



**ASIAN INFRASTRUCTURE
INVESTMENT BANK**

Results-backed Financing

Approval Project Document

P001015 Türkiye: Water Efficiency and Climate Resilience for Results

Currency Equivalents

As at December 31, 2025

Currency Unit – Turkish Lira (TRY)

USD1.00 = TRY42.94

Fiscal Year

January 1 – December 31

Conversions

Abbreviations

AFAD	Afet ve Acil Durum Yönetimi Başkanlığı (Disaster and Emergency Management Presidency)
AIIB	Asian Infrastructure Investment Bank
BoTC	Board of Treasury Controllers (within MoTF)
CCASAP	Climate Change Adaptation Strategy and the Action Plan
CoA	Türkiye's Supreme Audit Institution
COVID-19	Coronavirus Disease
DLI	Disbursement-linked Indicator
DLR	Disbursement-linked Results
DoFR	Department of Foreign Relations (within DSI)
DSI	Devlet Su İşleri (General Directorate of State Hydraulic Works)
ES	Environment and Social
EIRR	Economic Internal Rate of Return
EKAP	Electronic Public Procurement Platform
ENPV	Economic Net Present Value
EOCC	Economic Opportunity Cost of Capital
ESP	Environmental and Social Policy
ESSA	Environmental and Social Systems Assessment
FSA	Fiduciary Systems Assessment
FX	Foreign Exchange
FY	Fiscal Year
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIS	Geographic Information System
GRM	Grievance Redress Mechanism
IAD	Internal Audit Department
IMF	International Monetary Fund
IRI	Intermediate Results Indicator
IVA	Independent Verification Agent
M&E	Monitoring and Evaluation
MDB	Multilateral Development Bank
MoAF	Ministry of Agriculture and Forestry, Türkiye
MoTF	Ministry of Treasury and Finance, Türkiye
O&M	Operation and Maintenance
OECD	Organization for Economic Co-operation and Development
OHS	Occupational Health and Safety

OPIR	Operational Policy on International Relations
PE	Polyethylene
PO	Project Objective
POM	Project Operational Manual
PPM	Project-affected People's Mechanism
PPP	AIIB's Policy on Prohibited Practices
RA	Results Area
RBF	Results-Based Financing
RBP	Results-Based Project
SBO	Presidency of Strategy and Budget
SCADA	Supervisory Control and Data Acquisition
SDG	Sustainable Development Goal
SUTEM	Irrigation Facilities Spatial Information System
ToR	Terms of Reference
UN	United Nations
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
USD	United States Dollars
VAT	Value-added Tax
WB	World Bank
WCST	Water Conservation and Saving Technology
WES	Water Efficiency Strategy
WUA	Water User Association

Executive Summary

1. The Türkiye: Water Efficiency and Climate Resilience for Results Project is AIIB's first Results-Based Financing (RBF) project in Türkiye. It is a stand-alone project where AIIB will provide a USD500 million, equivalent Euros, sovereign-backed loan to enhance water conveyance efficiency and climate resilience in Türkiye's water-scarce and flood-prone regions by promoting modern, pressure-regulated irrigation systems and strengthening flood control capacity.

2. The Project is strategically aligned with Türkiye's Twelfth Development Plan (2024–2028) and the Strategic Plan of the Devlet Su İşleri (DSİ, General Directorate of State Hydraulic Works) (2024-2028), addressing constraints from climate induced water scarcity, drought and flood risks. The RBF modality aims to shift the focus from inputs to verified results, linking disbursements to completed and operational infrastructure. The RBP (results-based project) represents a subset of the overall DSİ Plan of USD11.0 billion for efficient irrigation networks, land consolidation, and flood control infrastructure. Within this broader investment envelope, the RBP focuses on a defined subset of priority interventions.

3. The Project aligns with AIIB's Green and Technology-enabled Infrastructure thematic priorities. It supports climate-resilient water infrastructure investments to reduce irrigation losses and strengthen flood control.

4. AIIB's additionality lies in introducing a new development financing modality to support climate-resilient irrigation and flood management in Türkiye. The approach establishes reliance on Türkiye's country systems to strengthen the ecosystem for irrigation sector modernization. Under the RBP, upstream investments that eliminate transmission losses and result in volumetrically measured water supply integrate with downstream water pricing, strengthened water user associations, land consolidation, and regulated demand-based irrigation. In flood management, AIIB's support is integrated with river basin management planning and flood early-warning systems to minimize flood impacts.

5. For the joint multilateral development bank climate finance reporting, 59.8% or USD299 million of the Project is reported as adaptation finance, 40.2% or USD201 million as mitigation finance, while 22.8% or USD114 million is reported as dual benefits finance.

Project No. and Name	P001015 Water Efficiency and Climate Resilience for Results (Results-Based-Financing)		
AIIB Member	Türkiye		
Borrower	Republic of Türkiye		
Guarantor	Republic of Türkiye		
Project Implementation Entity	General Directorate of State Hydraulic Works (DSİ)		
Proposed AIIB financing (USDm)	USD500.00	Instrument type/subtype	Loan/Direct Sovereign
		Currency of financing requested	Euro
Sector (Subsector)	Water (Water resources management)	E&S Category and Comments (if any)	B
Project Objective	The Results-Based Project (RBP) aims to enhance water conveyance efficiency and climate resilience in Türkiye's water-scarce and flood-prone regions by promoting modern, pressure-regulated irrigation systems and strengthening flood control capacity.		
Project Description	<p>Türkiye's geographic, climatic, and socioeconomic conditions make it highly vulnerable to the impacts of climate change. Climate change is actively reshaping water availability and reliability, primarily due to projected fundamental changes in the hydrological cycle. These compounded pressures strain agriculture, urban supply, energy systems, and ecosystems, and demand integrated water management, efficiency improvements, and climate resilience strategies if long-term stability and sustainability are to be achieved. The most significant impacts of climate-induced water scarcity are anticipated in changes to crop yields. Türkiye is a major exporter of agricultural products globally, and the agriculture sector has been a major source of employment. Water scarcity threatens export earnings and demand for skilled and unskilled labor, affects food prices, and impacts lower-income households the most. To address these challenges, Türkiye has put in place a comprehensive climate change adaptation strategy and action plan as well as a water efficiency strategy and action plan. Second to earthquakes, floods cause the most damage among disasters in Türkiye. According to various estimates, the annual average loss from climate-related disasters accounts for 2-3% of GDP and a 100-year flood may affect more than 3% of GDP.</p> <p>DSİ (Devlet Su İşleri Genel Müdürlüğü) is Türkiye's General Directorate of State Hydraulic Works, established in 1954, and is</p>		

	<p>responsible for the planning, development, management, and operation of water resources and hydraulic infrastructure. The DSI's Strategic Plan (2024-2028) is based on Türkiye's 12th Development Plan (2024-2028) and has six priority areas: (a) drinking, utility and industrial water; (b) flood management; (c) effective and efficient use of water; (d) research, improvement and monitoring of water resources; (e) hydroelectric energy; and (f) institutional capacity for the next five years. The proposed Results-Based Financing (RBF) modality is well-suited to support Türkiye in implementation of the clearly defined government programs and strong institutional capacity underpinned by its well-functioning fiduciary, procurement, environmental, social, and monitoring and evaluation systems.</p> <p>The RBP represents a subset of the DSI Plan and is aligned with its objectives, geographic coverage, financing frameworks, indicators, and target results. Of the DSI Plan's total capital requirements of USD21.7 billion, approximately USD11.0 billion is allocated for investments in efficient irrigation networks, land consolidation, and flood control infrastructure</p> <p>The RBP focuses on selected vulnerable basins of Türkiye. For the climate resilient irrigation systems, the RBP will support investments in Asi (Orontes), Batı Akdeniz (Western Mediterranean), Büyük Menderes (Aegean), Doğu Akdeniz (Eastern Mediterranean) and Kızılırmak (Black Sea) basins. For flood control measures, the RBP supports investments in the Batı Karadeniz, Kızılırmak and Yeşilirmak Basins, covering Bartın, Düzce, Kastamonu, Ordu, Çankırı and Samsun provinces.</p> <p>The Results Chain analysis outlines the strategic linkage between the RBP's interventions, and their intended outputs and outcomes over the short, medium, and long terms. Achievement of the RBP Development Objectives is measured through eight project outcome indicators designed to capture performance and outcome improvements achieved by the RBP. These indicators clearly distinguish between new irrigation systems, upgraded irrigation systems, and flood control investments.</p> <p>By supporting irrigation modernization and strengthening flood control capacity, the RBP will contribute to efficient, resilient and sustainable water management systems. The RBP will be implemented in six years. The direct beneficiaries comprise primarily residents, including members of farming households, residing in areas that benefit from investments in irrigation infrastructure and flood control systems.</p>		
Implementation Period	Start Date: March 31, 2026 End Date:	Expected Loan Closing Date	December 31, 2031

	June 30, 2031		
Co-financing type	Standalone	Following other Financier's E&S Policy?	No
Lead financier		Following other Financier's Procurement Policy?	No
Financing Plan	Total RBP Cost: USD800 million Proposed RBF by AIIB: USD500 million (equivalent in Euro) Government of Türkiye: USD300 million		
Policy Assurance	The Vice President, Policy and Strategy, confirms an overall assurance that the proposed Bank Financing complies with the applicable Bank operational policies considering the requested derogation of the ESP.		

Risk	
Key Risks	Mitigation Measures
Environmental and Social Risks- Environmental, health and safety, and land acquisition and resettlement	The General Directorate of DSI will prepare the environmental, health and safety monitoring checklist and the monthly E&S monitoring report format for the RBP. The General Directorate will conduct monthly E&S and occupational health and safety (OHS) site visits and submit bi-annual E&S monitoring reports to AIIB. DSI will assign and maintain E&S focal points (one each for environment, social, and OHS) to coordinate E&S and OHS risks and impacts management. For the land acquisition and resettlement Impacts, monthly monitoring and meaningful consultations will be conducted with affected households and communities to ensure that livelihoods of affected households are restored as before being affected. The GRM will be strengthened to receive and address the complaints/grievances of affected people in a timely manner. DSI will prepare bi-annual land acquisition and resettlement monitoring reports and submit them to AIIB.
Financial Management Risk- Credibility of budget	The RBP disbursements, budget allocation, expenditures tracking, and monitoring of results involve Ministry of Treasury and Finance, Presidency of Strategy and Budget (SBO), DSI and AIIB. The SBO is responsible for (a) annual planning, budgeting, allocation and releasing financing for RBP sub-projects expenditures; (b) allocating sufficient budgetary financing for sub-projects for progress and results

	in coordination with DSI; and (c) ensuring that designated RBP sub-projects are appropriately reflected within the Annual Investment Program in accordance with national investment planning and budgeting procedures. The SBO will report the relevant expenditure, allocation, and release information to MoTF. The Borrower has agreed to send RBP reports on semester and quarterly basis to AIIB on format acceptable to AIIB. The RBP expenditure framework consists of costs required for the 11 sub-projects within the RBP boundary. The RBP's total estimated cost is USD 800 million, with USD 500 million in AIIB financing and USD 300 million in counterpart funding from the Government of Türkiye.
Technical / Implementation Risk – Implementation, Coordination, and Reporting	The General Directorate of DSI will be the focal for the RBP implementation. The Project Operation Manual will define the roles and responsibilities and identify contact points and will be updated from time to time. The Borrower shall, through DSI, monitor and evaluate the progress of the RBP and prepare reports. Each report shall cover the period of one calendar semester and shall be furnished to the Bank no later than forty-five days after the end of the period covered by such report. In addition, the Borrower shall, through DSI, prepare and furnish to the Bank not later than forty-five days after the end of each calendar quarter, interim unaudited financial reports for the Project covering the quarter, in form and substance satisfactory to the Bank.
ECap	50.48USDm 10.10%

Strategic Alignment	
Alignment with AIIB's thematic priorities	Green infrastructure; Technology-enabled Infrastructure
Alignment with AIIB's strategies	Water Strategy

Key Outcomes			
Indicator	Unit of measure	Baseline (Year)	Target (Year)
Land area equipped for new climate-resilient irrigation services expanded	Hectares	8,241 (2025)	35,828 (2031)
Irrigation conveyance efficiency in the target area increased	Percentage	47 (2025)	70 (2031)
Land area with reduced risk of flooding expanded	Hectares	0 (2025)	1,053 (2031)

Climate Action		
Climate Finance	Adaptation Finance (USDm)	USD299.00
	Mitigation Finance (USDm)	USD201.00
	Dual Benefit (USDm)	USD114.00
	Total (USDm)	USD500.00

Other Key Financing Requirements	
Conditions of Effectiveness	Additional Conditions of Effectiveness include the adoption of the Project Operations Manual, in a form and substance satisfactory to AIIB.
Key Conditions for 1st Disbursement	From the Loan Account until AIIB has received full payment of the Front-end Fee.
Key Covenants	<ul style="list-style-type: none"> • Implementation of the RBP Action Plan agreed with AIIB in a manner and substance satisfactory to AIIB. • Ensure that the RBP is carried out in compliance with the Policy of Prohibited Practices. • Ensure that Excluded Activities are excluded from the RBP.

President	Jiayi Zou
Chief Investment Officer	Konstantin Limitovskiy
Director General	Xiaohong Yang
Manager	Evren Dilekli
Project Team Leader	Drazen Kucan
Co-PTL	Asad Zafar
Project Team Members	Asma Bachikh, Investment Officer Byambasuren Narantuya, Project Lawyer Farzona Mukhitdinova, Investment Officer Furu Hu, Project Assistant Jaya Ketaren, Environment Specialist Nahom Ghebrihiwet, Economics Officer Sáni Ye Zou, Climate Specialist Suu Tran Quy, Social Development Specialist Yogesh Malla, Financial Management Specialist Yunlong Liu, Procurement Specialist

Table of Contents

1. Context	1
2. Rationale	5
3. Program Description	8
4. RBP Implementation	18
A. Institutional and Implementation Arrangements.....	18
B. Results Monitoring and Evaluation	19
C. Disbursement Arrangements and Verification Protocol.....	20
5. Assessment Summary	22
A. Technical.....	22
B. Economic Analysis	25
C. Fiduciary.....	26
D. Environmental and Social Systems Assessment	30
E. Operational Policy on International Relations	33
F. Risk Assessment	34
G. RBP Action Plan.....	35
Annex 1 (a): RBP Boundary	39
Annex 1 (b): Results Monitoring Framework	42
Annex 1 (c). DLIs and Allocation of Financing under the RBP	45
Annex 2: Disbursement Linked Indicators, Disbursement Arrangements and Verification Protocols	48
Annex 3. Country Credit Fact Sheet	58
Annex 4: Economic Analysis	60
Annex 5: Climate Change Assessment	66

1. Context

1.1 **Macroeconomic Overview.** Türkiye, an upper-middle-income economy and a member of the Organisation for Economic Co-operation and Development (OECD) and G20, remains one of the largest emerging market economies in Europe and globally. It has a population of around 86 million and a nominal gross domestic product (GDP) of close to USD1.6 trillion in 2025 (around USD18,000 per capita, or USD44,000 in purchasing power parity terms). Türkiye's economic structure is broad-based and export-oriented, underpinned by a strong private sector and a large domestic market.

1.2 Since the early 2000s, Türkiye has experienced robust growth, averaging around 5.5% per year, driven by a strong focus on development, macroeconomic stability, sound fiscal frameworks, trade openness, and institutional reform. Over this period, income per capita has tripled, and poverty levels have declined significantly. However, between 2021 and 2023, Türkiye experienced significant macroeconomic volatility marked by high inflation, capital outflows, and sharp currency depreciation. Despite these imbalances and several external shocks—including a surge in global energy prices and a major earthquake—economic growth remained strong, reaching 5.0% in 2023. The banking sector weathered turbulence, supported by forbearance measures that preserved capital adequacy.

1.3 Following the 2023 elections, the government launched a comprehensive policy normalization and tightening program to restore stability and confidence. The Central Bank of the Republic of Türkiye (CBRT) raised the policy rate to 50%, unwound complex macroprudential regulations, and reinforced its commitment to disinflation. In parallel, fiscal tightening began through expenditure restraint, a freeze on non-essential investment projects, and steps to broaden the tax base and reduce energy subsidies. These measures have yielded tangible results. Inflation has declined steadily, and the current account deficit has narrowed sharply, helped by lower energy import costs, and resilient exports and tourism receipts. Foreign exchange reserves have risen to over USD200 billion, while spreads compressed markedly, reflecting reduced external vulnerabilities and improved financing conditions.

1.4 The fiscal position, strained by earthquake reconstruction, is now set to improve under the tightening program. The public debt-to-GDP ratio remains low, helping anchor fiscal sustainability. The return to orthodox monetary and fiscal policies has also strengthened Türkiye's external credibility. All three major credit rating agencies upgraded Türkiye's sovereign rating—to BB- by S&P (stable outlook) and Fitch (positive outlook), and Ba3 (stable) by Moody's. Overall, Türkiye's ongoing policy adjustment has significantly improved macroeconomic stability, investor sentiment, and creditworthiness. Yet, sustaining these gains will require continued policy discipline amid potential risks from global financial volatility, regional geopolitical tensions, and domestic political pressures.

1.5 **Climate Change and Water Scarcity Impact.** Climate change is not just a future risk for Türkiye's water sector—it is actively reshaping water availability and reliability now, primarily due to projected fundamental changes in the hydrological cycle.¹ These compounded pressures strain

¹ World Bank Group. 2022. [Türkiye Country Climate and Development Report. Background Note 3: Agriculture, Fisheries and Water.](#)

agriculture, urban supply, energy systems, and ecosystems, and demand integrated water management, efficiency improvements, and climate resilience strategies if long-term stability and sustainability are to be achieved. Türkiye's geographic, climatic, and socioeconomic conditions make it highly vulnerable to the impacts of climate change, as demonstrated by high vulnerability across nine of ten climate vulnerability dimensions.² Climate projections for Türkiye indicate that climate change will intensify precipitation variability and climate-induced water scarcity is projected to negatively affect sectoral outputs across the economy, with all economic activities expected to be impacted either directly or indirectly. Shrinking lakes and groundwater depletion were cause for concern due to the drought and pre-existing inefficiencies in water use.³ The most significant impacts of climate-induced water scarcity and crop yields change are anticipated in the crop sector output (reduction of 7.8%), and estimated output reductions from 4.5% to 6% in the food, energy, forestry, services, and manufacturing sectors.⁴ Several studies suggest that a 10% drop in water availability could reduce Türkiye's GDP by 6%, or roughly USD50 billion, intensifying food price inflation and deepening food security risks. Lower-income households would be hit the hardest, as they spend proportionally three times as much of their income on food as the wealthiest households do.⁵ As the agriculture sector has been a major source of employment for around 15%⁶ of the employed population, water scarcity also threatens demand for skilled and unskilled labor. Likewise, while Türkiye is a major exporter of agricultural products globally, it would face a negative impact on the trade balance for food products resulting in reduced exports.

1.6 Climate Change and Floods Impact. Second to earthquakes, floods cause the most damage among disasters in Türkiye. The frequency of flood events has increased, with over 700 events occurring in 2003-2015. According to the Disaster and Emergency Management Presidency (AFAD), 450 floods have occurred in 2022, and the affected regions have expanded across vast areas, both in terms of impact and frequency.⁷ Between 2010 and 2021, the three most frequent meteorological events were storms, heavy precipitation/floods and hailstorms, of which heavy precipitation/floods accounted for nearly one-third.⁸ The economic impact of floods is reported with varying estimates. According to the UNESCAP, the annual average loss from climate-related disasters accounts for 2.2% of Türkiye's GDP. The World Bank has estimated that in the event of a 100-year flood, more than 3% of GDP (or USD20 billion) and 3 million people (or 3% of the population) could be affected.⁹

1.7 Water Resources Management. Türkiye is severely water-stressed, ranked 39th out of 164 economies in the 2023 Water Resources Institute (WRI) assessment, which indicates a high level of competition for water resources.¹⁰ In 2025, nationwide rainfall fell sharply — about 27%

² World Bank Group. 2022. [Türkiye Country Climate and Development Report](#).

³ UNCCD. 2025. [Drought Hotspots Around the World 2023-2025. United Nations Convention to Combat Desertification](#).

⁴ World Bank Group and Global Water Security & Sanitation Partnership. 2020. [Water in the Balance: The Economic Impacts of Climate Change and Water Scarcity in the Middle East-Summary for Policy Makers](#).

⁵ World Bank Group. 2022. [Türkiye Country Climate and Development Report](#).

⁶ World Bank Group. Data Bank. World Development Indicators: [Türkiye: Employment in agriculture \(% of total employment \(modeled ILO estimate\)\)](#).

⁷ Government of Türkiye, Ministry of Environment, Urbanization and Climate Change, Directorate of Climate Change. 2024. [Climate Change Adaptation Strategy and Action Plan \(2024-2030\)](#).

⁸ Government of Türkiye, Ministry of Environment, Urbanization and Climate Change, Directorate of Climate Change. 2024. [Climate Change Adaptation Strategy and Action Plan \(2024-2030\)](#).

⁹ World Bank Group. 2024. [Flood and Drought Management Project Appraisal Document](#).

