow reuse of the treated effluent for irrigation or watering of green municipal areas.

2. Detailed GHG accounting analysis was performed only for the Konya WWTP, which has exhibited a high degree of preparedness and readiness regarding investment specifics. The total investment cost of Konya WWTP sub-project is estimated to be EUR 85 million. Thus, the detailed GHG Accounting Analysis done for Konya is extrapolated to the other WWTPs based on the following assumptions:

   - Emission reductions per year are estimated to be 74 percent of baseline emissions, based on the analysis for Konya WWTP, and
   - The proposed activities will contribute to a GHG emissions reduction by 121,068 tCO2e per year and result in a direct wastewater emissions reduction of 86.6 percent.

3. The results of the GHG Accounting Analysis for Konya are provided in table A3.1. They show the net emissions from the Konya WWTP expansion project, which is the difference between baseline emissions under a business-as-usual scenario and project gross emissions under the project implementation scenario. Net average annual emissions indicate yearly net emissions throughout the project life. The bulk of net emissions originate from sequestration of stationary CH4 emissions with other processes and fugitive gas emissions.

**Table A3.1. Summary Emissions Output for Konya WWTP Project**

| Source of emission | Project Gross Emissions ($tCO_2$-eq) | Baseline Emissions ($tCO_2$-eq) | Net Emissions ($tCO_2$-eq) | Net Average Annual Emissions ($tCO_2$-eq) |
|---|---|---|---|---|
| Emissions for Wastewater Utility | 846,950 | 3,268,316 | -2,421,366 | -121,068 |

4. **Component B1**. All calculations were performed using the FAO's EX-ACT tool and the raw data were provided by the client. The areas for irrigation modernization have a warm temperate dry climate with high activity clay (HAC) soils with an implementation phase of 2 years and a capitalization phase of 18 years for a total economic life of 20 years. The area used to grow annual crops with modernized irrigation will be 30,396 ha. Perennial crop lands would increase from about 1,700 to above 10,000 ha. Fallow land would decrease from about 1,500 ha to 100 ha. Degraded land area would fall from about 200 ha to 0 ha, which will be used for growing crops. Moreover, under the project scenario, improved agricultural practices would be adopted.

5. To account emissions reduction from land use changes, cropping and land use patterns were analyzed for each of the project locations separately. To preserve the norm of conservatism in GHG accounting, it was assumed that changes from degraded and fallow land toward cultivation would first prioritize annual crops,

with any remaining newly cultivated land going to perennial crops. The results of GHG Accounting Analysis for Component B1 related to land use change are summarized in table A3.2. The emission reduction due to changes in cropping patterns and land use is estimated to be -1,160,830 tCO2-eq.

**Table A3.2. Emission reductions due to land use changes for Component B1**

| Schemes | Project Gross Emissions ($tCO_2$-eq) | Baseline Emissions ($tCO_2$-eq) | Net Emissions ($tCO_2$-eq) | Net Average Annual Emissions (tCO2-eq) |
|---|---|---|---|---|
| Karakuyu (Dombay) | 106,300 | 246,100 | -139,800 | -6,990 |
| Pazarcik Kartalkaya | 169,210 | 964,760 | -795,550 | -39,778 |
| Sarimsaklı | 200,380 | 425,780 | -225,400 | -11,270 |
| **Total** | **475,890** | **1,636,640** | **-1,160,830** | **-58,042** |

6. In addition, the total annual electricity use for irrigation for the schemes is estimated to be 15,562[1] MWh, which was entered into the "Electricity" module on the "Inputs" tab of the EX-ACT tool. The baseline scenario would result in baseline emissions of 2,778,318 tCO2-eq. The transformation of open channel irrigation systems to more water-efficient closed pressurized irrigation system will reduce non-beneficial water losses and conserve energy and this would result in gross project emission of 2,243,496 and net emissions of -555,678tCO2-eq. Construction of the new irrigation infrastructure would be net emissive at 20,856 tCO2-eq. As a result, the irrigation activities, overall would see net emissions of -534,822 tCO2-eq. from reductions in electricity use (table A3.3).