¹⁰ World Resources Institute. 2023. Aqueduct Risk Mapping Tool.

lower compared with long-term averages, and in some areas up to 71% less than in 2024. This reflects a substantial drop in incoming water supply to rivers, reservoirs and aquifers, at the same time driving demand for irrigation. These changes are expected to manifest in more frequent and severe droughts and floods, heightened water scarcity (in central regions) and alterations in rainfall patterns particularly in the Black Sea region. Drought constitutes another major challenge for Türkiye, particularly given that a substantial portion of it is already characterized by semi-arid climatic conditions with heightening need for reliable irrigation demand projections. Studies suggest that irrigated farmland productivity triples that of rain-fed farmland and is essential to ensuring steady production and food security in the face of increasing drought risks and overall precipitation variability.¹¹ Irrigation driven water demand currently accounts for the largest share of water withdrawals, requiring effective and efficient water management for climate change adaptation. 77% of 112 billion cubic meters (m³) (estimated as the total volume of total water withdrawals) is used in agricultural activities, accounting for nearly 75% of surface water withdrawals. Nearly half of the irrigation water does not reach crops due to transmission and application losses as one-third of the provinces lack piped irrigation systems. The General Directorate of State Hydraulic Works¹² (DSI) reports that one-third of provinces have an efficiency rate below 55%.

1.8 Government Strategy and National Priorities. Türkiye's Twelfth Development Plan 2024-2028¹³ (the National Plan), approved on October 31, 2023, is designed with a long-term perspective within the framework of the 2053 vision, positioning Türkiye as an environmentally friendly, disaster-resilient, high-value-added production-based economy. These priorities are also well anchored in Türkiye's Climate Change Adaptation Strategy and the Action Plan (CCASAP) 2024-2030.¹⁴ Türkiye has adopted a 10-year Water Efficiency Strategy Document and Action Plan in the Framework of Adaptation to the Changing Climate 2023-2033 (WES) and the DSI Strategic Plan (2024-2028) (DSI Plan) as the strategic water resources management sector plans. WES defines water efficiency as "using the least amount of water in the production of a product or service" or "producing more products or services with the same amount of water". The strategy recognizes the distinction between water conservation and water efficiency, aligning with the United Nations Sustainable Development Goal 6.4 to substantially enhance water efficiency across all sectors. It also supports the Food and Agriculture Organization's vision of producing more food with less water in agriculture, to address the growing food demand and mounting pressures on water resources. The DSI plan provides the institutional approach for Türkiye's state water authority to manage water resources in a period of evolving climate challenges and growth priorities. It aligns with national development goals in sustainability, economic resilience, integrated water management and climate adaptation while laying out clear objectives and performance frameworks to guide operational planning and investment over the planning period.

¹¹ World Bank. May 2025. [Türkiye - Second Irrigation Modernization and Water Efficiency Project](#).

¹² DSİ (Devlet Su İşleri Genel Müdürlüğü) is Türkiye's General Directorate of State Hydraulic Works, the main national government agency, established in 1954, and responsible for the planning, development, management, and operation of water resources and hydraulic infrastructure. It is a public legal entity under the Ministry of Agriculture and Forestry with a special budget and headquarters in Ankara. Official webpage: <https://www.dsi.gov.tr/>

¹³ Presidency of the Republic of Türkiye, Presidency of Strategy and Budget. 2023. [Twelfth Development Plan \(2024-2028\)](#).

¹⁴ Government of Türkiye, Ministry of Environment, Urbanization and Climate Change, Directorate of Climate Change. 2024. [Climate Change Adaptation Strategy and Action Plan \(2024-2030\)](#).

1.9 Türkiye adopted its first Climate Law in July 2025,¹⁵ marking a major shift in its climate governance framework and a significant step towards implementing its international climate commitments. The law has been enacted, with secondary legislation currently under development. The law aims to reduce greenhouse gas emissions in line with the Nationally Determined Contribution, strengthen climate adaptation and resilience planning, establish a low-carbon, climate-resilient economy and integrate sustainability, climate justice, and just transition principles into policy. Key mechanisms in the law include emissions trading system, a carbon border adjustment mechanism, a climate planning framework and an institutional framework.

¹⁵ [Türkiye's Climate Law](#). 2025

2. Rationale

2.1 **Strategic Fit for the Asian Infrastructure Investment Bank (AIIB).** This results-based project (RBP) aligns with AIIB's mission to finance infrastructure for tomorrow, as it covers infrastructure investments that generate positive socioeconomic and environmental benefits and are socially sustainable and inclusive, with access to direct and indirect impacts of investments not constrained.

2.2 **Alignment with AIIB's Thematic Priorities.** The RBP strongly aligns with two of AIIB's thematic priorities:

- (a) **Green Infrastructure.** AIIB's participation in the RBP is expected to play a key role in leveraging financing to advance investments in results-driven climate-resilient water infrastructure, primarily focused on reducing physical losses in irrigation, and implementing structural flood control measures following the latest risk-informed hydrological standards (e.g., higher-return-period flows), to strengthen adaptive capacity and reduce risks to agricultural land, assets and peoples. The RBP fully supports climate change adaptation efforts and helps Türkiye meet environmental and related development goals as per the definition of green finance.
- (b) **Technology-enabled Infrastructure.** The RBP will promote the use of modern irrigation systems with flow meters installed at individual intake points. These meters will meet international standards to ensure the accuracy and reliability of volumetric water measurement. The flow meters will support the regulation of volumetric supply from the current un-metered and non-volumetric supply, and the associated tariffs and strengthen further digitalization of the sector. This directly reflects AIIB's strategic objective to leverage digital solutions to improve infrastructure performance, operational efficiency, and long-term sustainability.

2.3 **Alignment with AIIB's Water Sector Strategy.** The RBP aligns with Principle 1 (*Promoting sustainable infrastructure*) of the AIIB's Water Sector Strategy, by supporting investments that expand and rehabilitate climate-resilient irrigation networks comprising 1,315 kilometers of efficient transmission and conveyance irrigation pipelines and other associated infrastructure under five selected irrigation sub-projects; and that ultimately reduce flood risk to 1,052 hectares (ha) of land under six flood-control sub-projects. In total, the RBP will cover 44,838 ha of land and benefit 544,290 people. The RBP also aligns with Principle 2 (*Integrated Water Resources Management*) by supporting infrastructure investments guided by basin-level planning, water-allocation and flood-risk management under the government's programmatic approach in seven targeted sub-basins. The project advances Principle 4 (*Adopting innovative technology*) by financing the installation of 9,704 flow meters, with a future transition to a fully digitalized system that enables smart water management.

2.4 **Alignment with Sustainable Development Goal (SDG) 6,**¹⁶ with a particular focus on SDG 6.4,¹⁷ and scalable contributions to SDG 6.4.1 (change of water efficiency over time). The RBP timeline aligns with the SDG implementation horizon to 2030, positioning it as a critical acceleration window for sustained progress toward SDG 6 targets by 2030.

2.5 **Paris Agreement Alignment and Climate Finance.** The RBP's Paris Alignment assessment was conducted in line with AIIB's Methodology for Assessing the Alignment of AIIB Investment Operations with the Paris Agreement (2023) and the Joint Multilateral Development Bank (MDB) Methodological Principles for Assessment of Paris Agreement Alignment of New Operations. The World Bank's Paris Alignment Method for Program-for-Results (2023) was considered an additional reference. The RBP is aligned with the adaptation and mitigation goals of the Paris Agreement. The climate finance share of AIIB's financing for the RBP was calculated following the joint MDB Common Principles for Mitigation Finance Tracking and joint MDB Methodology for Tracking Adaptation Finance, respectively. Thus, 100% of AIIB's total RBP financing can be considered as climate finance, including 59.8% adaptation finance, 40.2% mitigation finance, with 22.8% dual benefits finance that support both mitigation and adaptation. Annex 5 provides further details.

2.6 **Value Addition by AIIB.** AIIB is introducing a new development financing modality for Türkiye's irrigation and flood management to achieve climate-resilient water sector objectives. The approach establishes reliance on Türkiye's country systems to strengthen the ecosystem for irrigation sector modernization. Under the RBP, upstream investments that eliminate transmission losses and result in volumetrically measured water supply integrate with downstream water pricing structuring, strengthened Water User Associations (WUA), land consolidation, and regulated demand-based irrigation. In flood management, AIIB's support is integrated with river basin management planning and flood early-warning systems to minimize flood impacts. AIIB's participation will unlock financial resources for DSI targeted to irrigation and flooding infrastructure, while rewarding effective sector planning and expenditure management of the Ministry of Treasury and Finance (MoTF) and Presidency of Strategy and Budget (SBO) Türkiye, enabling the achievement of overall strategic plan targets. AIIB financing is considered crucial for implementing the large-scale DSI Plan,¹⁸ which depends on public funding for its timely execution. AIIB's support addresses key financial gaps, enables the adoption of robust environmental and social safeguards, and enhances the credibility of Türkiye's procurement and financial management systems that DSI adheres to. The RBP will ensure efficient and effective implementation and effectively monitor and evaluate the results.

2.7 **Value Addition to AIIB.** As the first AIIB-financed water-focused RBP in Türkiye, this will expand AIIB's impact into a sector that requires both urgent and significant long-term interventions, due to unprecedented climate change pressures on available water resources. By building on the experiences of other multilateral development banks, the project will establish AIIB's presence and role in the water sector in Türkiye and the region as an innovative and

¹⁶ SDG 6 - Ensure availability and sustainable management of water and sanitation for all.

¹⁷ [SDG 6.4](#) - substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.

¹⁸ The RBP supports implementation of the current DSI Strategic Plan (2024-2028) and underpins strategic targets in the Government's Twelfth National Development Plan.

effective development partner. Finally, this RBP will expand the Bank’s operational experience in partnership with DSI—one of the largest and the most influential sector and infrastructure developing authority in the region, with opportunities to enhance AIIB’s visibility and reinforce long-term relationships with key counterparts, including the SBO, the MoTF, and the Ministry of Agriculture and Forestry (MoAF), while fostering close collaboration with other development partners most notably the World Bank, which has a large water portfolio in Türkiye, and DSI in particular.

3. Program Description

3.1 **National Plan.** The Twelfth Development Plan 2024-2028 promotes green and digital transformation to enhance productivity and competitiveness, while strengthening disaster resilience, environmental sustainability, and equitable development across regions. The National Plan recognizes water as a crucial resource for sustaining production systems and improving living standards, including maintaining food systems in the future given an increasing population and growing climate vulnerability, with more frequent, extreme and adverse climate conditions. The National Plan also outlines policies to strengthen the resilience of communities and infrastructure to natural hazards and safeguard environmental resources through structural and non-structural flood protection investments designed in line with seasonal rainfall patterns, population, strategic facilities and agricultural lands in the regions. The National Plan includes specific nation-wide targets for implementation in 2024-2028.

Table 1. Key Irrigation and Flood Targets of the Twelfth Development Plan, 2024-2028

Sr.	Target Area	2022	2028
1	Land Consolidation Activity Area (million hectare, cumulative) ¹⁹	8.78	11.70
2	Land Consolidation Area for which Registration Procedures are Completed (million hectare, cumulative)	6.78	10.00
3	Irrigation Ratio (%)	69	72
4	Expanded Gross Irrigation Area (million hectare, cumulative)	6.96	7.85
5	Gross Irrigation Area Rehabilitated (thousand hectare, cumulative)	39	303
6	Number of Completed Flood Control Facilities (unit, cumulative)	10,413	11,600
7	Number of Completed Basin-Based Flood Early Warning Systems (unit, cumulative)	0	25

3.2 **The DSI Plan.** Covering the period of 2024-2028, the DSI plan serves as an operational framework for implementation of the National Plan and aligns with its key programmatic areas. The DSI Plan has the following six objectives, further detailed through 15 goals, and 34 performance indicators:

- (a) Meet the drinking, utility, and industrial water needs of municipalities in sufficient quantity and quality, to prevent wastewater pollution.
- (b) Control the damage caused by flood waters in settlements and agricultural lands.
- (c) Ensure effective and efficient use of water.
- (d) Ensure the research, improvement and monitoring of water resources in tangible terms of volume (quantity) and service (quality).
- (e) Increase the installed capacity of hydroelectric energy within the scope of renewable energy supply.
- (f) Improve and develop institutional capacity.

3.3 DSI has earmarked budget resources under an investment plan to support these six priority objectives. Over the five-year implementation horizon, the total planned expenditure is

¹⁹ Land consolidation in Türkiye (*Arazi Topulaştırması*) is a government-led land management process that reorganizes fragmented and scattered agricultural parcels into larger, more regular, and better-located plots, while preserving farmers' ownership rights. This facilitates modern and more effective irrigation. This is also referenced as clustering in other economies.

approximately USD22 billion, with annual budget allocations increasing progressively to reflect the phased expansion and scaling-up of activities. Budget allocation by strategic objective indicates a strong concentration of resources under *Objective 3*, which accounts for USD11.2 billion, representing more than half of the total DSI plan. *Objective 2* is the second-largest cost driver, with a planned allocation of USD4.1 billion.

3.4 Rationale. The Results-Based Financing (RBF) modality is well-suited to support Türkiye in implementation of the clearly defined government programs and strong institutional capacity underpinned by its well-functioning fiduciary, procurement, environmental, social, and monitoring and evaluation (M&E) systems. The National Plan and the DSI Plan articulate clear objectives, measurable results, and established implementation arrangements for achieving the sector outcomes. The RBF intends to shift the focus from inputs and works to the achievement of verifiable results, strengthening institutional accountability and ownership over development outcomes. The AIIB and government sector dialogue resulted in the government considering the RBF as a preferred AIIB’s instrument relying on the use of country systems, continuity of ongoing water efficiency and flood management investments and achieving results through design and implementation ready investments. The RBF enhances the efficiency of public expenditures by minimizing the need for new implementation arrangements and the preparatory time typically required for stand-alone project financing in the sector. The RBF disbursements are tied to irrigation and flood asset creation, operationalization, and use by the beneficiaries.

3.5 RBP Boundaries. The RBP represents a subset of the DSI Plan and is aligned with its objectives, geographic coverage, financing frameworks, indicators, and target results. Of the DSI Plan’s total capital requirements of USD21.7 billion, approximately USD11.0 billion is allocated for investments in efficient irrigation networks, land consolidation, and flood control infrastructure. Within this broader investment envelope, the RBP focuses on a defined subset of priority interventions totaling USD800 million. RBP’s technical scope is focused on upgrade and expansion of irrigation systems through improving conveyance efficiency; and financing of structural flood-control measures. This emphasis is consistent with DSI’s institutional mandate, investment responsibilities and operational improvements enabling clearly attributable and verifiable results. The scope and positioning of the RBP within the strategic plans are in Figure 1 and the details are in Table 1.

Figure 1. RBP Boundary

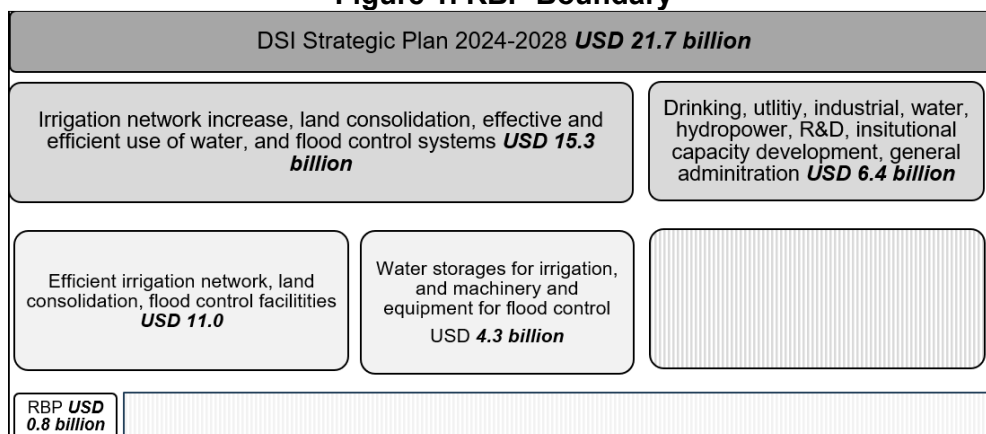


Table 2. RBP Financing
(USD million)

Source	AiIB	Government	Total	%
Efficient climate-resilient irrigation system	360	187	547	68%
Climate-resilient flood management	140	113	253	32%
Total RBP Financing	500 63%	300 37%	800* 100%	

* AiIB Team calculations: The government will spend an estimated USD800 million to achieve the disbursement-linked results and paid under disbursement-linked indicators. The expenditure incurred under the RBP will not exceed the total expenditure.

3.6 RBP Geographical Area. The RBP focuses on selected and vulnerable basins of Türkiye.²⁰ The RBP will partially finance the DSI Plan through improvements in irrigation conveyance systems and enhancement of structural flood control measures to address the impacts of anticipated water scarcity and floods. As part of the investments in climate resilient irrigation systems, the RBP will support investments in the Asi (Orontes), Batı Akdeniz (Western Mediterranean), Büyük Menderes (Aegean), Doğu Akdeniz (Eastern Mediterranean) and Kızılırmak (Black Sea) basins. Except for Kızılırmak, the water scarcity stress in the rest of the four basins is high to medium-high, with patterns of declining summer flows, drought and hotter and drier summers and stress points in summers. This affects food security and production. In Kızılırmak, the seasonal shifts and seasonal lows in flows affect the late summer requirements.

3.7 For flood control measures, the RBP supports investments in the Batı Karadeniz, Kızılırmak and Yeşilirmak Basins, covering Bartın, Düzce, Kastamonu, Ordu, Çankırı and Samsun provinces. The Batı Karadeniz basin is flood-prone due to steep valleys and very intense coastal rainfall, which often leads to frequent, catastrophic flash floods. The Yeşilirmak Basin drains to the Black Sea. Flood risk comes from mountain snowmelt, intense summer storms and low-lying plains, leading to flooding in mountain headwaters and low-lying plains. The Kızılırmak Basin is one of the three largest, covering much of the upper Central Anatolia and draining to the Black Sea. Floods are linked to snowmelt, and long rainfall episodes affect both the interior valleys and the delta plain.

3.8 RBP Beneficiaries. The direct beneficiaries, estimated at 544,290, comprise primarily residents, including members of farming households, residing in areas that benefit from strategic investments in irrigation infrastructure and flood control systems. These beneficiaries include populations in downstream irrigation schemes that receive reliable water supply for agriculture, enabling them to shift from rain-fed to irrigated cropping systems, improve yields and diversify crop portfolios—changes supported by modern irrigation policies that aim to increase water-use efficiency and sustainability for food production. Flood control investments under the RBP benefit residents in flood prone areas by safeguarding lives, property, land and critical infrastructure.

3.9 RBP Development Objective (PO). The RBP aims to enhance water conveyance efficiency and climate resilience in Türkiye's water-scarce and flood-prone regions by promoting modern, pressure-regulated irrigation systems and strengthening flood control capacity.

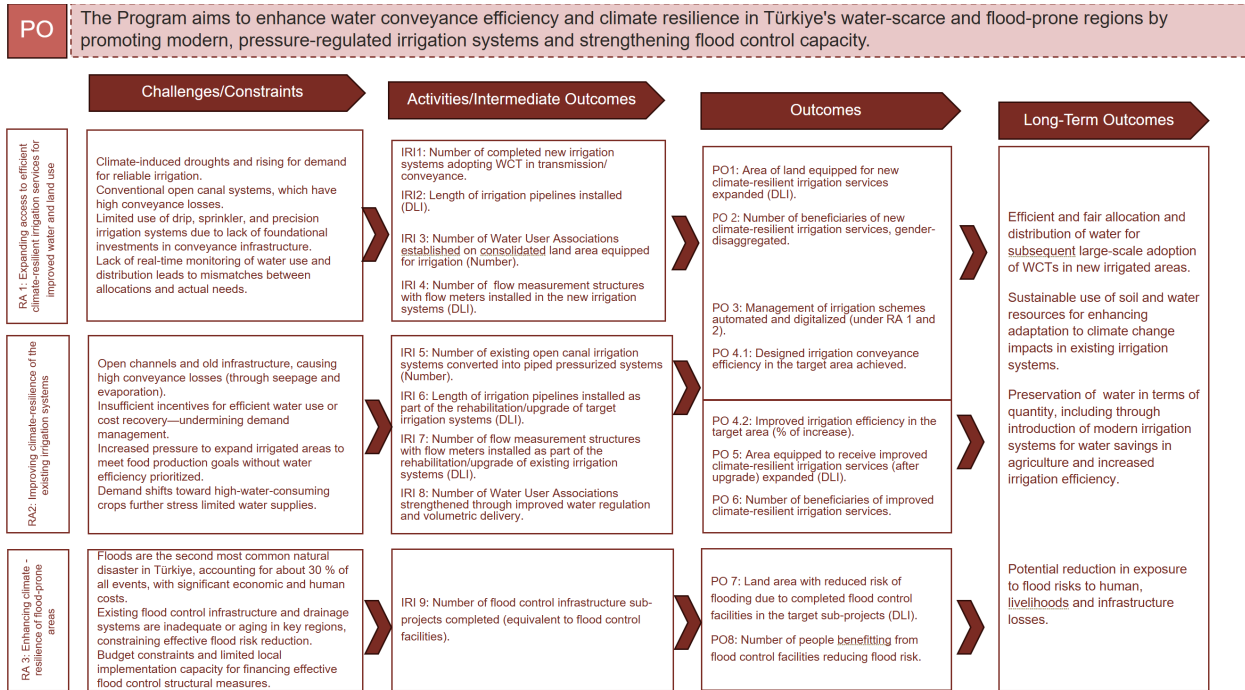
²⁰ World Bank Group. 2022. [Türkiye Country Climate and Development Report. Background Note 3: Agriculture, Fisheries and Water.](#)

3.10 Results Chain. The RBP supports operationalization of core components of the national DSI Plan, which influenced the design of the Results Chain. At the strategic (long-term) level, DSI's objectives to improve climate resilient water productivity, efficient irrigation service delivery and flood risk reduction, are fully aligned with the global benchmarks for modern irrigation systems, flood control and sustainable water resources management. In the short- to medium-term, DSI's operational actions—including canal rehabilitation, conversion to pressurized and closed irrigation systems, precise irrigation scheduling and integrated flood risk management translates these objectives into concrete, measurable results.

3.11 Results Chain Analysis. The Results Chain analysis outlines the strategic linkage between the RBF financed interventions, and their intended outputs and outcomes over the short, medium, and long term. Achievement of the RBP Development Objectives is measured through eight project outcome (PO) indicators designed to capture performance and outcome improvements achieved because of the RBP. These indicators clearly distinguish between new irrigation systems, upgraded irrigation systems, and flood control investments and include the following:

- PO 1: Land area equipped for new climate-resilient irrigation services expanded; and PO 5: Land area equipped for improved climate-resilient irrigation services (after upgrade) expanded.
- PO 2: Number of beneficiaries of new climate-resilient irrigation services; and PO 6: Number of beneficiaries of improved climate-resilient irrigation services.
- PO 3: Management of irrigation schemes digitalized.
- PO 4.1: Designed irrigation conveyance efficiency in the target area (above 70%) achieved; and PO 4.2: Improved irrigation efficiency in the target area.
- PO 7: Land area with reduced risk of flooding expanded.
- PO 8: Number of people benefiting from flood control facilities reducing flood risks.

Figure 2. Results Chain



3.12 RBP Result Areas. The RBP is organized around three Results Areas (RAs), contributing to the operationalization of the government’s strategy and national priorities through supporting the DSI Plan.

3.13 Results Area 1: Expanding access to efficient climate-resilient irrigation services for improved water and land use. The expansion of new irrigation areas will be guided by an integrated approach that combines phased, smart technology-driven extension of irrigation infrastructure with downstream land consolidation, supported by farmers’ engagement and complementary on-farm investments. Climate-resilient irrigation services are defined as irrigation services delivered to a newly developed command area of target irrigation systems that meet pre-defined climate-resilience criteria embedded in the system design. These criteria include (a) closed, piped conveyance systems to minimize conveyance losses and enhance reliability of bulk irrigation delivery; (b) volumetric measurement and monitoring of irrigation water delivery in conveyance systems to support efficient allocation and operational control; and (c) provision for adequate pressure regulation to enable further roll-out of water-efficient on-farm irrigation technologies, such as drip and sprinkler systems, thereby improving resilience to water scarcity and climate variability. The RBP will support the installation of efficient conveyance irrigation systems, utilizing pressurized pipe systems. These systems will be enabling the further roll-out of controlled use of Water Conservation and Saving Technologies (WCST)—such as drip and sprinkler irrigation systems. At the system level, the RBP-financed activities aim to minimize conveyance losses and optimize crop water productivity in the face of increasing climate variability.

3.14 Results Area 2: Improving climate-resilience of existing irrigation systems. The RBP will focus on modernizing existing irrigation by replacing obsolete conveyance canals with closed

pressurized pipe networks, enabling volumetric water delivery for improved water regulation and operational control. This upgrade of traditional irrigation conveyance systems will substantially improve irrigation efficiency, reduce labor intensity of future operation and maintenance, and prevent drainage and salinity issues, thereby enhancing the efficiency and climate resilience of irrigation operations in the target area, with particular emphasis on reliable water delivery.

3.15 Results Area 3: Enhancing climate resilience of flood-prone areas. This result area focuses on infrastructure investments in construction and upgrade of flood control facilities built in rivers and on-stream beds. Key interventions include installing flood traps in upper basins of the rivers and streams for flood peak control, reclamation benches for energy control, and other river embankment works and weirs for debris management.²¹ Flood risk and damage-reduction riverbed arrangements include embanked or walled bed arrangements and longitudinal and transverse structures, such as spurs or slope-regulation structures. These activities aim to increase the climate resilience of agricultural land, populations, and their livelihoods and assets exposed to flood hazards.

3.16 POs and Intermediate Results Indicators (IRIs) included in the Results Chain Analysis and further detailed in Annex 1(b) are aligned with the strategic key performance indicators set in the DSI Plan, as shown in Table 3.

Table 3. Government Program and RBP Targets

Sub-Indicator (Ref to DSI Strategic Plan 2024-2028)	(Ref to DSI Strategic Plan 2024-2028)	RBP Boundary	
		Baseline	End Target
Increase in area equipped for new climate-resilient irrigation services expanded (ha)	750,000	0	35,828
Increase in irrigated area renovated by DSI for improved climate-resilient irrigation services (ha)	237,032	0	9,010
Increase in area with completed land consolidation activities	2,726,413	0	44,838
Irrigation efficiency increased (%)*	56	0-47	59
Increase in number of irrigation facilities fitted with electronic metering system	670	0	5
Increase in number of flood control facilities	903	0	6

* Overall irrigation efficiency refers to the combined efficiency of water delivery from the source to the field (conveyance efficiency) and the efficiency with which delivered water is applied and beneficially used at the farm level (application efficiency). The RBP investments will target conveyance efficiency improvements as a contribution to overall irrigation efficiency.

3.17 Rationale for Disbursement Linked Indicators (DLIs). The results chain (Figure 2) highlights the key RBP results indicators, carefully designed to align financial incentives with the critical milestones necessary for the program’s successful implementation. The DLIs are formulated to track progress on the key dimensions of the RBP, considering the following elements: (a) the selected DLIs are aligned with the targets included in the government program; (b) the DLIs are considered achievable during the RBP period; (c) the DLIs are quantifiable, measurable and verifiable, and (d) the DLIs are within DSI’s control. The DLIs represent a mix of

²¹ Riverbed dredging is not foreseen, while limited riverbed leveling may occur under flood control sub-projects. Risks associated with riverbed leveling and community health and safety, including vector-borne diseases, will be monitored as part of the RBP’s strengthened monitoring actions, in line with existing systems and national regulations.

process-oriented outputs and concrete outcomes, at the level of the project objectives, serving as proxies of impact on the ground. DSI agreed to use the following DLIs as metrics for measuring disbursement-linked results (DLRs). Annex 1(b) includes a Table of DLIs and rationale for their selection summarized as follows:

3.18 Results Area 1: Expanding access to efficient climate-resilient irrigation services for improved water and land use.

- (a) **DLI 1 - Land area equipped for new climate-resilient irrigation services expanded.** This DLI tracks progressive expansion of land area with climate-resilient irrigation services enabled through extension and modernization of three gravity-fed schemes and one pumped scheme. Disbursements are directly linked to the completion and verification of all physical works by sections, ensuring that financial support aligns with tangible infrastructure development on the ground. By linking disbursement to completed investment milestones, the DLI incentivizes timely completion of works combined with volumetric measurement and regulation of irrigation supply to the targeted command area. Verification of this DLR requires proof of completed civil works by section in target schemes and a demonstration that water is successfully delivered to the designated command area. DLI 1 directly contributes to PO 1. Progress under DLI 1 provides the physical basis for subsequent improvements in land consolidation, scheme management, and overall irrigation efficiency, supporting a higher-level PO 4.1.
- (b) **DLI 2 - Length of irrigation pipelines installed.** This DLI tracks the annual length of irrigation pipelines installed across three gravity-fed schemes and one pumped scheme. Disbursements are directly linked to the completion and verification of physical works, associated with laying and testing of the pipelines, ensuring that financial support aligns with tangible progress in the development of conveyance and transmission infrastructure on the ground. The installed pipelines also provide essential infrastructure to support the expansion of land equipped with climate-resilient irrigation services under PO 1, and the corresponding increase in beneficiaries under PO 2. DLI 2 directly contributes to PO 4.1 by avoiding conveyance losses, traditionally observed in open canal systems, improving flow regulation and reliability of water delivery to targeted command areas.
- (c) **DLI 3 - Number of flow measurement structures with flow meters installed in the new irrigation systems.** This DLI tracks the annual number of flow measurement structures with flow meters installed in the new irrigation systems across three gravity-fed schemes and one pumped scheme. Disbursements are linked to the completion and verification of these installations, ensuring that financing is tied to tangible functionality of the flow measurement and pressure regulating structures rather than inputs alone. DLI 3 directly contributes to PO 3 by enabling water regulation, volumetric measurement and reliable data generation for operational control and monitoring. This DLI underpins transparent water allocation, improved operational control, thereby

contributing to monitoring of conveyance efficiency and service reliability expected under POs 3 and 4.1.

3.19 **RBP Results Area 2: Improving climate-resilience of existing irrigation systems**

- (d) **DLI 4 – Land area equipped for improved climate-resilient irrigation services expanded.** This DLI tracks the irrigated command land area where the existing irrigation conveyance system is converted from open-channel traditional irrigation system to a closed piped conveyance system. Disbursements are directly linked to the completion and verification of all physical works by complete sections, ensuring that financial support aligns with on-the-ground tangible infrastructure development. By tying the results to completed investments, DLI incentivizes the timely completion of works and land consolidation efforts, as well as the volumetric measurement and regulation of irrigation supply to the target area. Progress under DLI 4 provides the physical basis for subsequent improvements in land consolidation, scheme management and irrigation efficiency, contributing to PO 5 and supporting PO 4.2.
- (e) **DLI 5: Length of irrigation pipelines installed as part of the rehabilitation and upgrade of the target irrigation systems.** This DLI tracks the annual length in kilometers of irrigation pipelines installed to replace the existing open-channel conveyance system. Disbursements are directly linked to the completion and verification of physical works, ensuring that financial support aligns with tangible progress in the rehabilitation and upgrade of on-the-ground conveyance and transmission infrastructure. DLI 5 directly contributes to PO 4.2 by reducing conveyance losses, improving flow regulation, and strengthening the reliability of water delivery to targeted command areas. The installed pipelines also provide essential infrastructure that supports the expansion of land equipped for improved climate-resilient irrigation services under PO 5 and PO 6.
- (f) **DLI 6 - Number of flow measurement structures with flow meters installed as part of the rehabilitation and upgrade of targeted irrigation systems.** This DLI tracks the annual number of flow measurement structures with flow meters installed as part of the modernization of the existing irrigation system at water intake points. Disbursements are linked to the completion and verification of these installations, ensuring that financing is tied to tangible functionality of the flow measurement and pressure regulating structures rather than inputs alone. DLI 3 directly contributes to PO3 by enabling volumetric measurement, flow regulation, and reliable data generation for operational control and monitoring. By strengthening the capacity for accurate water measurement and reporting, the DLI also supports improvements in conveyance efficiency and service reliability reflected under PO 4.2 and facilitates equitable and transparent water allocation to areas under PO 5.

3.20 **RBP Results Area 3: Enhancing climate resilience of flood-prone areas**

(g) **DLI 7: Land area with reduced risk of flooding due to completed and commissioned flood control facilities.**²² Given the heterogeneity of flood protection interventions across the six flood-control sub-projects, unit costs per hectare vary significantly depending on the complexity and type of work. Accordingly, the RBP assigns a standard value of USD132,279 per hectare of land benefiting from reduced flood risk as a result of completed and commissioned flood control facilities, as delineated in the approved flood footprint maps. The land area metric is used to consistently measure and aggregate the spatial extent of benefits across sub-projects, rather than to standardize or reimburse actual unit costs, as acceptable under the RBF modality. Disbursements are triggered only upon full completion, commissioning, and independent verification of the flood control facilities under each sub-project, in accordance with approved technical designs and performance standards, and confirmation of their functionality and O&M arrangements. Upon completion of each sub-project, the verified land area benefiting from reduced flood risk is deemed fully achieved for DLR verification purposes. This DLI directly contributes to PO 7 (Land area with reduced risk of flooding) and provides the physical basis for PO 8 (Number of people benefiting from flood control facilities).

3.21 RBP Capacity Building and Institutional Strengthening Activities. DSI will build on the RBP's completion and achievements and prepare an adoption plan for the post-RBP period to realize the benefits of an efficient use of land and water resources. This will include volumetric water measurement, strengthen cost-recovery mechanisms and improve the operational performance of irrigation schemes. Land consolidation will further enhance water-use efficiency alongside more effective use of other agricultural inputs. DSI will adopt the Irrigation Facilities Spatial Information System (SUTEM)²³ as a centralized digital platform for monitoring and regulating irrigation systems, enabling real-time tracking of water deliveries, flow measurements, and system performance. AIIB will follow up with DSI and MoAF, other relevant institutions and development partners on the progress of updating river basins planning, sectoral uses and reallocation, climate change scenarios, future irrigation investments and the proposed new Water Law.

3.22 The assessments confirm that DSI is a high-capacity organization, and no allocation is made for capacity-building activities. The RBP requires specific measures, as defined in the RBP action plan, for implementation and administrative actions. These include M&E, capacity building in independent verification of results, preparing the Project Operational Manual (POM), training on AIIB financial management policies, procedures, reporting, and disbursements, as well as dedicated support for environment, safeguards, and gender. The RBP will strengthen DSI's institutional capacity to implement results-based financing, in close collaboration with the MoTF and SBO, as well as externally with AIIB. Use of an Independent Verification Agent (IVA) will complement existing internal control systems. Results reporting to the government will support

²² In line with the DSI Strategic Plan verified through the project appraisal, flood control facilities are a system of engineered hydraulic and structural units designed and constructed to prevent, reduce, or control flooding by containing, diverting, regulating, or safely conveying floodwaters, thereby reducing flood risk to people, land, and assets within the protected area. The DLI is defined as completion and commissioning of flood control facilities in accordance with approved designs and performance standards, confirming their functionality and O&M arrangements.

²³ Seren, Ahmet. 2023. Decision support systems in irrigation management: Irrigation Facilities Spatial Information System.

DSI in monitoring and reporting progress against its strategic plan, CCASAP, as well as budgetary support and AIIB's financing.

4. RBP Implementation

A. Institutional and Implementation Arrangements

4.1 **Overall Institutional Arrangements.** The MoTF is the focal ministry for RBP implementation representing the Government of Türkiye and coordinating with AIIB, DSI, and SBO. Its key responsibilities are: (a) RBP oversight; (b) legal agreements; (c) effectiveness; (d) disbursements for initial advances, additional advances, DLRs/DLI's achievements, including those already achieved; (e) deducting advance upon achievements of results; (f) refunding the excess RBF amount exceeding the total amount of expenditures; (g) refunding the advance for unachieved results; (h) submitting audit reports; (i) coordinating implementation support missions; (j) reporting RBP changes; (k) approving the POM and POM updates in consultation with AIIB; (l) advising SBO on budgetary allocation to RBP sub-projects; (m) nominating the focal for RBP oversight, implementation and coordination; and (n) closing the loan.

4.2 The SBO is the focal institution for RBP planning and budgeting. Its key responsibilities are: (a) annual planning, budgeting, allocation and releasing financing for RBP sub-projects expenditures; (b) allocating sufficient budgetary financing for sub-projects for progress and results in coordination with DSI; and (c) ensuring that designated RBP sub-projects are appropriately reflected within the Annual Investment Program in accordance with national investment planning and budgeting procedures, and reporting the relevant expenditure, allocation, and release information to MoTF. The MoAF is the focal ministry for oversight on DSI. It is a line ministry with key responsibilities of supporting DSI in RBP implementation and results achievement.

4.3 DSI is the key implementing entity for the RBP. Its key responsibilities are: (a) sub-projects implementation and DLRs/DLIs achievements; (b) fiduciary, procurement, environmental, social, and gender compliances; (c) quarterly reporting to MoTF and AIIB; (d) designating a focal unit and persons for RBP implementation for coordination, M&E, and Environmental and Social (ES); (e) reporting and forecasting periodic expenditure and financing requirements; (f) appointing an IVA; (g) submitting IVA verification reports to AIIB for approval; (h) submitting AIIB's approval of the IVA report to the MoTF; and (i) drafting and updating POM for submission to MoTF.

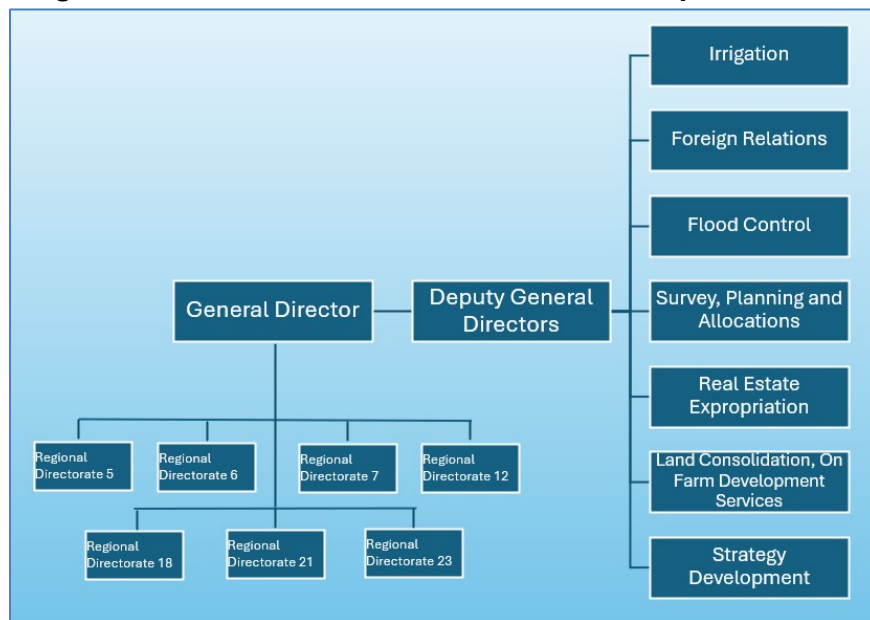
4.4 DSI is a special centrally budgeted organization subject to the national government budget, responsible for planning, managing, developing and operating water resources in Türkiye.²⁴ DSI implements its mandate through 26 regional directorates and over 23,000 personnel. DSI has a significant design and construction management capacity, demonstrated by impressive 1,948 water storage facilities constructed over the period of 1923-2024, adding 183.4 billion m³ of storage capacity. For groundwater recharge, DSI also created 50 million m³ of storage. DSI plays an important role in food security by managing irrigation infrastructure and improving water-use efficiency. As of 2024, DSI has installed more than 3,500 irrigation systems across 7.2 million ha and over 100,000 km of pipes. DSI undertakes land consolidation activities, contributing to sustainable agriculture and the efficient use of natural resources and rural development, with 7.58 million ha of land registered. DSI has long-standing experience in implementing large-scale

²⁴ DSI Charter. <https://www.dsi.gov.tr/>

irrigation and flood control programs, including MDB-financed projects, and in managing them in a technically robust manner.

4.5 DSI Institutional Structure for RBP. DSI units responsible for RBP are the Department of Irrigation for the irrigation component and the Department of Flood Control for the flood component. The other key cooperating departments in DSI are: (a) Surveys, Planning and Allocations; (b) Real Estate Expropriation; (c) Land Consolidation and On-Farm Development Services Department; and (d) Strategy Development. The RBP is firmly anchored in DSI’s institutional structure and will be implemented with strong support from its Regional Directorates. The DSI Department of Foreign Relations (DoFR) has a pivotal role in coordinating with the development partners. Figure 3 presents DSI’s internal organizational structure for implementing the RBP.

Figure 3. DSI Institutional Structure for RBP Implementation



B. Results Monitoring and Evaluation

4.6 Monitoring and Evaluation. DSI will lead the results M&E under the RBP. Monitoring will go beyond DLI verification and will include a structured set of other key indicators to assess actual improvements in water use efficiency, service delivery and climate resilience. This dual-layer approach ensures that results reporting reflects not only the completion of assets but also their functional performance and on-the-ground outcomes. DSI’s relevant departments primarily administering irrigation and flood control activities will act as the primary data custodian, with verification through decentralized technical audits, construction and supervision records, geospatial analysis and survey instruments, allowing for triangulation and quality assurance of reported results. For irrigation, this includes monitoring conveyance efficiency, volumetric water delivery, water productivity and the operational performance of WUAs. For flood control, monitoring will extend beyond asset completion to include population benefiting and the functionality of flood-control facilities.

4.7 Dedicated M&E focal points at DSI headquarters will consolidate results semi-annually using standardized indicator definitions in the Results Framework and verification protocols. Reporting templates will be developed as part of the POM. These focal points will operate independently from day-to-day construction management to ensure consistency and impartiality in performance assessment. DSI regional directorates will conduct regular field visits, and physical inspections throughout project implementation, with findings reported to headquarters.