7. **For Component B2**, a similar exercise was carried out for electricity use by irrigation schemes, where water meters would be installed, to estimate net emissions due to conservation of energy. A DSI evaluation report for one of the pilot metering sites indicates that electricity consumption declined from 695.3kW per hectare to 488.6 KW per hectare after metering implying an energy savings of about 30 percent. For a total area of 387,964 ha this would result in net emissions of -3,398,863tCO2-eq (table A3.3).

**Table A3.3. Emission reductions due to changes in electricity use**

| Components | Project Gross Emissions over 20 years ($tCO_2$-eq) | Baseline Emissions over 20 years ($tCO_2$-eq) | Net Emissions over 20 years ($tCO_2$-eq) | Net Annual Emissions (tCO2-eq) |
|---|---|---|---|---|
| Component B1 | 2,243,496 | 2,778,318 | -534,822 | -26,741 |
| Component B2 | 7,930,680 | 11,329,543 | -3,398,863 | -169,943 |
| **Total** | **10,174,176** | **14,107,861** | **-3,933,685** | **-196,684** |

8. In summary, the modernization of irrigation schemes under Component B1 will result in reduction of electricity used due to conservation of energy with transformation of open channel irrigation into closed pressurized systems and will yield net emissions of -534,822 tCO2-eq. Under Component B2, installation of

irrigation water meters is expected to reduce energy use by 30 percent, which will lead to net emissions of -3,398,863tCO2-eq. for a total irrigation area of 387,964 ha over a 20-year period.

9. **Whole Project**. The results of the GHG accounting analysis for the overall project are summarized in table A3.4. The results indicate that the project overall has significant GHG emission reduction impacts. The generation of biogas from wastewater alone reduces GHG emissions by about 4,806,315 tCO2-eq over a 20-year period.

**Table A3.4. Net Emissions Estimate for the Whole Project**

| Components/Activities | Net Emissions (tCO2-eq) over 20 years | Annual Net Emissions (tCO2-eq per year) |
|---|---|---|
| Component A: Wastewater treatment | -7,064,691 | -353,234 |
| Component B1: Changes in Cropping Pattern and Land Use | -1,160,830 | -58,042 |
| Component B1: Changes in Electric City Use | -534,822 | -26,741 |
| Component B2: Changes in Electricity Use | -3,398,863 | -169,943 |
| **Total** | **-12,159,206** | **-607,794** |

*[1]* Estimation on electricity usage, energy savings and construction emissions are based on Türkiye Irrigation Modernization P158418 project's parameters considering a construction phase of 2-3 years and 20-year project life.

## ANNEX 3: FINANCIAL INTERMEDIARY FINANCING ASSESSMENT FOR ILLER BANK A.S. (ILBANK)[79]

1. **ILBANK (or the Bank) has a development and investment bank license and is a special-budget incorporated company.** The Bank is subject to its special law (Law no. 6107) and Banking Law no. 5411 and it was established in 1933 as the Municipalities' Bank to provide financing to the municipalities. In 1945, ILBANK expanded its tasks and its organization as a credit institution for the local authorities. The bank initially had two core functions, which have been carried out to date:

   a) Support urban development at the local level through technical assistance, grants, and loans;

   b) Transfer central budget tax revenues to the local authorities.

2. ILBANK is a unique institution and differs from other state and development banks. Its infrastructure investment funding to municipalities is included in the state's annual investment program and requires feasibility studi(es) to be prepared and approved by the State Budget Office (SBO).