4.8 **Supervision and Evaluation.** DSI has the in-house engineering, procurement and contract management capacity to supervise irrigation modernization and flood control works directly, without reliance on parallel implementation structures. DSI regional directorates will supervise construction through assigned site engineers and technical staff, supported where necessary by specialized consultants. DSI will ensure that works are implemented in full compliance with approved designs, technical specifications, environmental and social requirements, and applicable safety standards, including those related to dam safety,²⁵ flood protection and worker health and safety. Construction supervision will include systematic site inspections, verification of quantities and workmanship, review of contractor schedules, and validation of as-built documentation in accordance with DSI's internal procedures.

4.9 **SUTEM** is DSI's centralized digital platform for monitoring and regulating irrigation systems, developed by DSI under the World Bank financing. The platform enables real-time tracking of water deliveries, flow measurements, and operational performance, and complementing SCADA-based automation of hydraulic structures, hydrometeorological and flood monitoring networks, reservoir operation systems, and asset management databases. Following completion of irrigation works and land consolidation, a sequenced post-construction period will be required to calibrate pressurized systems, fine-tune water regulation and delivery schedules, and train farmers in improved irrigation practices to ensure that infrastructure investments translate into effective water savings. Hence, the SUTEM cannot be supported through the RBP to be rolled out immediately in the target areas. However, the RBP is designed to allow for this sequencing.

C. Disbursement Arrangements and Verification Protocol

4.10 **Disbursement.** The RBP expenditures will be pre-financed by the government budgetary resources in line with the RBP's expenditure framework and identified budget lines. Some of the expenditures under the selected schemes have already been pre-financed from the budget, with agreed DLRs achieved over the period from the concept review to the RBP's signing. Upon satisfactory achievement of the specified DLRs (DLIs 2, 3, 5, 6 and 7), as verified by the IVA in accordance with the agreed verification protocols, AIIB will disburse funds to MoTF. The applicable disbursement method will be reimbursement for Already Achieved DLRs. It is estimated that up to USD25 million may be disbursed against these DLRs. An advance will be provided to the MoTF in the total amount of up to USD125 million, which, when combined with

²⁵ The RBP does not finance new dam construction or rehabilitation as these are high-risk and complex hydrotechnical works. Instead, it focuses on downstream distribution networks and localized flood-control interventions.

reimbursement for Already Achieved DLRs, shall not exceed 30% of the USD500 million loan.²⁶ The advance may be used to provide liquidity for financing activities needed to achieve progress against DLIs 2, 3, 5, 6, and 7. The total amount disbursed under the RBF may not exceed the total amount of expenditures incurred under the RBP. Any such excess will be refunded to AIIB prior to the loan closing date.

4.11 **Verification.** The indicative values for DLRs are set for Fiscal Years (FYs), covering the period from Jan. 1 to Dec. 31, and include proposed annual targets. The government may request AIIB disbursements when significant results have been achieved, provided the frequency of disbursements is maintained on a quarterly basis. Based on decentralized selection process, DSI will engage an IVA, the draft ToRs for which were jointly reviewed by DSI and AIIB and were found to be acceptable in meeting AIIB standards and aligning with the agreed DLIs, activities, verification protocols and timelines. Once the IVA is engaged, it will conduct the initial verification of disbursements, scheduled tentatively to begin in May 2026, for DLRs previously achieved under DLIs 2, 3, 5, 6, and 7. Following this, all subsequent disbursement verifications will occur quarterly, in accordance with the FY schedule.

4.12 The IVA will assess results utilizing contract management reports, daily logs, financial audits, procedural validations, and physical inspections to evaluate the completeness, accuracy, and quality of outcomes reported by DSI. In line with the agreement with DSI, a workshop on the verification process will be held tentatively in May 2026 for all relevant stakeholders including AIIB. The IVA will prepare the first RBP Verification Report using the verification protocol in Annex 2 and submit it to AIIB for clearance through the MoTF, in accordance with the verification timeline and the approved report structure on a quarterly basis or as agreed.

²⁶ The amounts currently included in the PD are indicative and may increase based on actual achievements verified by the IVA.

5. Assessment Summary

A. Technical

5.1 **Scope.** A detailed technical assessment of the scope of the proposed sub-projects informed the selection and design of the RBP interventions. The alignment and details of the government program, the DSI Plan and the RBP are summarized in Annex 1(a). The RBP includes 11 sub-projects carefully screened by DSI and the AIIB team: (a) one sub-project for the rehabilitation and upgrading of existing open flow transmission system into a piped irrigation system and enhancing ongoing system irrigation transmission efficiency; (b) four irrigation sub-projects for expansion of climate-resilient irrigation systems through construction of new efficient irrigation transmission/conveyance infrastructure; and (c) six flood control sub-projects for reducing flood risks in flood-prone areas. Following this provisional division of sub-projects by nature, the RBP activities focus on improving irrigation efficiency within the conveyance/transmission systems (irrigation component) and strengthening flood control capacity (flood control component).

5.2 **Geographical Selection.** The geographical area of investments has varying levels of water scarcity, drought and flood risk, with important implications for rural livelihoods and food production resilience. Hatay and Mersin are provinces with the highest combined exposure to water scarcity, drought and flood risk. These provinces, from an irrigation perspective, have high irrigation intensity, making them more dependent on a reliable and efficient water supply. Burdur's irrigation demand is moderate, while Nevşehir falls in the low-to-medium range. Ordu and Düzce present flood exposure despite having only moderate drought sensitivity. Çankırı, Kastamonu, and Bartın are characterized by very low drought risk; however, the latter two still face moderate to high flood exposure. Table 4 presents a summary of selected sub-projects provinces and basins, and baseline characteristics.

Table 4. Characteristics of the RBP Sub-projects Provinces and Basins

Sr	Province	Drought	Floods	Basin	Catchment Area (km ²)	Annual Average flow (km ³)	Average Annual Yield (l/s/km ²)	Irrigation Intensity	Agriculture Area (hectare)
1	Burdur	Low	Very Low	Bati Akdeniz	20,953	8.93	12.4	Medium	161,680
2	Hatay	Very High	Very High	Asi	7,796	1.17	3.4	High	232,601
3	Aydin	Low	Moderate	Buyuk Menderes	24,976	3.03	3.9	High	367,791
4	Mersin	Very High	Very High	Dogu Akdeniz	22,048	11.07	15.6	High	325,875
5	Nevşehir	High	Low	Kizilirmak	78,810	6.48	2.6	Low-Medium	331,495
6	Ordu	Moderate	Very High	Yesilirmak	36,114	5.8	5.1	Medium	259,754
7	Çankırı	Very Low	Very Low	Kizilirmak	78,810	6.48	2.6	Low-Medium	222,390
8	Samsun	Moderate	Moderate	Yesilirmak	36,114	5.8	5.1	Medium	380,808
9	Kastamonu	Very Low	Moderate	Bati Karadeniz	29,598	9.93	10.6	Low-Medium	137,644
10	Düzce	Moderate	Very High	Bati Karadeniz	29,598	9.93	10.6	Low-Medium	75,280
11	Bartın	Very Low	High	Bati Karadeniz	29,598	9.93	10.6	Low-Medium	30,994

Sources: Türkiye İstatistik Kurumu; Turkish Water Institute (SUEN); Ministry of Forestry and Water Resources; Open source

5.3 Irrigation Efficiency. There has been substantial evidence of the impacts of climate change on agricultural production and incomes across 25 river basins of Türkiye.²⁷ According to the WES, the average overall irrigation efficiency in Türkiye is 50.4%, with water use estimated at 9,515 m³ per hectare.²⁸ The evidence shows that conversion of open flow transmission to piped flow increases the conveyance efficiency from 50%-85 % for earthen or lined canals to 90%-98% for piped systems. In irrigation schemes with installed water meters, efficiency rises to 65% and water consumption decreases to 7,299 m³ per hectare. In systems that charge users based on the volume of water consumed, irrigation efficiency reaches 88%, and water use is further reduced to 5,173 m³ per hectare. RBP does not finance on-farm water management interventions to improve application efficiency. These efforts will be rolled out in the post RBP upon WUAs formation and completion of land consolidation. In the RBP post-completion period, DSI and General Directorate of Agriculture Reform will be engaged with farmers to enhance the WCST adoption rate and adoption of SUTEM.

5.4 Irrigation Facilities. For the irrigation sub-projects, the main investments are in conveyance pipelines, specifications for which are defined by the national standards for polyethylene, glass-reinforced plastic and steel pipe. Since 2003, DSI has been constructing and operating high-pressure pipe network systems. The total length of the irrigation pipelines to be installed under the RBP is 281 km for the modernization of the Burdur-Gohlisar Irrigation Scheme, and 847 km for the other four new schemes. All the irrigation sub-projects are fed by the existing multi-purpose reservoirs constructed and operated by DSI, which have sufficient storage capacity for water supply regulation across the seasons and sectors. All irrigation systems, except for the Bayramhacılı Pump Irrigation scheme, operate as pressurized systems due to elevation differences between the storage facilities and the irrigated fields, which generate sufficient hydraulic head. The RBP will finance installation of 9,704 water intake valves, with 8,721 covered by AIIB financing under DLIs 3 and 7.

5.5 Flood Control Facilities. The RBP will finance the construction of six flood control sub-projects across selected districts and provinces, each considered a standalone flood protection facility and designed to reduce flood risks and protect lives, assets, and critical infrastructure in flood-prone areas. All sub-projects are studied for varying flood projections to withstand Q500 (1-in-500-year) design floods, in line with national standards and climate resilience requirements, ensuring robustness under extreme hydrological events. The investments will comprise a mix of structural measures, including concrete gravity walls, stone reinforcement and riverbank protection works, reinforcement of existing concrete bridges, flood traps for flood peak control, systematic and individual reclamation benches to provide energy control against the harmful effects of water and slope compensation on the bed route, and weirs to store a large amount of debris in places with a lot of debris load and transport. The DLIs reimbursement will trigger upon the verified completion of all works under each sub-project.

²⁷ Pilevneli, T., Capar, G., and Sánchez-Cerdà, C. 2023. "[Investigation of Climate Change Impacts on Agricultural Production in Turkey Using Volumetric Water Footprint Approach.](#)" *Sustainable Production and Consumption Journal*, 35, pp. 605-23.

²⁸ Government of Türkiye, Ministry of Agriculture and Forestry. 2023. [Water Efficiency Strategy: Document and Action Plan in the Framework of Adaptation to the Changing Climate \(2023-2033\)](#). p.45.

5.6 Implementation Readiness. The selected sub-projects have high design, procurement, safeguard, environment, project implementation arrangements and construction readiness. Some sub-projects are more than 50% complete and able to request disbursement under the Already Achieved Results. Other sub-projects have progressed or are ready to be awarded. The implementation period of each sub-project, their completion and achievement of results are within a five-year period, from 2026-2030. An additional year in the RBP implementation was included to regulate system operations and provide sufficient time to achieve the PO indicators.

5.7 Sustainability. Since 2018, DSI has assumed a central role in supervising and supporting irrigation unions, and in carrying out O&M services or transferring their execution to WUAs/irrigation unions, cooperatives, municipalities, village legal entities, and other water user organizations. Türkiye's experience in transferring irrigation management to WUAs is widely regarded as a success. Nearly 3 million hectares of state irrigation schemes are with the WUAs (82.2%), cooperatives (6.6%), municipalities (8.4%), and others (2.8%).²⁹ As of 2024, 181 WUAs service an average area of 13,400 ha. More than 4,000 personnel were employed in the WUAs, and the irrigation rate where WUAs serve are much higher than the average in Türkiye.

5.8 Water service charges and fee collection are regulated and published in the official gazette. Tariff rates are set to recover the full amount of expenses incurred in the previous year from beneficiaries for O&M costs, crop types, irrigated areas, and crop water requirements. Water usage service fees are calculated in many ways: by area, plant-area, number of irrigations, time, and volume. The minimum tariffs for 2024 for WUAs were categorized into three groups for surface water, and two groups for pumped irrigation covering more than 40 crops, ranging from USD22/ha to USD389/ha. The Food and Agriculture Organization estimated that in 2024, rates were TRY250 (approximately USD8) per hour for gravity-flow irrigation and TRY600 (approximately USD20) per hour for pumped water. In irrigation networks where water is measured in cubic meters, O&M is volumetric and was determined in 2024 to range from TRY0.168 to TRY0.783 per cubic meter (USD0.48 to USD2.24/m³).³⁰ Under the above tariff and institutional structures, the WUAs' budget increased from USD219 million to USD327 million over FY2020-2025 with a collection ratio of around 70%. In modern pressurized irrigation facilities that the RBP will deliver, the controlled-flow meters will enable the extension or introduction of volumetric water measurement and the application of volume-based tariffs through the participatory WUAs.

5.9 Flood management is largely a public investment, both in capital and O&M costs. In Türkiye, it is coordinated with various departments, including DSI, the Directorate General of Water Management, the AFAD, and the Turkish State Meteorological Service. After the 2023 earthquakes, Türkiye has begun shifting from a reactive disaster response model to a proactive, risk-reduction approach that emphasizes prevention, resilience, and multi-hazard planning, including flood risk management. Coordinated by AFAD and involving public institutions and academia, this transition strengthens disaster risk governance.

²⁹ DSI. 2024. [Faaliyet Raporu](#).

³⁰ DSI. 2023. [Water Usage Service Fee Tariffs](#).

5.10 DSI is responsible for the design, construction and O&M of flood-control investments. DSI conducts studies on flood and sediment control and on structural measures to reduce flood risk and damage. DSI relies on more than 23,000 staff, including flood management staff in the dedicated flood control department and regional directorates. DSI has machinery, auxiliary equipment, and attachments valued at USD400 million. The flood control department functions comprise strategy, planning, studies, assessments, projects, rehabilitation, procurement, training, and administrative functions for flood management. The DSI Plan envisages more than USD4 billion investment for the early warning system, flood control facilities, and sediment handling and transportation.

5.11 The Water Basin Master Plans prepared during the last decade undertake strategic planning of water quantity, infrastructure needs, and sectoral demands. Under the European Union Water Framework Directive, Türkiye started preparing a fully integrated river basin plan, called the River Basin Management Plan. The main purpose is to achieve good ecological status, integrate quantity, quality, ecology, and economics and provide a binding implementation framework. This will inform water resources management and decision-making for future investments. As a result of the revised plan, an adaptive management approach at the basin level will be applied to address emerging risks and impacts, as well as the need for additional measures. This will further benefit from the proposed new Water Law, which will enable a more efficient and sustainable management of Türkiye's water resources.

5.12 Water for the irrigation projects is supplied by existing and operational dams. DSI implements comprehensive dam safety measures, including dam-break analyses, flood hazard maps and emergency action plans, which are shared with AFAD. DSI reviews and prepares reports after earthquakes of magnitude 5 or greater, and semi-annual inspection reports by Dam Safety Commissions, in accordance with classification standards set by the International Commission on Large Dams. Dam instrumentation-based monitoring observes dam behavior. Türkiye is also a party to and signatory of several international and regional treaties, agreements and conventions on environmental and social (ES) safeguards. DSI has a dedicated Directorate of Dams and Hydroelectric Power Plants.

B. Economic Analysis

5.13 **Methodology.** The economic analysis has been carried out on a representative subset of sub-projects separately for irrigation and flood control activities as they have standardized physical designs and homogenous benefit streams that can be extrapolated to the total RBP scope across the two distinct components. For the irrigation component, the analysis included one rehabilitation project and one irrigation expansion project; for the flood control investments - two sub-projects were selected. The economic evaluation estimates net benefits by comparing the costs and benefits under the with- and without-project scenarios. Benefits are expected to accrue over a 30-year period. A discount rate of 9%, representing the Economic Opportunity Cost of Capital (EOCC), has been applied consistently with standard practice for evaluating public infrastructure investments. Finally, sensitivity analyses are conducted to assess the changes in benefits and project costs.

5.14 Results. The analysis confirms that the proposed program is economically viable when considering the combined irrigation projects and the combined flood protection investments. For the irrigation projects, the economic analysis yields an overall economic internal rate of return (EIRR) of 10%, above the EOCC/hurdle rate of 9%. The corresponding economic net present value (ENPV), discounted at 9%, is estimated at USD123 million for the two representative irrigation projects. Considering the full portfolio of irrigation projects, the EIRR increases to 12% and the ENPV reaches USD183 million. For flood protection projects, the analysis yields an overall EIRR of 14% and an ENPV of USD108 million, confirming the economic viability of these investments. To assess the robustness of the economic case, sensitivity analyses were conducted by varying investment cost and benefit realization. Under the adverse scenarios, the EIRR does not fall below the economic hurdle rate of 9%. Further details are provided in Annex 4.

C. Fiduciary

5.15 Fiduciary Systems Assessment (FSA). An FSA of DSI was conducted in accordance with AIIB's Operational Policy on Financing and the Procurement Policy. DSI will be responsible for the RBP's day-to-day financial management and procurement functions. The FSA provides a review of fiduciary arrangements focusing specifically on the Department of Irrigation, the Department of Flood Control, and the regional directorates responsible for implementing the RBP. FSA covered procurement, financial management, control of Prohibited Practices, and internal control systems. The FSA has assessed that the RBP fiduciary systems and performance are adequate and provides reasonable assurance that the funds would be used for the intended purposes with due attention to the principles of economy, effectiveness, transparency, and accountability. The residual fiduciary risk covering procurement and financial management, after having applied the proposed mitigation measures, is set at Medium.

5.16 Fiduciary Systems and Capacity. The RBP will be embedded within DSI's operational framework. The fiduciary arrangements are aligned with its existing systems, procedures, and governance structures for procurement, financial management, and anti-corruption practices. DSI is a special budgetary institution subject to the Public Financial Management and Control Law No. 5018.³¹ It follows the national procedure as prescribed by the law for budget preparation, covering both capital and current expenditures. DSI uses accrual-based government accounting and follows the government chart of accounts. It uses the Integrated Public Financial Management Information System to record and report all financial transactions. The accounting system integrates with contract management and enables reporting on project activities. The Integrated Public Financial Management Information System interfaces with the budgeting and banking systems and reinforces strong budgetary and cash management controls. DSI has a well-defined chart of accounts, and each transaction can be linked to the activities and budgets.

5.17 Planning and Budgeting. Apart from being under the government budget, DSI operates as a special budget agency tasked with delivering a specific public service. DSI receives an allocated budget from revenues and is authorized to expend funds for its designated purpose,

³¹ The Public Financial Management and Control Law is the main regulation for all public organizations including DSI.

with its establishment and working principles governed by a dedicated law. DSI has made a budget proposal for RBP for FY2026 (USD299 million) and budgetary estimates for FY2027 (USD146 million) and 2028 (USD81 million). The intended budget required for the AIIB-financed RBP will consist exclusively of an expenditure framework for infrastructure-related costs for irrigation and flood control works. SBO will ensure that RBP-related sub-project expenditures are reflected and monitored within the annual budget framework in accordance with national public budgeting procedures and the approved Investment Program. DSI needs to ensure that the budgetary provisions and estimates are well aligned with the planned activities in the RBP. For already Achieved DLRs and Advances, AIIB disbursements shall be made available once the loan is effective, and conditions are met. For the RBP, the main sources of financing shall be the government fund allocation. Considering the commitment of the government, financing for the project is considered adequate. In the last four years, DSI's budget appropriation and spending have almost quadrupled. The original budget allocations have not been adequate. The budgets are revised, and annual spending is 99% of the revised budget appropriation. DSI conducts investment budget monitoring through the Ka-Ya system.³² Budgets and actual expenditures are compared on a real-time basis through management information systems.

5.18 Internal Control and Internal Audits. The internal control arrangements and procedures are subject to Public Financial Management and Control Law. DSI has built a robust internal control mechanism and additionally, the Internal Audit Department (IAD) also plays a key role in ensuring the effective internal control environment, especially in compliance and financial transactions. The Court of Accounts has made an evaluation of DSI's internal control system and provided an acceptable opinion on DSI's control environmental standards, evaluation of risk standards, control activity standards, information and communication standards, and monitoring standards. There are strong internal controls as per the Public Financial Management and Control Law, which will be relied upon for the AIIB-financed RBP.

5.19 External Audits. The CoA (Türkiye's Supreme Audit Institution) conducts annual audits of DSI's financial statements. The CoA applies the International Standards of Supreme Audit Institutions Standards and discloses the reports on the website after they are submitted to parliament. For the last four fiscal years, the CoA has issued unqualified audit opinions on DSI's financial statements, with minor recommendations. For the RBP, the Board of Treasury Controllers (BoTC), which is mandated to execute audits of externally financed projects in which MoTF is the recipient, will audit the annual project financial statements. The BoTC will conduct the RBP audit based on International Standards on Auditing and in line with the terms of reference acceptable to AIIB. The audit reports, including the audit opinion, audited project financial statements and a Management Letter, will be provided to AIIB within six months after the end of each fiscal year. Additionally, audit reports and financial statements (excluding management letter) shall be publicly disclosed by DSI within 30 days of AIIB's review and approval.

5.20 Procurable Expenditures and Contract Size. Eligible expenditure under the RBP will consist exclusively of infrastructure-related costs for irrigation systems modernization, rehabilitation, upgrading and expansion, and flood control works. No procurement for consulting

³² All public organizations use the Ka-Ya system for submitting investment proposals, budget monitoring and evaluation.

services or goods is envisaged within the scope of the RBP. The irrigation conveyance system is a contiguous hydraulic unit whose integrity depends on fully integrated main, branch, and secondary networks. Splitting works into multiple packages risks functional failure and interface issues. Turnkey contracts at scheme level, consistent with DSI practice, ensure hydraulic integrity, clear accountability, and improved post-construction performance. Flood control investments likewise function as integrated systems; meaningful risk reduction is achieved only upon full sub-project completion, justifying single-contract packaging and indicator linkage. Pressurized irrigation systems have higher unit and per-hectare costs than open channels due to specialized materials and efficiency requirements. Costs also reflect extended contractor O&M obligations during the post-completion liability period.

5.21 Procurement Systems and Capacity. The procurement systems administered by the DSI provide a robust framework aligned with the principles of transparency, efficiency, accountability, and economy, as mandated by Public Procurement Law No. 4734 and Public Procurement Contracts Law No. 4735. All procurement procedures are conducted through the Electronic Public Procurement Platform, which ensures real-time public disclosure, equal treatment of bidders, and auditable traceability. The applicable procurement framework and laws and DSI internal procedures have constituted a well-established legally binding procurement regime to be applied to the AIIB financed RBP. DSI follows standard bidding documents, guidelines, and electronic systems provided by the Public Procurement Authority (KİK).

5.22 Procurement Operational Guidelines. DSI has developed internal e-Procurement Operational Guidelines that cover all modules of the Electronic Public Procurement Platform (EKAP), including tender publications, management of clarifications and amendments, and secure bid receipt, and bid opening. From the preparation of tender documents through publication on the EKAP, submission and opening of bids, evaluation by appointed committees, handling of clarifications and complaints, and disclosure of award results, DSI applies these procedures consistently and without deviation from public procurement laws. Open tendering is the default and most widely used procurement method at DSI. In addition to open tendering, the law defines a limited set of alternative methods. This approach is consistent with the AIIB Procurement Policy, which requires open competition as the default procurement method and allows alternative methods only when justified by the circumstances.

5.23 Contract Management. DSI manages construction contracts at the central and regional levels through qualified engineers and technical staff experienced in supervision and administration. Contract administration follows the Public Procurement Contracts Law and related secondary legislation on specifications, price adjustment, inspection, and acceptance. DSI also applies its internal “Construction Supervision Services Guideline” to monitor schedules, ensure technical compliance, and verify site conditions. This framework ensures robust oversight aligned with national legislation and international standards.

5.24 Prohibited Practices. Fraud, corruption, collusion, coercion, and obstruction are prohibited under Türkiye’s law, with sanctions that include tender exclusion and debarment. DSI adheres to national anti-corruption and public ethics regulations, including the Law on the Prevention of Bribery and Corruption and the Regulation on the Principles of Ethical Conduct for

Public Officials. Information regarding allegations of Prohibited Practices is managed through DSI's established oversight and audit reporting channels. IAD communicates findings to the relevant units for corrective action and submits its reports to the CoA. Due to confidentiality considerations, internal audit outputs are not routinely shared externally beyond mandated institutions; therefore, DSI will share information on the handling and resolution of any fraud and corruption allegations through an agreed communication protocol with AIIB and will be included in the POM. This protocol will ensure AIIB is appropriately informed of the status and outcome of such allegations while maintaining compliance with confidentiality regulations.

5.25 Governance and Anti-corruption. AIIB's Policy on Prohibited Practices (PPP) applies to the RBP. AIIB is committed to preventing fraud and corruption in the projects it finances, thus, the Bank reserves the right to investigate, directly or indirectly through its agents, any alleged corrupt, fraudulent, collusive, coercive, or obstructive practices, and misuse of resources and theft or coercive practices relating to the RBP and to take necessary measures to prevent and address any issues in a timely manner, as appropriate. Detailed requirements will be specified in the legal agreement.

5.26 High-value Contracts. The threshold for a high-value contract for Works, Turnkey, Supply & Installation of plant and equipment is USD115 million, based on the procurement risk rating of Medium, as defined by AIIB policy. According to the Procurement Instructions for Recipients, Annex VIII - High Value Contracts under RBP, "Any contract whose value is estimated to equal or exceed the equivalent of these thresholds is considered a High Value Contract." Also, the value thresholds defined in annexure are based on "Estimated Contract Value in USD (Millions)." As of the November 2025 appraisal, 10 out of the 11 contracts had been awarded, with one under procurement. The initial value of the works for the two biggest contracts is USD100 million and USD99 million; with value-added tax (VAT) and inflationary trends, the amounts increased to USD155 million and USD134 million, respectively. The FSA has concluded that no high-value contracts exist under RBP, because: (a) VAT should be excluded in the determination of high-value contracts in accordance with local laws and regulations as well as AIIB policies, and (b) Per the AIIB Procurement Policy, it is reasonable to consider the cost estimate or only initial contract values at the award date rather than the aggregated total prices subject to price adjustments and VAT during the project implementation, given only the initial contract values or cost estimates have implications on procurement risks. Furthermore, the procurement due diligence has shown that the two subject contracts were procured consistently with AIIB's Procurement Policy and core procurement principles, and specifically confirmed that the contracts were procured using (a) standard bidding documents issued by the Public Procurement Authority (KİK), (b) the Electronic Public Procurement Platform (ensuring open tendering, real-time public disclosure, equal treatment of bidders, and auditable traceability), and (c) procedures required by public procurement laws for submission and opening of bids, evaluation by appointed committees, handling of clarifications and complaints, and disclosure of award results. Accordingly, it has been concluded that there are no high-value contracts under the RBP in accordance with the AIIB procurement policy.

D. Environmental and Social Systems Assessment

5.27 **Overview of Applicable Policy.** AIIB's Environmental and Social Policy (ESP, 2024), including the Environmental and Social Exclusion List, will be applied to this RBP. An Environmental and Social Systems Assessment (ESSA), which is a prerequisite under RBP financing has been conducted to assess the adequacy of the environment and social systems applicable to the RBP, including the Client's capacity to assess and manage the ES risks and impacts of the RBP. The ESSA assessed the potential ES risks and impacts of the RBP. The assessment determined that the ES risks and impacts of the RBP financing are limited, with well-known mitigation and monitoring measures, which can be managed through mitigation strategies built into the RBP design and the RBP Action Plan. Only Category "B" and "C" projects on ES risks and impacts following the provisions of ESP are included in this RBP. The ESSA confirmed that the activities do not include those that are not eligible for RBP financing, in line with the exclusion criteria listed in the ESSA. During implementation, DSI is required to ensure that all such activities ineligible for RBP financing remain excluded.

5.28 **Sub-projects Selection.** Irrigation sub-projects are primarily located on agricultural lands classified as modified habitats, and flood control sub-projects are in urban, rural and agriculture settlements. RBP activities have been screened and are in areas where environmental and cultural sensitivities can be effectively managed in accordance with national requirements and DSI best practices, with relevant authorities consulted to protect environmental and cultural resources. Due diligence on associated facilities was conducted in accordance with the ESF. The assessment concluded that the existing DSI facilities do not constitute associated facilities of the sub-projects, as they preceded the sub-projects, serve multiple functions, and were not constructed or carried out specifically for the sub-projects.

5.29 **Environmental Risks and Impacts.** Environmental risks associated with the sites are assessed as medium, temporary, reversible, predictable, and can be readily mitigated, consistent with the ESSA findings. Construction-phase risks include air emissions, noise, dust, waste generation, soil disturbance, erosion, and occupational and community health and safety hazards associated with machinery and construction activities. For irrigation schemes, operational risks include waterlogging, salinization, inefficient water use resulting from poor irrigation management, and potential water-quality impacts from agricultural runoff. For flood-control works, risks include erosion, sedimentation, temporary disturbance near settlements, and impacts on community health and safety during construction. These risks can be effectively managed through standard mitigation measures. DSI follows the design of an efficient irrigation system and compliance with national ES legislation and established DSI practices.

5.30 **Legal and Institutional Framework.** Türkiye's legal framework for the RBP includes the Environmental Law, the Environmental Impact Assessment Regulation, the Expropriation Law, the Labor Code, the Occupational Health and Safety (OHS) Law, and the Law on the Protection of Cultural and Natural Assets. These key laws establish requirements for environmental impact assessment, pollution control, waste management, land acquisition, land consolidation, worker and community health and safety, cultural heritage protection, and public participation. Overall, the regulatory framework is considered sufficient to manage the anticipated ES risks and impacts

of the proposed irrigation modernization and flood-control activities under the RBP, given that high-risk activities have been excluded through the screening process. Details of the assessment of Türkiye's safeguards systems are reflected in the ESSA report.

5.31 Institutional Capacity. DSI's ES institutional capacity is adequate based on its extensive experience in implementing water resources, irrigation, and flood-risk management projects with support from development partners, particularly the World Bank. DSI implements projects following ES international standards and good practices. DSI maintains ES, land acquisition, land consolidation and OHS functions at central and regional levels, supported by qualified specialists and regular training. Overall capacity is sufficient for the RBP. The ESSA emphasized the need for strong coordination between DSI and agencies, such as the Ministry of Environment, Urbanization and Climate Change, local authorities, and village heads. DSI will assign three focal points for internal and external coordination—one each for environment, social and OHS matters.

5.32 Land Acquisition and Resettlement. Under the RBP, 25 households (76 persons) will be physically displaced, with land partially affected and housing fully affected. They will relocate within their remaining residential land, which has sufficient land area for rebuilding. The households' farming activities are not affected but non-land livelihoods would be disrupted during the relocation period of three months. Around 30 households (93 persons) will experience impacts between 10% to 20% of total production household landholding. They will be paid compensation at the full replacement cost of their affected land and assets. Physically displaced households will receive additional support, including moving allowance, initial settlement allowance, transitional assistance, and livelihood restoration measures. Economically displaced households will receive livelihood restoration apart from cash compensation for the affected land area of the household. Valuation will be undertaken by a Valuation Commission for the affected lands and assets, and Land Acquisition Plans will follow the government's laws and regulations for the RBP. Compensation, assistance, and relocation of affected households will be fully completed prior to carrying out any civil work under such sub-projects as required under national laws.

5.33 Land Consolidation. In Türkiye, DSI is the primary authority responsible for land consolidation. RBP involves land consolidation in five projects. The process requires the consent of most farmers and an informed decision mechanism. Once a site is designated for land consolidation with various factors considered, such as topography, existing fixed assets, cadastral and ownership status, access roads, and others, the Presidential Decree on land consolidation is published within the region for farmers' information. During implementation, in accordance with the government's regulations, farmers receive compensation for any damage to crops or fixed assets and for income losses incurred until new plots are delivered. Meaningful consultation with farmers is conducted at the early stages and during the preparation of the draft plan to ensure that farmers' opinions, suggestions, and concerns are fully addressed before implementation. Land consolidation improves land layout and size for better irrigation systems. The RBP due diligence confirms that there are no complaints from farmers who joined land consolidation of other irrigation projects in areas that the RBP is a part of, and local farmers support land consolidation. DSI has a strong, long-standing institutional practice in land consolidation, with a dedicated Land Expropriation Department, outreach to local communities and farmers, and a grievance redressal mechanism. For the RBP, DSI will conduct periodic monitoring in accordance

with the agreed monitoring mechanism, especially for issues affecting women farmers, informal land users and vulnerable groups.

5.34 Labor. The ongoing irrigation and flood control projects showed that construction of the schemes is not labor-intensive, requiring approximately 60-70 workers for new construction at each site. Thus, labor deployment is likely to be moderate and local, not leading to extensive labor influx or related social issues with local communities. The construction activities may pose health and safety risks to the local communities within the proposed area of influence, including air pollution, increased traffic and noise, and potential accidents. The potential risks and impacts, however, are site-specific, limited, and manageable through the agreed mitigation measures. Compliance with labor and working conditions and health and safety matters is an essential part of the contract documents that DSI signs with suppliers and contractors. This compliance, as well as the representations and warranties to be provided to DSI by suppliers and contractors, are reflected in the relevant agreements and contracts under the RBP.

5.35 Gender Aspects. The RBP would offer women benefits, such as increased income and time savings on water collection for farming, which frees local women's time for other activities or leisure. Improved irrigation would provide higher yields and new income streams from high-value crops, thereby supporting local women's economic empowerment. In addition, local women would directly benefit from the reduced floods in their area. DSI and relevant agencies recognize that projects are effective when women are involved in planning and that providing tailored training, especially gender-sensitive training on modern techniques such as motorized pumps and others, ensuring equitable access to resources and technology choices, and enabling better involvement in the WUAs are crucial. The RBP would have some potentially adverse impacts on local women. Irrigation projects often deepen inequalities if designed without considering gender roles, as men usually get favored access to new irrigation technologies. Land acquisition and physical displacement would temporarily affect the livelihood activities of local women. Women's safety and privacy would be affected by the presence of onsite workers coming to the communities.

5.36 Gender Action Plan. DSI has undertaken initiatives to promote gender equality and women's participation in irrigation and flood control projects. Capacity-building under a World Bank project included training to raise awareness on women's inclusion in meetings and WUAs, improving engagement with vulnerable groups, especially women farmers. DSI will conduct gender assessments for all RBP sub-projects covering: (a) potential gender impacts; (b) benefits to local women; (c) barriers to women's participation in planning, design, implementation, and monitoring; and (d) challenges to gender equity and mainstreaming. Based on consultations, a Gender Action Plan will define measures to mitigate adverse impacts, enhance benefits, support participation, and advance gender mainstreaming.

5.37 Grievance Redressal Mechanism (GRM). DSI's GRM comprises multiple channels, including a central telephone line (+903124545454), an online GRM portal for public and employee use (<https://www.dsi.gov.tr/Sayfa/Detay/690>), the Presidential Communication Center (CİMER, <https://www.cimer.gov.tr/>), the Foreigners Communication Center (YİMER, <https://en.goc.gov.tr/foreigners-communication-center>), and sub-project-specific GRMs for ongoing projects financed by international funding agencies. The requests and grievances

submitted via CİMER are forwarded to DSI at the General Directorate level. The grievances routed to DSI Regional Directorates are managed locally by the respective directorates and are not integrated into a centralized recording system. For the RBP, the current GRM will be more formalized and consistently applied across regions and project sites, and with the participation of the village *mukhtars* (*village head*). To manage the risks of land acquisition under the RBP, separate monitoring on land acquisition and resettlement will be conducted regularly by DSI.

5.38 ES Action Plan. The ES Action Plan strengthens DSI's ES management for RBP implementation through: (a) designation of ES focal points for coordination; (b) enhanced ES and OHS supervision using an EHS checklist, monthly reporting, site visits, an ES monitoring system, reports and completion audits; (c) improved grievance mechanism with culturally appropriate and gender-sensitive handling, information materials and visible contacts; (d) strengthened oversight of land acquisition and consolidation with standardized template, routine monitoring, compensation for informal users and livelihood restoration where required; and (e) gender assessment and implementation of the Gender Action Plan. DSI will submit semi-annual progress reports for AIIB's review.

5.39 AIIB's Independent Accountability Mechanism. The Project-affected People's Mechanism (PPM) will apply to the RBP. The PPM has been established by AIIB to provide an opportunity for an independent and impartial review of submissions from Project-affected people who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations where their concerns cannot be addressed satisfactorily through the program-level GRM or the processes of AIIB's management. For information on AIIB's PPM, please visit: <https://www.aiib.org/en/about-aiib/who-we-are/project-affected-peoples-mechanism/how-we-assist-you/index.html>. Information on the PPM will be disclosed to Project-affected people in the RBP area.

E. Operational Policy on International Relations

5.40 The Bank's Operational Policy on International Relations (OPIR) applies to the Project because one irrigation sub-project is located within the Asi basin and seven others are situated within basins that drain to the Black Sea. A comprehensive technical assessment of the sub-project in the Asi Basin confirmed that it will not alter the quantity, quality, or timing of water flows to other riparians. Regarding the six flood control sub-projects within the Bati Karadeniz, Kizilirmak, and Yesilirmak basins draining to Black Sea, and one irrigation sub-project situated in Kizilirmak Basin over 500 km from outfall point in the Black Sea, any potential downstream impact is minimal. These activities are further governed by Türkiye's robust regulatory framework for water quality, sediment control, and environmental protection and the RBP Action Plan's monitoring measures.

5.41 Based on the findings of the technical assessment, it is concluded that the proposed sub-project activities are expected to have minimal or no effect on the other riparians. Consequently, pursuant to Section 3.3 (c) (i) of the OPIR, the notification requirement does not apply.

F. Risk Assessment

5.42 **Overall Risk.** The overall risk to the Project objectives is Medium.

Table 5. Risk Assessment

Risk Description	Assessment (H/M/L)	Mitigation Measures
Technical / Implementation Risk		
Higher level coordination for RBP implementation and achievement of results	L	DSI will generate progress reports and share with MoTF and AIIB
Construction delays and performance of contractors	M	DSI will generate progress reports and highlight construction delays and implications on RBP
Arrangements for reporting, coordination, and implementation is scattered within DSI	L	The DOFR will be focal for the RBP implementation. The POM will define the roles and responsibilities and identify contact points and will be updated from time to time.
Financial Management Risk		
Credibility of budget	M	Budgetary allocations for RBP activities should be made annually in accordance with the approved RBP work plan.
Potential delays in releasing adequate funds	M	DSI will forecast periodic fund requirements and receive periodic flow of funds. The POM will outline the detailed procedures.
Limited experience of DSI in implementing RBF project.	M	AIIB will train the RBP finance staff on the Bank's policies, the financial management system, and reporting and disbursement procedures.
The external audit ToR is standard and may not address RBF requirements	M	The RBF-specific external audit ToRs will be prepared and mutually agreed upon between the Board of Treasury Controllers and AIIB.
Procurement Risk		
Potential misuse of negotiated procedure without sufficient justification	L	Emphasize that the use of the negotiated procedure must be documented with justification, reviewed and approved by DSI HQ prior to commencement of procurement.
Risk of awarding contracts to firms/individuals on AIIB debarment or suspension list or UN sanctions list	M	Establish a mandatory cross-check mechanism in the EKAP/government procurement system against AIIB Debarment list and the UN sanction list prior to contract award, and include related provisions in the bidding documents and conditions of contract
The risk of high value contract included in RBP	M	Monitor the continued exclusion of high-value contracts.
Environmental and Social Risks		
Environmental, health and safety aspects are not adequately and effectively monitored by DSI to identify and address impacts during construction and operation stages.	M	The General Directorate of DSI will prepare the environmental, health and safety monitoring checklist and the monthly ES monitoring report format for the RBP. The DSI Regional Directorate will conduct monthly ES and OHS site visits. The General Directorate will submit bi-annual ES monitoring reports to AIIB.
Land Acquisition and Resettlement Impacts – livelihoods of affected people	M	Monthly monitoring and meaningful consultations will be conducted with affected households and communities to ensure that livelihoods of affected households are restored as before being affected. The GRM is in place

Risk Description	Assessment (H/M/L)	Mitigation Measures
are not restored as before being affected.		and functional to receive and address the complaints/grievances of affected people in a timely manner. DSI will prepare bi-annual land acquisition and resettlement monitoring reports and submit them to AIIB.
Grievance Redress Mechanism is not well-established or functional.	M	Ensure adherence to the GRM action agreed upon in ES Actions. The strengthened GRM will be in place in the RBP areas and maintained functional and effective in receiving and resolving complaints and grievances of affected persons. DSI will monitor the GRM's robustness and status of operations, which will be reflected in the bi-annual ES monitoring reports.
Gender: implementation gaps and social norms may limit women's and girls' equal participation in and benefit from RBP activities.	M	A Comprehensive Gender Assessment will be conducted out of which a GAP will be developed and implemented within three months from loan effectiveness. The GAP will outline specific actions, institutional responsibilities, timelines, budgets, monitoring indicators, and reporting mechanisms.

G. RBP Action Plan

5.43 Table 6 presents the RBP Action Plan to manage risks and impacts based upon the assessment of technical, fiduciary, and ES management systems of DSI.