3. **The shareholders and borrowers of the Bank are municipalities and local administrations, which exclusively make up its client base.** Every municipality and local administration unit throughout the country, small and large, holds one share in ILBANK. The nominal capital of the Bank is currently TRY 45 billion, which a Decision of the President of Türkiye can increase. ILBANK offers medium and long-term cash loans and guarantees, conducts research, provides project development and consultancy services, serves as an insurance agency, coordinates with and obtains financial resources from domestic and foreign financial institutions, develops special and urban infrastructure projects, and executes or arranges real estate transactions.

4. **ILBANK is an incorporated company affiliated with the Ministry of Environment, Urbanization, and Climate Change (MoEUCC).** According to ILBANK's law of incorporation (No: 6107) and company charter, it is an affiliated entity with MoEUCC. This contrasts with other public development banks in Türkiye where the ownership function is carried out by the Ministry of Treasury and Finance (MOTF). The MoEUCC exercises its control by appointing four of the seven-member board of directors and two audit committee members. MoEUCC can also assign the implementation of special urban projects to ILBANK. Accordingly, amending clauses have been added to ILBANK's law enabling it to finance these from its own sources. The bank has undertaken several urban transformation projects across Türkiye.

5. **Given its mission, business model and organization, ILBANK is uniquely suited to perform the required tasks under the Project.** In addition, (i) the lack of access to commercial finance by municipal borrowers due to their financial limitations (i.e., low creditworthiness) and administrative capacity constraints; (ii) shortage of long-term funds in local currency offered by the domestic financial sector; and (iii) the insufficiency of alternative funding mechanisms, including capital markets, project financing and impact finance mechanisms, underpin the viability of the role ILBANK plays as the lender of choice in municipal finance.

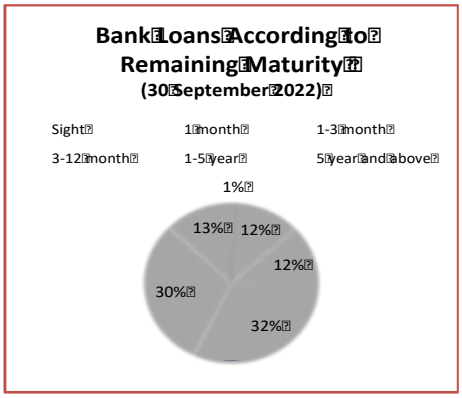
6. ILBANK's financing is used for achieving objectives related to specific infrastructure sectors, such as urban development, climate resilience, water supply and treatment, waste management, urban mobility, and

[79] This Annex provides background information on ILBANK and a summary evaluation of ILBANK against the Bank's standard criteria for financial intermediary financing (FIF) listed in OP 10.00 (Investment Project Financing).

energy efficiency and energy supply, among others. The bank also provides temporary liquidity for working operational and capital financing, for example for emergency reconstruction following a natural disaster, war, or civil disorder, or temporary liquidity to credit constrained local administrations in a sudden or prolonged economic shocks.

7. **Banking sector loans to local government and administrations are limited in amount, especially from commercial banking and participation (non-interest) banking institutions.** This is due to the inability/unwillingness to offer lending products tailored to municipal needs, lack of urban sector knowledge and low expected returns. Bank loans in Türkiye are short maturity, concentrating at 1-3 years, while long-term loans as required for municipal infrastructure investments represent a low percentage in total loans, accounting for 13 a percent share as reflected in Chart 1 below. Furthermore, Table 1 below presents a breakdown of municipal loans from the different banking segment groups over the last five years. Despite their limited size within the banking sector, investment and development banks, the group to which ILBANK belongs, has represented a consistently high share in municipal loans. Commercial banks on the other hand are catching up in their lending to the municipal sector albeit coming from a low base, with their exposure picking up only from 2020. Ultimately, total banking sector loans to municipal borrowers are very low, making up for a share at little over 1 percent, thus reflecting a lack of bank financing available and the existing gap to be filled.