Table 6. RBP Action Plan

Action Description	Covenant	Due Date	Responsible Party	Completion Measurement
Technical				
Designate a project focal point responsible for coordinating with all internal stakeholders and the AIIB Project Team by DSI	√	Within 2 months after the Effective Date	DSI	Notification letter or email
Appoint an Independent Verification Agent (IVA) whose Terms of Reference and qualifications have been approved by AIIB	√	Within 2 months after the Effective Date	DSI HQ/General Directorate	Contract signed with IVA
Appoint an M&E focal points at DSI headquarters/ General Directorate and relevant departments	√	Within 2 months after the Effective Date	DSI HQ/General Directorate	Formal appointment letters issued, and focal points reflected in the POM
Conduct inception workshop with IVA and key stakeholders		Within 1 month of the IVA appointment	DSI HQ/General Directorate	Workshop held and the proposed methodology for verification of results agreed with AIIB

Action Description	Covenant	Due Date	Responsible Party	Completion Measurement
Prepare and adopt of the Project Operations Manual	√	Condition for Effectiveness	DSI/MOTF	POM approved by DSI and disclosed
Conduct field visits and evidence-based surveys for determining irrigation efficiency improvement for the Burdur scheme under Results Area 2		Mid-Term Review	DSI Regional Directorates	Field visit reports and survey datasets submitted to AIIB
Submit IVA verification reports	√	As per DLI verification schedule	IVA	IVA reports formally submitted and accepted
Generate project reports and quarterly interim unaudited financial reports for the Project and share with MoTF and AIIB by DSI	√	Semiannually for project reports and quarterly for unaudited financial report starting from six months after Effective Date	DSI	Submission of report to AIIB
Allocate budget in AIIB's view, made against the RBP expenditures		Annual	SBO	Such allocations included in the Borrower's approved budget each fiscal year for 2026-2030, copies of which will be provided to AIIB
Fiduciary Systems				
Establish a mandatory cross-check mechanism against AIIB's Debarment List and the UN sanction list prior to contract award.		Throughout implementation	DSI HQ – Procurement Branches; Regional Directorates	Evidence of systematic debarment checks filed in procurement records ensuring no sanctioned firms/individuals awarded contracts
Monitor the continued exclusion of high-value contracts from the RBP		Throughout implementation	DSI HQ – Procurement Branches; Regional Directorates	Timely report of high-value contracts to AIIB for review and approval before RBP consideration
Emphasize the requirement that negotiated procedure use is documented with justification, reviewed and approved by DSI HQ prior to procurement commencement		Throughout implementation	DSI HQ – Procurement Dept; Regional Directorates	Use of negotiated procedures justified under government procurement laws and approved by DSI

Action Description	Covenant	Due Date	Responsible Party	Completion Measurement
Forecast periodic funds requirements and receive timely and periodic fund flows; incorporate detailed procedures in the POM		Within 1 month after Effective Date	MoTF/DSI	POM includes detailed fund flow procedures
Provide training to DSI finance staff on the Bank's financial management policies, procedures, reporting, and disbursement		Within 1 month after Effective Date	DSI	Delivery of training by AIIB with attendance by relevant DSI staff
Prepare project specific external audit ToRs acceptable to AIIB		Within 3 months after Effective Date	BoTC/DSI	ToR submitted to AIIB for no objection approval
Environmental and Social				
Assign and maintaining ES focal points (one each for environment, social, and OHS) to coordinate ES and OHS risks and impacts management	√	Within 1 month after Effective Date and throughout the implementation	GD of DSI	ES focal points assigned by GD of DSI
Prepare environmental, health, and safety monitoring checklist and monthly ES monitoring report format		Within one month from after the Effective Date	GD of DSI	Checklist and report format prepared by DSI and approved by AIIB
Regularly monitor and supervise construction activities (through monthly site visits) and submit monthly reports to the General Director of DSI, including completion audits		The first site visit to occur within one month after the Effective Date and throughout construction phase	GD of DSI (Regional Directorates)	Monthly ES monitoring reports submitted to GD of DSI and AIIB
Adopt ES monitoring and reporting system for RBP and submit biannual compliance reports to AIIB		Year 1 onwards and throughout implementation	GD of DSI	Biannual ES compliance reports d submitted to AIIB
Instruct Regional Directorates/contractors to record verbal grievances in monthly reports; establish communication channels and provide guidance to <i>mukhtars</i> , record the received complaint cases and status of settlements		Throughout implementation	GD of DSI (Regional Directorates)	Grievances reported/resolved timely; communication channels agreed; guidance provided to village leaders
Prepare land acquisition monitoring checklist (replacement cost,		Within one month from the Effective Date and	GD of DSI (Regional Directorates)	Monitoring template approved by AIIB;

Action Description	Covenant	Due Date	Responsible Party	Completion Measurement
informal users, livelihood restoration) and land consolidation monitoring checklist; regularly monitor progress and submit biannual reports to AIIB		throughout implementation		biannual reports submitted to AIIB
Assess and assist severely affected or vulnerable households (including informal users); prepare/implement/monitor or land resettlement plan if livelihoods not restored		Throughout implementation	DSI	Livelihood impacts assessment completed and submitted to AIIB; Land resettlement plan submitted to AIIB for no objection
Conduct gender assessment and prepare, implement, and monitor the Gender Action Plan (GAP) for women's participation, gender benefits, and equality		Within three months after the Effective Date	DSI	Gender assessment conducted; GAP prepared, implemented, and monitored (integrated in Action 4 – Adopt ES monitoring and reporting system for the Project, and submit biannual compliance report to AIIB); GAP submitted to AIIB for no objection approval

Annex 1 (a): RBP Boundary

Government Program (Twelfth Development Plan [2024-2028])*	DSI Strategic Plan (2024-2028)**	RBP
Priority Development Areas		
<p>Agriculture and Food (3.2.2.1).*** Sustainable water use and efficient irrigation expansion under SDG 6 ambitions, with a priority given to preserving water quality and quantity and ensuring its efficient use, including through the expansion of efficient irrigation, water pricing reforms, ICT adoption, and alternative water sources. Includes irrigation and agriculture targets to improve water use efficiency and sector productivity.</p>	<p>The overall vision is to ensure that water and soil resources are developed in line with the latest science and technology and in compliance with the environmental and sustainability principles. To achieve this mission the DSI Plan includes six objectives related to ensuring drinking water quantity and quality: (1) ensure flood control in settlements and agricultural lands (2), ensure effective and efficient use of water (3), ensure the research, improvement and monitoring of water resources (4); increasing the installed capacity of hydroelectric power within the scope of RE (5), improving and developing institutional capacity (6) irrigation infrastructure investments completed and accompanied with the required land consolidation efforts for increased irrigation efficiency and irrigation coverage rate.</p>	<p>The program aims to enhance water conveyance efficiency and climate resilience in Türkiye's water-scarce and flood-prone regions by promoting modern, pressure-regulated irrigation and strengthening flood control capacity.</p>
<p>Disaster-resilient, living areas, sustainable environment (3.4.1).*** Increase the resilience of settlements and society against disasters, minimize loss of life and property by reducing disaster risks and damages, and execute effective disaster management at all stages, raising disaster awareness among society and all institutions.</p>	<p>Reclamation and flood control facilities will be constructed in river and stream beds, and the continuity of existing facilities will be ensured.</p>	
Coverage/Geographical		
<p>National coverage across Türkiye (all irrigation command areas, water basins and flood risk zones as defined in the Plan). Landslide, flood and avalanche control projects will be carried out in the upper basins to protect the soil and combat erosion.</p>	<p>DSI-managed irrigation schemes and water infrastructure nationwide, prioritized by technical readiness and performance gaps.</p>	<p>Targeted irrigation systems and flood-prone districts selected with greatest efficiency/resilience deficit (e.g., priority climate-sensitive basins).</p>
Results Area		
<ul style="list-style-type: none"> • Water-use efficiency and conservation • Expansion and rehabilitation of irrigation • Digitalization and smart water management 	<ul style="list-style-type: none"> • Irrigation modernization and rehabilitation • Reduction of physical and operational water losses • Improved irrigation service reliability • Flood and drought risk management • Institutional capacity strengthening 	<ul style="list-style-type: none"> • Expanding access to efficient irrigation services for improved water and land management. • Improving climate-resilience of the existing irrigation systems through

Government Program (Twelfth Development Plan [2024-2028])*	DSI Strategic Plan (2024-2028)**	RBP
<ul style="list-style-type: none"> Climate and disaster resilience (floods, droughts) 		investments in conveyance efficiency. <ul style="list-style-type: none"> Enhancing climate-resilience of flood-prone areas
Targets/Expected Results		
Expanded Gross Irrigation Area. Target: increase to 7.85 million ha (2028)	PG.3.2.1 Expanded Gross Irrigation Area. Target: increase by 750,000 ha to reach a cumulative target of 5.56 million ha (2028)	<ul style="list-style-type: none"> Area equipped for new climate-resilient irrigation services expanded Length of irrigation pipelines installed in kilometers Number of Water User Associations established on consolidated land area equipped for irrigation Number of completed new irrigation systems adopting WCT in transmission/conveyance
Irrigation Ratio. Target: Increase to 72% (2028)	PG 3.4.1 Irrigation Coverage rate increased to 72% in DSI-managed area.	Improved irrigation conveyance efficiency in the target area (% of increase). Number of flow measurement structures with flow meters installed as part of the rehabilitation/upgrade of existing irrigation systems and in new systems.
	PG 3.4.2 Irrigation Efficiency. Irrigation efficiency will increase from 51% to 56% in DSI-managed areas.	
	PG 3.4.3. Number of irrigation facilities fitted with electronic metering system will increase by 670 to reach the cumulative target of 967.	
Gross Irrigation Area Rehabilitated. Target: Increase to 0.30 million ha (2028)	PG 3.2.3 Irrigation area renovated by DSI increased by 237,032 ha to reach a cumulative target of 303,000 ha.	<ul style="list-style-type: none"> Area receiving improved climate-resilient irrigation services (after upgrade) expanded Number of existing open canal irrigation systems converted into piped pressurized systems Length of irrigation pipelines installed as part of the rehabilitation/upgrade of target irrigation systems Number of Water User Associations strengthened through improved water regulation
Completed Flood Control Facilities. Target: Increase to 11,600 units.		<ul style="list-style-type: none"> Number of flood control infrastructure sub-projects

Government Program (Twelfth Development Plan [2024-2028])*	DSI Strategic Plan (2024-2028)**	RBP
	PG 2.1.2: Number of completed flood control facilities will increase by 903 to reach a cumulative target of 11,600.	<p>completed (equivalent to flood control facilities)</p> <ul style="list-style-type: none"> • Land area with reduced risk of flooding due to completed flood control facilities in the target sub-projects. • Number of people benefitting from flood control facilities reducing flood risk.

* Presidency of the Republic of Türkiye, Presidency of Strategy and Budget. 2023. [Twelfth Development Plan \(2024-2028\)](#).

** Ministry of Agriculture and Forestry, General Directorate of State Hydraulic Works (DSI). 2023. [DSI Strategic Plan 2024-2028](#).

*** References are made to the numerical order of priorities as per the Twelfth Development Plan.

Annex 1 (b): Results Monitoring Framework

Results Area	Results Areas Supported by RBP	PO / Outcome Indicators	PO/Intermediate Results Indicators (IRI)	DLI Link	Unit of Measurement Year	Baseline 2025	End Target 2031
Results Area 1 Expanding access to efficient climate-resilient irrigation services for improved water and land use	PO1: Land area equipped for new climate-resilient irrigation services expanded	PO 1: Land area equipped for new climate-resilient irrigation services expanded ¹	DLI1	hectare	8,241	35,828	
		IRI 1: Number of completed new irrigation systems ²	Non-DLI	number	0	4	
		IRI 2: Length of irrigation pipelines installed	DLI2	kilometer	136	983	
	PO 2: Number of beneficiaries of new climate-resilient irrigation services	PO 2: Number of beneficiaries of new climate-resilient irrigation services (gender disaggregated) ³	Non-DLI	number of people	0	85,146	
		- out of which are female	Non-DLI	number of people	0	41,475	
		IRI 3: Number of Water User Associations established on consolidated land area equipped for irrigation ⁴	Non-DLI	number	0	4	
	PO 3: Management of irrigation schemes digitalized ⁵	IRI 4: Number of flow measurement structures with flow meters installed in the new target irrigation systems	DLI3	number	983	7,290	
Results Area 2: Improving climate-resilience of the existing irrigation systems	PO 4: Improved irrigation efficiency in the target area	PO 4.1: Designed irrigation conveyance efficiency in the target area achieved ⁶	Non-DLI	percentage	NA	90	
		PO 4.2: Improved irrigation efficiency in the target area ⁷	Non-DLI	percentage	47	59	
	PO 5: Area equipped for improved climate-	PO 5: Area equipped for improved climate-resilient irrigation services expanded	DLI4	hectare	1,447	9,010	

Results Area	Results Areas Supported by RBP	PO / Outcome Indicators	PO/Intermediate Results Indicators (IRI)	DLI Link	Unit of Measurement Year	Baseline 2025	End Target 2031
		resilient irrigation services expanded.	IRI 5: Number of existing open canal irrigation systems converted into piped pressurized systems	Non-DLI	number	0	1
			IRI 6: Length of irrigation pipelines installed as part of the rehabilitation/upgrade of target irrigation systems	DLI5	kilometer	50,56	331.67
		PO 6: Number of beneficiaries of improved climate-resilient irrigation services	IRI 8: Number of Water User Associations strengthened through improved water regulation ⁸	Non-DLI	number	0	1
			PO 6: Number of beneficiaries of improved climate-resilient irrigation services	Non-DLI	number of people	4,589	27,991
			out of which are female	Non-DLI	number of people	2,281	13,914
		PO 3: ⁹ Management of irrigation schemes digitalized	IRI 7: Number of flow measurement structures with flow meters installed as part of the rehabilitation/upgrade of irrigation systems	DLI 6	number	0	2,414
Results Area 3: Enhancing the climate-resilience of flood-prone areas	PO 7: Land area with reduced risk of flooding due to completed flood control facilities in the target sub-projects	PO 7: Land area with reduced risk of flooding due to completed flood control facilities in the target sub-projects ¹⁰	DLI 7	hectare	0	1,053	
		IRI 9: Number of flood control infrastructure sub-projects completed ¹¹	Non-DLI	number	0	6	
		PO 8: Number of people benefitting from flood control facilities reducing flood risk	PO 8: Number of people benefitting from flood control facilities reducing flood risk ¹²	Non-DLI	number of people	0	431,153

¹ The indicator is defined as the total agricultural land (in hectares) within the command areas of target sub-projects where new irrigation infrastructure has been completed, is fully functional, and commissioned to deliver climate-resilient irrigation services, including measures that improve water efficiency, reliability, and adaptability to climate variability.

² The indicator includes three gravity irrigation schemes: the Hatay Amik-Afrin Reyhanlı Irrigation 1st Section Completion, Aydın Çine Koçarlı Bağarası Irrigation 2nd Section Completion, Mersin-Pamukluk Dam Irrigation Completion 2nd Section; and one Bayramhacılı Pump Irrigation Scheme.

³ The indicator measures the estimated farming population directly benefitting from access to irrigation services. As there is no single official statistic published by the Turkish Statistical Institute for farming household size, it can be reliably approximated using rural household size data. Based on the Address Based Population Registration System (ABPRS)¹, the average

household size in Türkiye is on a decreasing trajectory, averaging 3.14 persons per household (hh) in 2023. The average hh size in the target area heavily reliant on agriculture and irrigation is slightly higher, and ranges from 2 to 3.4 based on the Turkish Statistical Institute Data for 2023.

⁴ This indicator measures the number of Irrigation Associations (Sulama Birlikleri) or other legally recognized WUAs, established in accordance with Türkiye legislation, to manage irrigation services on consolidated land areas designated for new irrigation systems, where construction of the irrigation infrastructure is ongoing. An Irrigation Organization is considered established when it has been legally constituted, registered with the competent authorities, adopted approved statutes/by-laws, defined its service area and membership within the consolidated command area, and identified a governing body.

⁵ PO3 covers activities under Results Areas 1 and 2. It is used as a metric to align activities with the ongoing efforts of the government to promote sector digitalization, water conservation technologies and SCADA and metering. Digitalization of irrigation scheme management improves irrigation efficiency by enabling volumetric measurement of water deliveries, more controlled operation of irrigation infrastructure, and future regulation of water services. For the RBP's purposes, the indicator measures whether closed pressurized systems will have ultrasonic prepaid meter systems installed and operated.

⁶ PO4.1 indicator measures conveyance efficiency in the new expanded irrigation systems supported through RBP as per the DSI technical standards for pipe irrigation conveyance systems.

⁷ PO4.2 indicator measures overall irrigation efficiency computed as combined efficiency of water delivery from the source to the field (conveyance efficiency) and the efficiency with which delivered water is applied and beneficially used at the farm level (application efficiency). The target overall irrigation efficiency in the area improves through conveyance efficiency improvements of more than 70% delivered through the RBP.

⁸ The indicator measures the number of WUAs whose capacity to plan and manage irrigation water delivery has been enhanced through the introduction and operational use of volumetric bulk water delivery, flow and pressure regulation, and related control measures.

⁹ PO3 covers activities under Results Areas 1 and 2. It is used as a metric to align activities with the ongoing efforts of the government to promote sector digitalization, water conservation technologies and SCADA and metering. Digitalization of irrigation scheme management improves irrigation efficiency by enabling volumetric measurement of water deliveries, controlled operation of irrigation infrastructure, and future regulation of water services. For the RBP's purposes, the indicator measures whether closed pressurized systems will have ultrasonic prepaid meter systems installed and operated.

¹⁰ The indicator measures the number of hectares protected by completed, commissioned, and operational flood-control facilities meeting the approved design standards and identified through the design-stage flood footprint maps. "Commissioned and functional" means that target flood-control facilities have been tested, handed over, and adequate O&M arrangements are in place.

¹¹ Flood-control Facility 1 (expected for completion by March 30, 2026) - Bartın Amasra Çakraz Village Büyükdere 2nd Section benefitting 60.2 hectares of land; Flood-control Facility 2 - Düzce-Merkez Asarsuyu Stream Upper Basin Measures benefitting 42 hectares; Flood-control Facility 3 - Kastamonu Araç District Araç Stream Rehabilitation Part 1 benefitting 624.5 hectares, Flood-control Facility 4 - Samsun-Merkez Mert River benefitting 76.3 hectares, Flood-control Facility 5 - Çankırı-Merkez Tatlısuyolu (Değim) Stream 1st Section benefitting 19.8 hectares; and Flood-control Facility 6 - Construction of Ordu Fatsa Bolaman Weirs benefitting 230 hectares.

¹² The indicator measures the population of settlements located in the land area for which the risk of flooding has been reduced.

Annex 1 (c). DLIs and Allocation of Financing under the RBP

DSI Sub-project List	RBP Outcomes/PO Indicators	Proposed DLIs and DLRs		Comment
		Formulated RBP DLIs	Financial Value Assigned (USD)	
Results Area 1: Expanding access to efficient climate-resilient irrigation services for improved water and land use				
Completion of four schemes included in the Strategic Program for 2024-2028: Hatay Amik-Afrin Reyhanlı Dam Irrigation 1st Section Completion Aydın Çine Koçarlı Bağarası Irrigation 2nd Section Completion Mersin-Pamukluk Dam Irrigation Completion 2nd Part Bayramhacılı Pump Irrigation	PO 1: Land area under controlled climate-resilient irrigation services expanded and operationalized	DLI 1: Land area equipped for new climate-resilient irrigation services expanded annually in hectares (<i>scalable, partial and paid according to the confirmation of area equipped for irrigation upon completion of works</i>)	72,000,000	The indicator measures progress in expanding the command area under climate-resilient irrigation services upon completion of infrastructure works, directly contributing to PO 1 and PO 4.1.
	PO 2: Number of beneficiaries of new climate-resilient irrigation services	DLI 2: Length of irrigation pipelines installed (<i>scalable, partial and paid according to the completed verified output</i>)	201,600,000	The indicator measures progress in construction works required for the completion of the new irrigation system, directly contributing to PO 1, PO 2 and PO 4.1..
	PO 4.1: Designed irrigation conveyance efficiency in the target area achieved	DLI 3: Number of flow measurement structures with flow meters installed in the new target irrigation systems (<i>scalable, partial and paid according to the completed verified output</i>)	14,400,000	This indicator measures the reliability of new irrigation systems through enhanced capacity to monitor irrigation delivery, directly contributing to PO1, PO 3 and PO 4.1.
Results Area 2: Improving climate-resilience of the existing irrigation systems				

DSI Sub-project List	RBP Outcomes/PO Indicators	Proposed DLIs and DLRs		Comment
		Formulated RBP DLIs	Financial Value Assigned (USD)	
Burdur-Göhlhisar Irrigation Rehabilitation	PO 4.2: Improved irrigation efficiency in the target area	DLI 4: Area equipped for improved climate-resilient irrigation services expanded (<i>scalable, partial and paid according to the confirmation of area receiving improved irrigation services upon completion of works</i>)	18,000,000	The indicator measures progress in conversion of target command area from open canal irrigation to improved climate-resilient irrigation services, directly contributing to PO 5 and PO 4.2.
	PO 5: Area equipped for improved climate-resilient irrigation services expanded	DLI 5: Length of irrigation pipelines installed as part of the rehabilitation/upgrade of target irrigation systems (<i>scalable, partial and paid according to the completed verified output</i>)	50,400,000	The indicator measures progress in construction works required for completion of rehabilitation works on existing irrigation systems, directly contributing to the PO 4..2
	PO 6: Number of beneficiaries of improved climate-resilient irrigation services			
	PO 3: Management of irrigation schemes digitalized	DLI 6: Number of flow measurement structures with flow meters installed as part of the rehabilitation/upgrade of irrigation systems. (<i>scalable, partial and paid according to the completed verified output</i>)	3,600,000	This indicator measures the reliability of new irrigation systems through enhanced capacity to monitor irrigation delivery, directly contributing to PO 3 and PO 5.
Results Area 3: Enhancing climate-resilience of flood-prone areas				
Construction of Ordu Fatsa Bolaman Weirs Çankırı-Merkez Tatlısuyolu (Değim) Stream 1st Section Samsun-Merkez Mert River Düzce-Merkez Asarsuyu Stream Upper Basin Measures Bartın Amasra Çakraz Village Büyükdere 2nd Section	PO 7: Land area with reduced risk of flooding expanded PO8: Number of people benefitting from flood control facilities reducing flood risks.	DLI 7: Land area with reduced risk of flooding due to completed flood control facilities	140,000,000	This is an outcome-level indicator which measures the land area with the reduced modelled flood hazard state (or are removed from the design flood inundation extent) as a result of completed and commissioned flood risk control works.