**Chart 1**




Source: Türkiye Bankers Association

**Table 1: Municipal Bank Loan Breakdown by Source**

| Loans to Local Governments and Administrations (LGAs) | | | | | | |
|---|---|---|---|---|---|---|
| (million TL) | Investment and Development Banks (I) | Participation Banks (II) | Commercial Banks (III) | Total Loans to LGAs (I+II+III) | Total Banking Sector Loans | Share of Loans to LGAs in Total Banking Sector Loans |
| 2018 | 20.076 | 230 | 12.672 | 32.978 | 2.316.731 | 1,4% |
| 2019 | 19.832 | 2.563 | 12.802 | 35.198 | 2.577.395 | 1,4% |
| 2020 | 19.850 | 2.393 | 26.882 | 49.124 | 3.468.813 | 1,4% |
| 2021 | 21.027 | 2.472 | 34.895 | 58.394 | 4.708.610 | 1,2% |
| 2022 | 27.432 | 2.988 | 51.651 | 82.071 | 7.311.654 | 1,1% |

Source: Central Bank of Türkiye EVDS

8. **Over the past three years commercial banks are fast increasing their penetration into municipal lending thus reflecting their efforts to play a greater role in this market segment.** Municipal loans only account for 1.4 percent of all banking loans. The share of commercial banks within municipal loans that the banking sector lends rose to 63 percent in 2022 from 36 percent in 2019, although this share includes short-term loans such as revolving facilities and vehicle/equipment loans up to three years maturity. In long-term general and infrastructure finance loans, ILBANK maintains its dominant role. Apart from market specific constraints, macro financial difficulties currently limit opportunities to crowd-in private investments or develop new and market-based products for municipal finance.

9. **ILBANK, with its unique status providing it with the authorization to intercept up to 40 percent of the general budget revenue transfers, is in a privileged position to intermediate funds from other financial institutions and channel them into municipalities within an extended amortization schedule.** This special status has been further reinforced by MOTF`s preference, since the 2000s, to provide a sovereign repayment guarantee to ILBANK rather than the provision of that guarantee directly to municipalities. ILBANK extends loans to support budget spending of the borrower municipality (general obligation), and more sophisticated instruments like ring-fenced project financing are yet to be tested. ILBANK uses an overly simplified formula in assessing borrowing capacity by comparing 40 percent of the annual allotment with the current debt service. This is part of wider evaluation on borrower eligibility although falling short of a standard creditworthiness assessment.

10. **Using a combination of credit information, key financial/legal data and analytic tools at its disposal,** ILBANK **adopts a practical approach incorporating check and assessment of factors.** These include:

    - Current credit exposure and past loan payment performance of the borrower with ILBANK;
    - Outstanding loan exposure and payment performance of the borrower with other lenders;
    - Any overdue liabilities to National Treasury (from past borrowings under sovereign guarantee) or to any other public entities arising from due social security payments, unpaid energy bills etc.

11. **In the case of IFI sourced financing, the International Relations Department acts as a project management unit (PMU) and responds to analytics driven requests of its lenders as part of its foreign currency lending activities.** The technical, economical, environmental and financial aspects of the investment proposal are **assessed** by the Investment Appraisal Department then submitted as a proposal for approval. The World Bank, under its Sustainable Cities Program, has been working to support ILBANK in creditworthiness assessment of sub-borrower Municipalities/Utilities through expert preparation of reports as part of technical assistance for institutional strengthening. This does not constitute a substitute for ILBANK's other existing processes or tools but complements those.

12. **With its current shareholder structure, mandate, and privileged legislative status, ILBANK emerged as a unique and best-fit institution to channel external financing into municipalities under a sovereign guarantee-backed and secured repayment mechanism.** Starting from 2005, through the Municipal Services Project, funded by IBRD, ILBANK initiated its cooperation with IFIs, which has later become a very significant business line for ILBANK (see para. 17 and Table 2 below)

13. **As a development bank, ILBANK is held exempt from loan limit prudential ratios, restrictions on ownership shares, commercial property transaction provisions, and provisions on deposits and participation funds.** As ILBANK was transformed into an investment and development bank in 2011, it fell under the regulations and supervision of the Central Bank of Türkiye and the Banking Regulatory and Supervision Agency (BRSA). At the same time, ILBANK also came under the supervision of the Financial Crimes Investigation Board of the MoTF (MASAK). Because of its specific status as a state agent and mission of a dedicated municipal lender as stated in its law of incorporation, BRSA made ILBANK exempt from detailed reporting and prudential requirements, including general loan-loss provisioning under IFRS9 and also exempt from the application of specific Basel risk models. ILBANK is not exempt from the Turkish Anti-Money Laundering (AML) regulations but is subject to Simplified Due Diligence procedures. The bank complies with the Turkish AML regulations.

14. **ILBANK has a strong balance sheet and profitable operations[80].** The bank's liabilities are represented by allocated funds from the central budget and long-term loans from IFIs. In 2022 Q3, the share of FX loans was equivalent to 27 percent of total liabilities (Table 2). The MoTF provides payment guarantees for these loans. Although ILBANK has no profit-maximization objective, it has consistently achieved net profits. The bank has a positive return on average equity (9.9 percent) and relatively high returns on average assets (3.6 percent), reflecting its equity-funded model.

15. **The bank extends loans only after its funding is secured through its capital or IFI loans, and it is exposed to limited liquidity, interest rate, and currency risk.** ILBANK does not carry interest or FX risk on its own balance sheet. ILBANK adds a margin of 1 percent to IFI loans and mirrors the maturities and currencies of its own borrowings, mitigating the liquidity, interest rate, and currency risks it faces. The on-lending rates for IFI foreign currency loans reflect the cost of funds with a small markup and pass the foreign exchange risk to the borrowers' shoulders. Passing the foreign-currency risks to the borrowers exposes municipalities to FX risk, which can ultimately translate into credit risk for ILBANK. However, given credit risk mitigation measures through the revenue intercept mechanism and the practice of rolling over problem loans, credit risk for ILBANK materializes with delays in practice creating pressure on liquidity, which is manageable currently within the scale of balance sheet.

16. **FX risk borne by sub-borrowers is ultimately mitigated by central government guarantee of IFI loans as hedging option is not available.** Although MOTF guarantee under IFI lending projects is for İlbank, sub-borrower municipalities' liabilities to main lender IFI (through intermediary İlbank) are indirectly guaranteed. Although this may create a moral hazard for sub-borrowers they ultimately need to preserve their good standing with Ilbank and MOTF to maintain access to IFI finance. To encourage own management of FX risk by sub-borrowers use of hedging instruments has been evaluated by IFI lenders in conjunction with central government however this has not come to fruition due transactional obstacles including costs and administrative difficulties.

17. **ILBANK has total assets of TL 85.8 billion, with loans accounting for TL 40.2 billion, as of Q32022.** The sectoral loan allocation breakdown for that amount as of Q32022 is unavailable. According to the most recent publicly available figure in 2015, approximately 94% of planned equity investments were directed toward water and sewage projects, with the remainder allocated for solid waste, housing, and urban projects. ILBANK is also the primary conduit for donor financing and international financial institutions supporting municipal projects.

18. **The use of external funds (IFI on-lending) stands at 27 percent of the loan portfolio at the end of end-Q32022**. This points to a significant rise over the last two years (FYE2021: 24 percent, FYE2020: 14 percent) in the share of the foreign currency loans mainly due to the depreciation of the local currency and also increase in IFI sourced loans in this period to a lesser degree. ILBANK does not grant pro forma subsidized loans since its lending rates include margins sufficient to cover the cost of operation and losses and even generate intentionally moderate profit; accordingly, it charges a flat (currently 1 percent) administration fee for its loans. However, a more sophisticated risk-based pricing of the products would

[80] ILBANK has not been rated by international credit agencies since 2015. The full-year FYE2021 audited financial statements of ILBANK have received an unqualified independent audit opinion from KPMG Türkiye on March 9, 2022 and have been approved by the General Assembly on March 24. The interim financial results as of September 2022 have been audited with limited review, by the same auditor. Financial statements obtained unqualified external audits in the last three years on the basis of completeness and accuracy as well as compliance with the provisions of Banking Act Law 5411 and its related decrees on bank supervision.

be justified as ILBANK's portfolio is expanding with lending at longer maturities, creating higher risk exposure.