DSI Sub-project List	RBP Outcomes/PO Indicators	Proposed DLIs and DLRs		Comment
		Formulated RBP DLIs	Financial Value Assigned (USD)	

Annex 2: Disbursement Linked Indicators, Disbursement Arrangements and Verification Protocols

A. Disbursement-linked Indicators Matrix

Indicator name (#)	Unit	RBP Target/Total Financing Allocated to DLI	As % of Total Financing Amount	DLI Baseline	Already Achieved Results (indicative to be confirmed at negotiations)	Indicative timeline for DRs achievement						
						Year or Period 1 [2026]	Year or Period 2 [2027]	Year or Period 3 [2028]	Year or Period 4 [2029]	Year or Period 5 [2030 /2031]*	End target for DLI (cumulative)	
Result Area 1: Expanding access to efficient climate-resilient irrigation services for improved water and land management												
DLI 1: Land area equipped for new climate-resilient irrigation services expanded	hectare	35,828		8,241		4,900	9,058	9,771	3,858	0	27,587	
Allocated amount:	USD	72,000,000	14.40%			12,788,632	23,640,700	25,501,577	10,069,091	0		
<i>Formula for DLI calculation</i>	<i>USD/ha</i>				<i>NA</i>	<i>USD2,610 for every hectare of newly irrigated command area, upon completion of irrigation infrastructure sub-section works and confirmation of its functionality**</i>						
DLI 2: Length of irrigation pipelines installed	kilometer	983		136.1	39	192.290	321.61	267.33	27.07	0	847	

Allocated amount:	USD	201,600,000	40.32%		9,279,358	45,751,993	76,521,393	63,606,430	6,440,826	0	
<i>Formula for DLI calculation</i>	USD/km				<i>USD237,932 per km of conveyance primary and secondary pipelines laid and tested in the target sub-projects.</i>						
DLI 3: Number of flow measurement structures with flow meters installed in the new irrigation systems	number	7,290		983	20	678	1,703	1,943	1,963	0	6,307
Allocated amount:	USD	14,400,000	3.20%		45,664	1,547,994	3,888,251	4,436,214	4,481,877	0	
<i>Formula for DLI calculation</i>	USD/flow meter structure				<i>USD2,283 per flow meter structure/chamber constructed with the water meter installed and tested in the target sub-projects.</i>						
Result Area 2: Improving climate-resilience of existing irrigation systems											
DLI 4: Land area equipped to receive improved climate-resilient irrigation services expanded	hectare	9,010		1,477		2,733	2,400	2,400	0	0	7,533
Allocated amount:	USD	18,000,000	3.60%			6,530,466	5,734,767	5,734,767	0	0	
<i>Formula for DLI</i>	USD/ha				NA	<i>USD2,389 for every hectare of irrigated command area in the existing system, upon completion of irrigation infrastructure sub-sections and confirmation of its functionality**1</i>					
DLI 5: Length of irrigation pipelines installed as part of the	kilometer	331.67		50.56	15	95.42	70.68	100.01	0	0	281.11

rehabilitation/upgrade of target irrigation systems											
Allocated amount:	USD	50,400,000	10.08%		2,869,339	17,017,959	12,671,805	17,930,897	0	0	
<i>Formula for DLI</i>	<i>USD/km</i>				<i>USD179,289 per km of conveyance primary and secondary pipelines laid and textured to replace the old (open channel) conveyance system.</i>						
DLI 6: Number of flow measurement structures with flow meters installed as part of the rehabilitation/upgrade of irrigation systems	number	2,414		0	11	457	607	1339	0	0	2,414
Allocated amount:	USD	3,600,000	0.72%		16,404	697,929	905,220	1,996,852	0	0	
<i>Formula for DLI</i>	<i>USD/flow meter structure</i>				<i>USD1,491 per flow meter structure/chamber constructed with the water meter installed and tested in the target system.</i>						
Result Area 3: Enhancing climate-resilience of flood-prone areas											
DLI 7: Land area with reduced risk of flooding due to completed flood control facilities in the target sub-projects	hectare	1,053		0	60.2	667	76	250	0	0	1053
Allocated amount:	USD	140,000,000	28%		8,005,319	88,630,319	10,146,277	33,218,085	0	0	
<i>Formula for DLI</i>					<i>A unit value of USD132,279 per hectare is applied to land area, exposure risk of which to flooding reduces because of completed flood control facilities, based on the approved flood footprint map.</i>						

* While DLRs are expected to be achieved within the five-year period, an additional year is added to align the DLI matrix with the total duration of the RBP required to achieve and validate the PO indicators, which are linked to the corresponding DLIs, as explained in paras 3.18 and 3.19.

** The functionality of the irrigation conveyance system is defined as the system's ability to reliably transfer and regulate water from the source to designated delivery points in accordance with design parameters. It is measured by: (a) the capacity to convey the designed discharge with acceptable conveyance losses; (b) the operability of gates, valves, and

control structures to regulate flows; and (c) the ability to deliver measured (volumetric) quantities of water to main chambers and other designated control or distribution points under normal operating conditions.

DLIs Verification Protocol Table

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collection Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
DLI 1: Land area equipped for new climate-resilient irrigation services expanded	Estimated new command area of the target irrigation systems that meet pre-defined climate-resilience criteria. These criteria are defined as irrigation systems that utilize closed, pressurized pipe networks for conveyance and distribution, include volumetric flow measurement and pressure regulation at control points, and ensure sufficient pressure and flow capacity for water-efficient on-farm irrigation practices such as drip and sprinkler irrigation.	Quarterly; and validated before the start of the irrigation season	DSI reports; Open GIS tools; Available project maps; design reports and as-built drawings; Filed inspections.	Land area to be calculated by identifying the agricultural lands/command area that fall within the design service zones of the command area of new irrigation systems and confirming that those systems satisfy at least two criteria of climate-resilience upon completion of all the infrastructure works (by sections) with the established standards.	DSI	IVA	Yes
DLI 2: Length of the new irrigation pipelines installed	Length of the conveyance/transmission pipelines laid and tested to be considered as completed as per the as-built engineering drawings, work logs and contractor/construction supervision (DSI)	Quarterly	As-built engineering drawings, work logs and contractor/construction supervision (DSI) reports.	Using GIS tools, the actual pipeline alignments as per the as-built drawings will be mapped and overlaid with the planned design routes to confirm the installed lengths. Field inspections, site	DSI	IVA	Yes

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collecti on Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
	reports with georeferenced field data.			photographs, installation logs and pressure-testing reports of contractors and DSI will be used to validate completion and acceptance of works. Validated project completion documentation will be used to confirm the length of the new irrigation pipelines and compliance of the performed works with the established standards. Sample checks are expected, accounting for at least 20% of sections reported as completed during the reporting period.			
DLI 4: Number of flow measurement structures with flow meters installed in the new target irrigation systems	Number of water flow measurement devices installed on the new irrigation system (intake valves) to monitor volume of irrigation delivery and ensure accuracy and reliability in measuring water volume. The flow measurement units should meet minimum requirements set in TS	Quarterly	As-built engineering drawings, work logs and contractor/construction supervision (DSI) reports. Typical approval certificates and approval test results. DSI reports	Field inspections, site photographs, installation logs and pressure-testing reports of contractors and DSI will be used to validate completion and acceptance of works. Validated project completion documentation will be used to confirm the number of flow	DSI	IVA	Yes

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collecti on Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
	ISO 16399 or TS EN 14268. These flow measurement units should meet the metrological and technical requirements set in the bidding documents and 2014/32/EU Measuring Instruments Directive, OIML R49-1 and MI-001. These units should be equipped to ensure regular transmission of data to the DSI regional directorates for monitoring purposes, as part of the water use efficiency measures.			measurement units and their compliance of the performed works with the established standards. Sample checks are expected accounting for at least 15% of units reported as completed during the reporting period.			
DLI 4: Land area equipped for improved climate-resilient irrigation services expanded	Estimated command area of the target irrigation systems which is confirmed to received upgraded/improved climate-resilient irrigation services defined as meeting pre-defined climate-resilience criteria.	Annually; before the start of the irrigation season	DSI reports; Open GIS tools; Available project maps and reports	Land area to be calculated by identifying the agricultural lands that fall within the design service zones of the command area of new irrigation systems and confirming that those agricultural lands satisfy at least two criteria of climate-resilience upon completion of all the infrastructure works in particular sub-section	DSI	IVA	Yes

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collecti on Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
				according to the established standards.			
DLI 5: Length of irrigation pipelines installed as part of the rehabilitation/upgrade of target irrigation systems	Length of the conveyance/transmission pipelines laid and tested to be considered as completed as per the as-built engineering drawings, work logs and contractor/construction supervision (DSI) reports with georeferenced field data.	Quarterly	As-built engineering drawings, work logs and contractor/construction supervision (DSI) reports.	Using GIS tools, the actual pipeline alignments as per the as-built drawings will be mapped and overlaid with the planned design routes to confirm the installed lengths. Field inspections, site photographs, installation logs and pressure-testing reports of contractors and DSI will be used to validate completion and acceptance of works. Validated project completion documentation will be used to confirm the length of the new irrigation pipelines and compliance of the performed works with the established standards. Sample checks are expected accounting for at least 15% of sections reported as completed during the reporting period.	DSI	IVA	Yes

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collecti on Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
DLI 6: Number of flow measurement structures with flow meters installed as part of the rehabilitation/upgrade of target irrigation systems	Number of water flow measurement devices installed on the existing irrigation system (intake valves) to monitor volume of irrigation delivery and ensure accuracy and reliability in measuring water volume. The flow measurement units should meet minimum requirements set in TS ISO 16399 or TS EN 14268. These flow measurement units will be called as meters and should meet the metrological and technical requirements set in the bidding documents and 2014/32/EU Measuring Instruments Directive, OIML R49-1 and MI-001. These units should ensure regular transmission of data to the DSi regional directorates for monitoring purposes, as part of the water use efficiency measures.	Quarterly	As-built engineering drawings, work logs and contractor/construction supervision (DSI) reports. Typical approval certificates and approval test results. DSI reports	Field inspections, site photographs, installation logs and pressure-testing reports of contractors and DSI will be used to validate completion and acceptance of works. Validated project completion documentation will be used to confirm the number of flow measurement units and their compliance of the performed works with the established standards. Sample checks are expected accounting for at least 15% of units reported as completed during the reporting period.	DSI	IVA	Yes
DLI 7: Land area with reduced risk of flooding due to	Hectares that move from a higher to a lower modelled flood hazard	Semi-annually	As-built engineering drawings, works	A registry of planned and designed flood facilities will be made	DSI	IVA	Yes

DLI (#)	Description (Clear definition, etc.)	Frequency	Data Source	Methodology for Data Collection	Data Collecti on Focal	DLIs	
						Data Verification Focal	Scalability of Disbursement (Yes/No)
completed flood control facilities in the target sub-projects	state (or are removed from the design flood inundation extent) as a result of completed and commissioned flood control facilities, measured by comparing baseline and post works flood hazard/risk maps produced with as constructed hydrology & hydraulics (H&H) models. Flood-control facilities (as per the agreed detailed list of facilities by type, assigned area and other parameters) completed and commissioned with appropriate O&M arrangements identified.		completion certificates and contractor/construction supervision (DSI) reports. Land area within the modelled benefited footprint of the completed sub-project works (embankments, floodwalls, channel works, storage/retention completed in compliance with contracted design return period for each sub-project, consistent with project design and risk-mapping practice.	available to the IVA, along with the original baseline maps These facilities will then be geotagged and verified through field visits or drone imagery to confirm their physical existence, location and compliance with the design return period			

Annex 3. Country Credit Fact Sheet

1. **Background.** Türkiye is an upper-middle-income economy with an income per capita of around USD18,000 (or around USD44,000 in purchasing power parity) and a population of around 86 million. Türkiye is a large, diversified, dynamic, and business-oriented economy. Since the early 2000s, it has experienced robust growth, averaging around 5.5% per year, driven by a strong focus on development, macroeconomic stability, sound fiscal frameworks, trade openness, and institutional reform. Over that period, income per capita has tripled and poverty levels have declined significantly.

2. However, from 2016 until mid-2023, Türkiye's sovereign credit rating had deteriorated, which had been attributed to a reliance on short-term stimulus to boost growth, unconventional and unanticipated policies, declining fiscal and foreign exchange (FX) reserves, high dependence on external financing and rising geopolitical risks. This created financial vulnerability and led to periods of market volatility.

3. **Recent Developments.** During 2021-2023, the monetary policy was accommodative despite high and accelerating inflation, leading to sharp capital outflows. The currency lost two-thirds of its nominal value, while inflation peaked over 80% in late 2022. Additionally, Türkiye faced several adverse shocks, including a surge in global energy prices and a devastating earthquake. While growth remained robust, these developments led to economic imbalances and poor market sentiment. Since mid-2023, policies have been normalized, and the interest rate has hiked to a high of 50%. Monetary tightening has gradually brought results. Inflation has declined to 30.7% as of January 2026, and one-year-forward inflation expectations of market participants went down to 22%, which allowed the central bank to restart monetary easing and reduce rates to 37%. Furthermore, tighter fiscal policy is expected to contribute to rebalancing. While the deficit has widened in recent years, reflecting earthquake reconstruction spending, the government has announced a fiscal tightening program, including a freeze on non-essential capital expenditures, cuts in current spending, and a phased reduction of energy subsidies. Measures are also planned to broaden the tax base. These measures are expected to arrest fiscal deterioration and improve debt sustainability.

Selected Economic Indicators	2022	2023	2024	2025*	2026*	2027*	2028*
GDP growth 1/	5.4	5.0	3.3	4.1	4.2	4.1	4.0
Inflation (end-of-period) 1/	64.3	64.8	44.4	30.9	23.0	19.0	15.0
Fiscal balance	-1.1	-5.2	-4.5	-3.3	-3.7	-3.8	-3.4
Gross public debt	29.4	28.2	23.6	23.1	24.7	25.7	25.5
Gross public financing needs	7.2	7.6	6.6	5.2	5.9	6.1	6.3
Current account balance	-5.0	-3.6	-0.8	-1.4	1.4	-1.4	-1.4
Gross external debt	48.7	42.7	38.1	34.5	35.6	36.2	35.2
Gross external financing needs	22.5	20.5	17.3	16.5	18.2	18.3	17.9
Gross FX reserves (USD billion) 2/	128.7	140.9	155.2	193.8	207.5
Exchange rate (TRY/USD) 2/	18.7	29.4	35.3	42.49	43.5

Sources: IMF mission statement, Nov 2025; IMF WEO Oct 2025 and Jan 2026, country report 24/312, central bank; in percentage of GDP, except where noted; ** = estimations and projections

Notes: 1/ Percent change, year-on-year; 2/ data from central bank, end-of-period, most recent as of Feb. 6, 2026

4. In response to these positive developments, over the past two years, S&P, Fitch and Moody's have each upgraded Türkiye's credit rating by two to three notches, to BB-/Ba3. While S&P and Moody's have maintained a "stable" outlook, Fitch has recently revised its outlook to positive. The key factor behind the rating upgrades have been the strengthening track record of effective policymaking as well as Türkiye's resilience and reduced external vulnerability. The current account deficit has narrowed significantly, to 1.8% of GDP (on the rolling 12-month basis, as of December 2025). This improvement reflects a combination of lower global energy prices as well as strong export and tourism performance. FX reserves have risen to over USD200 billion, spreads have declined, and external financing has increased.

5. **Outlook and Risks.** With the economy gradually rebalancing, growth slowed in 2024, as anticipated, to 3.3%. According to the IMF, the economy is expected to grow by 4.1% in 2025 and 4.2% in 2026, before settling in the medium term at around 4.0%. The shift toward more conventional policies has improved resilience and creditworthiness. However, the policy tightening may need to be sustained to accomplish full disinflation. Risks to the outlook include global policy uncertainty, regional tensions and volatile market sentiment, sensitive to domestic and global political and policy developments.

6. Türkiye's private sector has shown resilience in navigating the volatile environment. Large firms report adequate liquidity, positive short-term net FX positions and sufficient natural hedges against currency volatility. In the banking sector, despite recent shocks, capitalization remains adequate, non-performing loans are low, and liquidity and profitability metrics are stable. Domestic banks have been able to rollover their funding, even amid high market uncertainty. Financial stability is supported by sustained residents' confidence and a willingness to maintain significant hard currency deposits in domestic banks.

7. According to the IMF, Türkiye's public debt is sustainable and projected to stabilize at around 26% of GDP over the medium term. Key factors supporting debt sustainability include the government's strong balance sheet, continued access to financial markets, a proven track record of economic resilience and a dynamic economy with substantial growth potential. Likewise, Türkiye's external debt is expected to remain sustainable over the medium term.

Annex 4: Economic Analysis

1. **Introduction.** The economic analysis has been carried out on a representative subset of sub-projects for both irrigation and flood control. Of the 11 sub-projects, six are in northern Türkiye where flooding pressures are prominent due to increased precipitation trends and focus on climate-resilient flood-management infrastructure, including the installation of flood-control facilities. Except for one, the remaining four financed sub-projects for irrigation are in the South, which is affected by drought, and aims to improve irrigation efficiency through the installation and upgrading of pressurized irrigation pipelines and the installation of smart flow-metering devices. Irrigation investments are designed to enhance water-use efficiency without increasing groundwater extraction.

2. **General assumptions.** The economic evaluation estimates net benefits by comparing the costs and benefits under the with- and without-Project scenarios. Economic costs include supply and installation costs, construction costs, routine operation and maintenance costs. To convert investment into economic cost, taxes (20%) are deducted. Benefits are expected to accrue over a 30-year period. A discount rate of 9%, representing the Economic Opportunity Cost of Capital (EOCC), has been applied, consistent with standard practice for evaluating public infrastructure investments. Finally, sensitivity analyses are conducted for changes in benefits and project cost.

- a) The economic analysis uses current values for project capital expenditures expressed in United States (USD).
- b) Operation and maintenance costs are assumed to be 2% of the capital cost per year for irrigation investments and 0.5% of the capital cost per year for flood protection components.
- c) Benefits from irrigation rehabilitation projects are assumed to start accruing in the sixth year of operation and to reach their full level immediately. In contrast, benefits from new irrigation systems are expected to materialize more gradually, reaching their full level in year 7 following project completion, as increases in farm income, livelihood improvements, and reinvestment in agricultural activities occur incrementally. Flood protection benefits are expected to begin accruing in years 3–4 of operation and to reach their full level immediately.
- d) Benefit estimates are based on the planning reports prepared by the implementing agency. Benefits are converted into U.S. dollars and expressed in constant 2025 prices, adjusted for inflation to ensure consistency in real terms.
- e) A 30-years benefits period was considered.
- f) No taxes and depreciation were considered for the economic analysis

3. **Methodology for irrigation projects.** The irrigation component consists of two types of interventions: (a) rehabilitation of the existing irrigation network (one sub-project covering 9,010 hectares); and (b) installation of new irrigation networks (four sub-projects covering a total of 28,254 hectares). The economic analysis is conducted on a representative subset of sub-projects, comprising one rehabilitation project (Burdur-Golhisar, 9,010 hectares) and one new irrigation network installation project (Mersin-Pamukluk, 4,815 hectares). The analysis assumes an average of four beneficiaries per hectare. Based on this assumption, the representative projects

are estimated to benefit approximately 36,000 people in Burdur–Göhlhisar and 19,260 people in Mersin–Pamukluk. The economic analysis compares two mutually exclusive scenarios:

- i. **Baseline (Without-Project) Scenario.** Under the baseline scenario, no new investment is undertaken. Farmers either continue using the existing, outdated irrigation network in the case of the rehabilitation sub-project or rely on rainfed agriculture in the remaining sub-projects.
 - ii. **With-Project scenario.** The benefits of the irrigation projects comprise increased agricultural income resulting from: (a) higher yields due to water efficiency improvements; and from (b) higher production area from rainfed to irrigated area; and (c) shifts in production patterns toward higher-value crops. Overall, net benefits increase significantly under the with-Project scenario, particularly for the installation of new irrigation networks, driven by higher crop yields and increased crop diversification. The introduction of modern irrigation systems, including pressurized pipe networks, reduces water losses and improves the efficiency and reliability of water delivery. As a result, agricultural production values increase substantially and more than offset the higher investment and operation and maintenance costs, thereby strengthening the Project's economic viability. Productivity gains generate an increase in agricultural income of about USD2,000 per hectare for irrigation rehabilitation projects, with benefits beginning to accrue in the sixth year of operation and reaching their full level immediately thereafter. In contrast, benefits from new irrigation systems are expected to materialize more gradually, reaching full realization of approximately USD6,705 per hectare after seven years, reflecting the incremental nature of farm income growth, livelihood improvements, and reinvestment in agricultural activities.¹
4. **Methodology for flood protection projects.** The economic analysis is conducted on a representative subset of sub-projects, comprising two flood protection projects (Kastamonu and Bartin-Amasra). Flood damage is measured by comparing observed production during a flood year with estimated production in a normal year without flood effects, allowing for the calculation of incremental losses attributable to the event. Flood protection structures are studied based on the 500-year return period flood (Q500) projections. The proposed flood protection measures are expected to eliminate the impacts of frequently occurring floods and substantially reduce damages, particularly to agricultural land. Flood damage is assessed by comparing outcomes in a flood year with those in a normal year without flood impacts, allowing for the estimation of incremental losses attributable to flood events. Accordingly, the economic analysis compares two mutually exclusive scenarios:
- i. **Baseline (Without-Project) Scenario.** Floods impose quantifiable economic costs especially on agricultural. In the existing situation, flood events typically result in ponding of water, prolonged inundation, and delays in planting, all of which contribute to significant

¹ The province of Mersin, where the sub-project is located, is one of Türkiye's most dynamic and productive agricultural regions and a major exporter. Under the piped irrigation system, high-value crops such as citrus, bananas, vegetables, and other fruits comprise approximately half of the farming area.

reductions in crop yields and agricultural income. Agricultural damages are evaluated by examining the change in net returns at the farm level.