19. **ILBANK's key strength is its solid capitalization.** According to the latest Türkiye Bankers Association ranking data as of September 2022, including commercial, development, and investment banks, ILBANK was the fifteenth largest Turkish bank in terms of assets and by loan size, the tenth largest by equity size, and the second largest in the sector by paid-in capital size. The bank has a unique capital funding model and status underpinned by:

    a) amounts to be deducted monthly at a rate of 2 percent of the tax revenues to be distributed by the MoTF and the Bank every month;

    b) a margin at a rate of 30 percent of the Bank's annual net profit after deducting taxes and other legal liabilities;

    c) funds deemed appropriate to be transferred to the Bank's capital under other legislation provisions and all kinds of aids and donations to be added to the capital.

20. **In line with regulatory exemption and internal procedures, ILBANK does not implement loan classification standards in its credit management but rather uses a revenue interception mechanism or reschedules due loan payments**. Therefore ILBANK does not classify its overdue loan receivables as non-performing and rolls over these by including unpaid interest receivables into loan principal amount. As a means of securing loan performance through recovery, ILBANK has been using various mitigation instruments to reduce credit risk, including fiscal transfer interception, escrow accounts, and rolling over non-performing loans (whose data for the last four financial years are provided below in Table 2).

21. **Lack of formal and standardized (i.e. internal rules) for estimating expected loan losses and provisioning prevents adoption of a purely risk based pricing.** ILBANK's product offerings and pricing are mainly defined by its mission driven status and cooperatively owned capital structure. Exploration of market driven pricing approaches by ILBANK would enhance financial sustainability as well as resource allocation efficiency also helping to deepen municipal lending by commercial banks.

22. **The revenue intercept mechanism is a powerful tool for repaying debt obligations and other public sector entities' debts**. ILBANK and the MoTF are entitled to intercept the apportionments from general budget tax revenues at source and pay the requested amounts to the relevant public authority. The public institutions that can request deductions for their receivables include the MoTF, social security institutions, and ILBANK. ILBANK can also intercept apportionments from general budget revenues regarding payment obligations owed to other local government entities stemming from unpaid water, sewage, and natural gas bills.

23. **Despite its strong track record with implementing IBRD and other IFI lending projects, as a financial intermediary for subnational lending and the state's municipal finance vehicle in Türkiye, the bank is under significant pressure to deploy a rapidly expanding international IFI portfolio**. ILBANK's borrowing portfolio from IFIs includes a diversified mix of international development finance institutions with a diverse range of sector reach and geographical focus. ILBANK currently has several lending engagements outside of IBRD comprising Agence Française de Development (AFD), Japan International Cooperation Agency (JICA), European Investment Bank (EIB) and Islamic Development Bank (IDB). These operations enabled ILBANK to gain experience with environmental and social safeguards, procurement, and financial management policies—all of which support the efficient implementation of lending projects. Once a

relationship modality is set up with an IFI, ILBANK intermediation provides efficiencies in using established processes and mechanisms.

24. **Ilbank is subject to BRSA's regulation that set down the structures and processes relating to the corporate governance of banks and the principles thereof.** Accordingly, the bank has established management structures for board of directors enabling an independent and expert evaluation of activities and for senior management to have adequate qualifications to fulfill their duties efficiently. Current members of executive body come from the technical and financial administration backgrounds commensurate with their duties representing main stakeholders including MOEUCC, municipalities and special provincial administrations. Internal control system is in place encompassing risk management, internal control and internal audit function. This system is complemented by board member appointed audit committee working to ensure that control and audit findings are evaluated on a timely basis and necessary corrective actions are taken by the senior management.

25. **Based on this FIF assessment, intermediate indicators may be identified to measure both the portfolio quality and profitability of Ilbank.** These are derived form the key assessment criteria checklist as prescribed by the applicable FIF Guidance Note

**Table 2: Summary balance sheet and income statement for ILBANK**

| **BALANCE SHEET (TL million)** | | | | | |
|---|---|---|---|---|---|
| | **3Q2022** | **2021** | **2020** | **2019** | **2018** |
| **Cash and Banks** | 37,385 | 23,505 | 14,380 | 5,706 | 2,838 |
| **Securities** | 2 | 1 | 0 | 0 | 2 |
| **Loans** | 40,165 | 33,951 | 29,591 | 28,418 | 28,295 |
| **Real Estate Investments** | 3,684 | 2,936 | 2,131 | 1,575 | 673 |
| **Other** | 3,775 | 2,544 | 777 | 389 | 413 |
| **Total Assets** | **85,011** | **62,936** | **46,879** | **36,088** | **32,221** |
| | | | | | |
| **Borrowings** | 18,483 | 13,398 | 8,100 | 3,923 | 3,750 |
| **Allocated Funds** | 30,983 | 19,173 | 13,546 | 10,236 | 8,242 |
| **Other** | 2,391 | 1,984 | 1,101 | 974 | 1,649 |
| **Equity** | 33,154 | 28,381 | 24,132 | 20,955 | 18,580 |
| **Total Liabilities** | **85,011** | **62,936** | **46,879** | **36,088** | **32,221** |
| | | | | | |
| **INCOME STATEMENT (TL million)** | **3Q2022** | **2021** | **2020** | **2019** | **2018** |
| **Net Interest Income** | **3,866** | **4,360** | **3,276** | **2,916** | **1,998** |
| **Net Fees & Commissions** | 26 | 13 | 33 | 35 | 16 |
| **Dividend Income** | 0 | 0 | 0 | 0 | 0 |
| **Net Trading Income** | -5 | -38 | 0 | 0 | -1 |
| **Other Operating Income** | 1,007 | 506 | 289 | 224 | 750 |
| **Total Operating Income** | **4,894** | **4,841** | **3,598** | **3,175** | **2,763** |
| **(Other Operating Expenses)** | -1,628 | -1,278 | -939 | -892 | -657 |

| | | | | | |
|---|---|---|---|---|---|
| **Net Operating Income** | **3,266** | **3,563** | **2,659** | **2,283** | **2,106** |
| **(Tax Provisions)** | -796 | -907 | -586 | -501 | -444 |
| **Net Profit** | **2,470** | **2,656** | **2,073** | **1,782** | **1,662** |

**Table 3: Key financial ratios**

| (%) | 3Q2022 | 2021 | 2020 | 2019 | 2018 |
|---|---|---|---|---|---|
| **Equity/ assets** | 39.0 | 40.6 | 45.5 | 45.9 | 45.1 |
| **ROE** | 9.9 | 12.6 | 11.0 | 10.9 | 11.3 |
| **Rollover ratio**[81] | 1.5 | 2.4 | 3.7 | 5.2 | 6.2 |
| **Cost to Income** | 33.3 | 26.4 | 26.1 | 28.1 | 23.8 |

[81] Capitalizing the overdue interests and rolling over the past due loan receivables has become a standard instrument for ILBANK in managing problem loans as opposed to classifying them as non-performing. This is not a best practice instrument as it creates an opaque situation in measuring the loan performance, since rolled over loans appear as new lending. On the implementation side, roll-over is an internally well-controlled procedure; it requires detailed analysis, negotiation with debtors, and Board approval.

## ANNEX 4: MAP OF INDICATIVE POTENTIAL PROJECT AREAS