- ii. **With-Project scenario.** Flood protection benefits include the prevention of (a) agricultural damages and associated losses in agricultural income; (b) land value losses; (c) damages to buildings and facilities; and (d) housing damages. In addition to the avoided physical and economic losses, the World Bank's Triple Dividend of Resilience framework provides a systematic way to capture a broader set of benefits from flood protection investments. Under this approach, the benefits are classified into three "dividends": (a) avoided losses when floods occur, including reduced damages to crops, infrastructure and housing; (b) unlocked economic potential, reflecting how reduced background risk encourages investment, stimulates economic activity, enhances productivity, increases land values, and improves access to credit and fiscal stability even in the absence of flood events; and (c) development co-benefits, as many flood risk management investments serve multiple purposes beyond disaster risk reduction. For example, improved flood early-warning systems often enhance weather forecasting capacity, enabling farmers to better plan planting and harvesting decisions. These co-benefits accrue regardless of whether a flood event occurs and contribute to broader economic development outcomes. In line with the World Bank's Triple Dividend of Resilience framework,² these indirect benefits are also considered in the economic analysis through the application of a multiplier factor of 6.17.³

5. **Economic Internal Rate of Return.** The economic analysis confirms that the proposed program is economically viable when considering the combined irrigation projects and the combined flood protection projects. For the irrigation projects, the analysis yields an overall economic internal rate of return (EIRR) of 10%, above the economic opportunity cost of capital (EOCC) or hurdle rate of 9%. The corresponding economic net present value (ENPV), discounted at 9%, is estimated at USD23 million. Using a representative sample of one rehabilitation project and one new irrigation network project understates the overall EIRR, since the remaining projects are new irrigation network installations, which yield higher returns than rehabilitation projects. Considering the full portfolio of irrigation projects, the EIRR increases to 12% and the ENPV reaches USD183 million. For flood protection projects, the analysis yields an overall EIRR of 14%, with an ENPV of USD47 million for the representative sample, and an ENPV of USD108 million for all flood protection projects, confirming the robust economic viability of these investments. Detailed computations are presented in Table A4.1.¹

6. **Sensitivity Analysis.** To assess the robustness of the economic case, sensitivity analyses were conducted by varying investment cost and benefit realization in an adverse direction. The resulting impacts on EIRR and ENPV for the combined projects were evaluated to identify potential risks to economic viability (Table A4.1). In addition, a combined adverse scenario was analyzed in which higher investment costs and lower benefit realization occur simultaneously. The results presented in Table A4.1 demonstrate that the expected economic performance of the program is robust and not particularly exposed to specific risks. For the combined projects, the

² World Bank. 2024. [Türkiye Flood and Drought Management Project](#) (P179313). June 5.

The World Bank and Overseas Development Institute. 2015. [The Triple Dividend of Resilience.pdf](#)

³ World Bank. 2024. [Türkiye Flood and Drought Management Project](#) (P179313). June 5.

program EIRR does not fall below the hurdle rate, and the corresponding ENPV remains positive, in all scenarios, confirming the resilience of the project's economic viability.

Table A4.1 Summary of Project Economic Viability

Irrigation	ENPV (USD million)	EIRR (%)
Burdur-Golhisar	-41	5
Mersin Pamukluk	64	14
Total	23	10
All irrigation projects base case	183	12
Higher investment Cost by 20%	116	11
Lower benefits by 20%	70	10
Higher investment costs by 20% + lower benefits by 20%	4	9

IRR = economic internal rate of return, NPV = net present value.

Flood protection	ENPV (USD million)	EIRR (%)
Kastamonu	52	16
Bartın-Amasra	-5	6
Total	47	14
All flood protection projects base case	108	14
Higher investment Cost by 20%	71	12
Lower benefits by 20%	48	11
Higher investment costs by 20% + lower benefits by 20%	12	10

Table A4.2 Economic Internal Rate of Return Calculation, Irrigation Projects
(USD thousand)

Year	Burdur-Göhlhisar Irrigation Rehabilitation			Mersin-Pamukluk Dam Irrigation			Net Benefits Total
	Capital Costs	O&M Costs	Benefits	Capital Costs	O&M Costs	Benefits	
2023	-75,301	0	0	-26,225	0	0	-101,526
2024	-18,825	0	0	-8,742	0	0	-27,567
2025	-12,550	0	0	-8,742	0	0	-21,292
2026	-12,550	0	0	-8,742	0	0	-21,292
2027	-6,275	0	0	-8,742	0	0	-15,017
2028	0	-2,510	12,392	-8,742	0	0	1,141
2029	0	-2,510	12,392	-8,742	0	0	1,141
2030	0	-2,510	12,392	-8,742	0	0	1,141
2031	0	-2,510	12,392	0	-1,748	11299	19,433
2032	0	-2,510	12,392	0	-1,748	14527	22,661
2033	0	-2,510	12,392	0	-1,748	17755	25,889
2034	0	-2,510	12,392	0	-1,748	21097	29,230
2035	0	-2,510	12,392	0	-1,748	25826	33,959
2036	0	-2,510	12,392	0	-1,748	29042	37,176
2037	0	-2,510	12,392	0	-1,748	32282	40,416
2038	0	-2,510	12,392	0	-1,748	32282	40,416

Year	Burdur-Göhlhisar Irrigation Rehabilitation			Mersin-Pamukluk Dam Irrigation			Net Benefits Total
	Capital Costs	O&M Costs	Benefits	Capital Costs	O&M Costs	Benefits	
2039	0	-2,510	12,392	0	-1,748	32282	40,416
2040	0	-2,510	12,392	0	-1,748	32282	40,416
2041	0	-2,510	12,392	0	-1,748	32282	40,416
2042	0	-2,510	12,392	0	-1,748	32282	40,416
2043	0	-2,510	12,392	0	-1,748	32282	40,416
2044	0	-2,510	12,392	0	-1,748	32282	40,416
2045	0	-2,510	12,392	0	-1,748	32282	40,416
2046	0	-2,510	12,392	0	-1,748	32282	40,416
2047	0	-2,510	12,392	0	-1,748	32282	40,416
2048	0	-2,510	12,392	0	-1,748	32282	40,416
2049	0	-2,510	12,392	0	-1,748	32282	40,416
2050	0	-2,510	12,392	0	-1,748	32282	40,416
2051	0	-2,510	12,392	0	-1,748	32282	40,416
2052	0	-2,510	12,392	0	-1,748	32282	40,416
2053	0	-2,510	12,392	0	-1,748	32282	40,416
2054	0	-2,510	12,392	0	-1,748	32282	40,416
2055	0	-2,510	12,392	0	-1,748	32282	40,416
2056	0	-2,510	12,392	0	-1,748	32282	40,416
2057	0	-2,510	12,392	0	-1,748	32282	40,416
2058	0	-2,510	12,392	0	-1,748	32282	40,416
2059				0	-1,748	32282	30,534
2060				0	-1,748	32282	30,534
2061				0	-1,748	32282	30,534
NPV	-107,589	-16,873	83,301	-64,422	-9,075	\$137,724	23,067
						EIRR	10%

Table A4.3 Economic Internal Rate of Return Calculation, Flood Protection
(USD thousand)

Year	Bartın Amasra Çakraz Village			Kastamonu Araç District Araç Stream			Net Benefits Total Flood protection
	Capital Costs	O&M Costs	Benefits	Capital Costs	O&M Costs	Benefits	
2024	-15,263	0	0	-45,538	0	0	-60,801
2025	-6,541	0	0	-13,011	0	0	-19,552
2026	0	-109	1,748	-6,505	0	0	-4,867
2027	0	-109	1,748	0	-325	14,194	15,508
2028	0	-109	1,748	0	-325	14,194	15,508
2029	0	-109	1,748	0	-325	14,194	15,508
2030	0	-109	1,748	0	-325	14,194	15,508
2031	0	-109	1,748	0	-325	14,194	15,508
2032	0	-109	1,748	0	-325	14,194	15,508
2033	0	-109	1,748	0	-325	14,194	15,508
2034	0	-109	1,748	0	-325	14,194	15,508
2035	0	-109	1,748	0	-325	14,194	15,508
2036	0	-109	1,748	0	-325	14,194	15,508
2037	0	-109	1,748	0	-325	14,194	15,508

Year	Bartın Amasra Çakraz Village			Kastamonu Araç District Araç Stream			Net Benefits Total Flood protection
	Capital Costs	O&M Costs	Benefits	Capital Costs	O&M Costs	Benefits	
2038	0	-109	1,748	0	-325	14,194	15,508
2039	0	-109	1,748	0	-325	14,194	15,508
2040	0	-109	1,748	0	-325	14,194	15,508
2041	0	-109	1,748	0	-325	14,194	15,508
2042	0	-109	1,748	0	-325	14,194	15,508
2043	0	-109	1,748	0	-325	14,194	15,508
2044	0	-109	1,748	0	-325	14,194	15,508
2045	0	-109	1,748	0	-325	14,194	15,508
2046	0	-109	1,748	0	-325	14,194	15,508
2047	0	-109	1,748	0	-325	14,194	15,508
2048	0	-109	1,748	0	-325	14,194	15,508
2049	0	-109	1,748	0	-325	14,194	15,508
2050	0	-109	1,748	0	-325	14,194	15,508
2051	0	-109	1,748	0	-325	14,194	15,508
2052	0	-109	1,748	0	-325	14,194	15,508
2053	0	-109	1,748	0	-325	14,194	15,508
2054	0	-109	1,748	0	-325	14,194	15,508
2055	0	-109	1,748	0	-325	14,194	15,508
2056	0	-109	1,748	0	-325	14,194	15,508
NPV	-19,509	-949	15,215	-57,752	-2,580	112,607	47,031
						EIRR	14%

Annex 5: Climate Change Assessment

1. **Paris Alignment.** Reflecting AIIB’s commitment to align new investment operations with the goals of the Paris Agreement since July 2023, an assessment of the RBP’s Paris alignment was conducted in line with AIIB’s Methodology for Assessing the Alignment of AIIB Investment Operations with the Paris Agreement (2023) and the Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New Operations. AIIB’s guidance does not explicitly refer to Result-Based Financing (RBF);¹ hence, the World Bank’s Paris Alignment Method for Program-for-Results (2023) was considered as an additional reference.

2. A Project needs to be aligned with both climate mitigation and adaptation goals of the Paris Agreement to be considered “Paris-aligned.” After undergoing the required assessment, the results confirm that the Project aligns with the climate mitigation, adaptation and resilience goals of the Paris Agreement.

Step 1: Assessing the Consistency of the Operation with the Country’s Climate Strategies

3. The Project is consistent with Türkiye’s comprehensive national climate strategies and commitments. In 2025, Türkiye adopted Climate Law No. 7552, marking a historic milestone in its climate action. The law establishes the first comprehensive and legally binding framework for Türkiye’s climate policies, translating its international commitments under the Paris Agreement into domestic action and strengthening institutional coordination by clearly defining the roles and responsibilities of all actors. The Project will contribute to the achievement of the goals in Türkiye’s Second Nationally Determined Contribution (NDC 3.0) submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2025, which aims to reduce greenhouse gas (GHG) emissions by 41% compared to business as usual by 2035 as well as the Long-Term Climate Strategy (LTS) (2024), which provides a comprehensive roadmap for achieving net-zero emissions by 2053. The RBP also supports Türkiye’s Climate Change Mitigation Strategy and Action Plan (2024–2030) in transitioning from “wild irrigation” to gravity-based pressurized piped systems, reducing the need for fossil-fuel-powered pumps.

4. Türkiye is in the Mediterranean Basin, a climate change “hotspot,” with high vulnerability on nine out of 10 physical climate risk dimensions, compared with a median of two out of 10 in other Organization for Economic Co-operation and Development (OECD) members.² The RBP directly addresses climate-induced risks of agricultural and ecological drought, water scarcity and river, inland and coastal flooding.

5. Irrigation and agriculture account for three-quarters of Türkiye’s total water consumption, but nearly half (48%) of the irrigation water is lost before reaching crops. Surface irrigation currently sees water losses of 35%-60%, while drip irrigation reduces this to 5%-25%. The Government’s Water Efficiency Strategy Document and Action Plan (WESAP) (2023–2033) in the

¹ The program of expenditures and disbursement-linked indicators (DLIs) are central elements in the Paris alignment assessment of the RBF Project. Risks are assessed in the context of system-level frameworks in which the operation is designed and will operate. The Türkiye’s national climate strategies and targets, climate policy and regulatory context, as well as climate vulnerability and development needs are considered.

² World Bank. 2022. [Türkiye: Country Climate and Development Report](#).

Framework of Adaptation to the Changing Climate has set targets for irrigation efficiency and water loss reduction, aiming to increase irrigation efficiency from 50% in 2023. Water management and irrigation are treated as high priority “security” sectors in the Türkiye’s climate adaptation strategies. The LTS and the CCASAP outline adaptation goals and actions in agriculture, water and disaster risk management. There is a heavy focus on transitioning from water-intensive traditional methods to technology-driven efficiency, including a complete transition from open-channel surface irrigation to pressurized systems. Climate resilience is at the core of the RBP’s design. By converting open channels to pressurized systems, transitioning from pumping-based to gravity-fed systems, the Project will significantly reduce water loss from source to farm. This adaptation measure will support efficient water use in the context of scarcer and more volatile water supply induced by climate change in the coming decades, by equipping them with more reliable irrigation solutions. It is also a precondition to further installing smart metering systems and the integration of digital solutions (e.g., SUTEM) and artificial intelligence (AI)-based enhancements, which are outside the scope of this RBP but will lead to further efficiency enhancements in water distribution and use.

Steps 2 and 3: Assessing and Managing Mitigation and Adaptation Risks

Paris Alignment - Mitigation (BB1)

6. From a mitigation (BB1) perspective, all three result areas of the RBP are featured on the joint MDB Universally Aligned list of activities³ (water supply systems, e.g., expansion, rehabilitation, water efficiency, gravity-based or renewable energy-powered irrigation systems, flood management and protection). Considering the specific context, the DLIs are not at risk of negatively impacting Türkiye’s long-term GHG emission development pathway. They are either neutral (Result Area 3) or result in GHG emission reductions that contribute to Türkiye’s goal to reduce GHG emissions by 41% compared to business as usual by 2035 and reach net zero by 2053.

Paris Alignment - Adaptation (BB2)

7. Risks from climate hazards, especially more frequent, unpredictable and extreme droughts induced by climate change—are likely to have a material impact on the irrigation and water supply assets, services and systems supported by the DLIs. Through conversations with the foreign relations, survey and planning, irrigation and flood control departments at the DSI head office, as well as field visits, the Client has shown a high-level understanding of climate-related risks and capacity. The integration of digital solutions, including SUTEM and artificial intelligence (AI)-based enhancements, is a priority of DSI. It aligns with Türkiye’s National AI Strategy and the Green Deal Action Plan, which emphasize digital transformation and sustainability. This was demonstrated during the Project Team’s visit to a pilot project financed by the World Bank to showcase the benefits of remote sensing and monitoring through SUTEM. Using sensors at the farm level, water is centrally allocated and distributed based on real-time soil moisture and

³ Joint MDB Methodological Principles for Assessment of Paris Agreement Alignment of New operations Direct Investment Lending Operations: List of Activities Considered Universally Aligned with the Paris Agreement’s Mitigation Goals or Not Aligned with the Mitigation Goals (2023)

annually announced crop type data, ensuring efficient allocation across farms. DSI plans to scale up the use of SUTEM across additional pilot sites, for which AIIB's current investment under Result Areas 1 and 2 is a pre-requisite.

8. The RBP is aligned with the adaptation and mitigation goals of the Paris Agreement; therefore, it is Paris-aligned.

9. **Climate Finance.** The climate finance share of AIIB's financing for the RBP was determined separately for mitigation and for adaptation using the joint MDB methodologies for tracking climate adaptation finance and climate mitigation finance.

Climate Adaptation Finance

10. The nine AIIB-financed DLIs address location-specific physical climate risks related to droughts and floods across Türkiye, thereby reducing climate vulnerability and increasing resilience. The RBP will promote agricultural productivity by enhancing water use efficiency. By expanding the geographic coverage of gravity-based irrigation under Result Area 1, a more reliable water supply will reach farmers who previously relied on rainfed agriculture or groundwater pumping. However, due to the improved water-use efficiency, water demand may increase (known as the Jevons Effect, or Irrigation Paradox). Converting open canals to pressurized systems under Result Area 2 will reduce water loss and enhance the climate resilience of water users whose farming activities and revenues are affected by the increasing scarcity and unpredictability of water supply due to climate change. Applying the principle of conservativeness, 50% of AIIB's financing for Result Area 1 and 100% of AIIB's financing for Result Area 2 is considered adaptation finance. Result Area 3 will enable adaptation and directly contribute to reducing the underlying causes of vulnerability to climate change at the systemic level, by reducing flooding risk of flood-prone areas in northern Türkiye. Thus, in total, 71.2% of AIIB's financing, equivalent to USD356 million, is considered to support adaptation.

Climate Mitigation Finance

11. 51.6% of AIIB's financing for the project or USD258 million can be considered to support mitigation according to the MDB Common Principles for Climate Mitigation Finance Tracking (2023). Gravity-fed pipelines (zero-emission systems) are listed as unconditional activity type (6.3. *Greenfield water supply projects meeting high energy efficiency standards or making use of demand management*). Financing for gravity-fed schemes amount to USD258 million, which is considered to support mitigation, out of AIIB's total financing of USD288 million under Results Area 1.

Table A5.1. Climate Finance by Results Area and DLI

Result Area	Disbursement Linked Indicator (DLI)	Financial value, USD	Finance supporting adaptation, USD	Finance supporting mitigation, USD	Total Finance supporting climate action, USD
Results Area 1: Expanding access to efficient climate-resilient irrigation services for improved water and land management	DLI 1: Land area equipped for climate-resilient irrigation services expanded	72,000,000	36,000,000	64,500,000	72,000,000
	DLI 2: Length of irrigation pipelines installed	201,600,000	100,800,000	180,600,000	201,600,000
	DLI 3: Number of flow measurement structures with flow meters installed annually in the new target irrigation systems	14,400,000	7,200,000	12,900,000	14,400,000
Results Area 2: Improving climate-resilience of existing irrigation systems	DLI 4: Land area equipped to receive improved climate-resilient irrigation services expanded	18,000,000	18,000,000	0	18,000,000
	DLI 5: Length of irrigation pipelines installed as part of the rehabilitation/upgrade of target irrigation systems	50,400,000	50,400,000	0	50,400,000
	DLI 6: Number of flow measurement structures with flow meters installed annually as part of the rehabilitation/upgrade of irrigation systems	3,600,000	3,600,000	0	3,600,000
Results Area 3: Enhancing climate-resilience of flood-prone areas	DLI 7: Land area with reduced risk of flooding due to completed flood control facilities in the target sub-projects	140,000,000	140,000,000	0	140,000,000
Total (USD)		500,000,000	356,000,000	258,000,000	500,000,000
Total (%)		100%	71.2%	51.6%	100%

12. Based on the above, 100% of AIIB's financing for the project, or USD500 million equivalent in Euros, can be considered as climate finance. 71.2% or USD356 million of AIIB finance supports

adaptation while 51.6% or USD258 million supports mitigation. 22.8% or USD114 million supports both mitigation and adaptation. Under the joint MDB climate finance reporting, 59.8% or USD299 million is reported as adaptation finance, 40.2% or USD201 million as mitigation finance while 22.8% or USD114 million as dual benefits finance.