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Report No: PAD3964

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF EUR 111.8 MILLION
(US$135 MILLION EQUIVALENT)

TO THE

REPUBLIC OF TURKEY

FOR A

TURKEY RESILIENT LANDSCAPE INTEGRATION PROJECT (TULIP)

May 19, 2021

Environment, Natural Resources and The Blue Economy Global Practice
Europe and Central Asia Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective April 30, 2021)

Currency Unit =	Turkish Lira
TRY 8.2021 =	US$1
US$ 0.1219 =	SDR 1
EUR 0.8278 =	USD 1
USD 1.2123 =	EUR 1

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Anna M. Bjerde
Country Director:	Auguste Tano Kouame
Regional Director:	Steven N. Schonberger
Practice Manager:	Kseniya Lvovsky
Task Team Leader(s):	Stavros Papageorgiou, Canan Yildiz

ABBREVIATIONS AND ACRONYMS

AWPB	Annual Workplan and Budget	MoAF	Ministry of Agriculture and Forestry
BCR	Benefit Cost Ratio	MoEU	Ministry of Environment and Urbanization
BSK	Bituminous Asphaltic Concrete	MoTF	Ministry of Treasury and Finance
BRB	Bolaman River Basin	NACE	Statistical Classification of Economic Activities in the European Community
CCASAP	Climate Change Adaptation Strategy and Action Plan	NBS	Nature-Based Solutions
CE	Citizen Engagement	NBMS	National Basin Management Strategy
CPF	Country Partnership Framework	NFTP	Non-Wood Forest Product
CRB	Cekerek River Basin	NPV	Net Present Value
CRI	Corporate Result Indicator	NRDS	National Rural Development Strategy
CSQAP	Construction Supervision and Quality Assurance Plan	NRM	Natural Resources Management
DG	General Directorate	NTFPs	Non-Timber Forest Products
DSI	State Hydraulic Works	OECD	Organisation for Economic Co-operation and Development
EIRR	Economic Internal Rate of Return	OHS	Occupational Health and Safety
EM-DAT	Emergency Events Database	O&M	Operational and Maintenance
EPP	Emergency Preparedness Plan	O&MP	Operation and Maintenance Plan
E&S	Environmental and Social	OGM	General Directorate of Forestry
ESF	Environmental and Social Framework	OP	Operational Policy
ESCP	Environmental and Social Commitment Plan	PBC	Performance-Based Conditions
ESIA	Environmental and Social Impact Assessment	PCU	Project Coordination Unit
ESMF	Environmental and Social Management Framework	PD	Provincial Directorate
ESMP	Environmental and Social Management Plan	PDO	Project Development Objective
ESS	Environmental and Social Standards	PFS	Project Financial Statement
EU	European Union	PIU	Project Implementation Unit
FAO	Food and Agriculture Organization of the United Nations	PLR	Program and Learning Review
FM	Financial Management	POE	Panel of Experts
FS	Financial Statement	POM	Project Operational Manual
GAP	Good Agricultural Practice	PPSD	Project Procurement Strategy for Development
GBV	Gender-Based Violence	PSC	Project Steering Committee

GDDEC	General Directorate of Desertification and Erosion Control	RD	Regional Directorate
GDP	Gross Domestic Product	RF	Result Framework
GFDRR	Global Facility for Disaster Reduction and Recovery	RIU	Regional Implementation Unit
GHG	Green House Gas	RSC	Regional Steering Committee
GIS	Geographic Information System	RST	Regional Support Team
GoT	Government of Turkey	SBO	Presidency of Strategy and Budget
GM	Grievance Mechanism	SEA/SH	Sexual Exploitation and Abuse/Sexual Harassment
GPN	General Procurement Notice	SEF	Stakeholder Engagement Framework
GRS	Grievance Redress Service	SESA	Strategic Environmental and Social Assessment
HDPE	High Density Polyethylene	SLM	Sustainable Land Management
IA	Implementing Agency	SOE	Statement of Expenditure
IFR	Interim Financial Report	SPC	Shadow Price of Carbon
ILMP	Integrated Landscape Management Plan	SPD	Standard Procurement Document
INDC	Intended Nationally Determined Contribution	STEP	Systematic Tracking of Exchanges in Procurement
IPF	Investment Project Financing	TRGM	General Directorate of Agricultural Reform
KGM	General Directorate of Highways	TOR	Term of Reference
LA	Loan Agreement	UN	United Nations
LMP	Labor Management Procedure	UNCCD	United Nations Convention to Combat Desertification
MCP	Micro-catchment Plan	VAT	Value Added Tax
M&E	Monitoring and Evaluation	VOC	Vehicles Operating Costs
MIS	Monitoring Information System	WBG	World Bank Group

TABLE OF CONTENTS

DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Turkey	Turkey Resilient Landscape Integration Project (TULIP)	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P172562	Investment Project Financing	Substantial

Financing & Implementation Modalities

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

Expected Approval Date	Expected Closing Date
09-Jun-2021	31-May-2028

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The project development objective is to strengthen integrated landscape management and increase access to improved livelihood opportunities and resilient infrastructure services for rural communities in targeted areas of Turkey.

Components

Component Name	Cost (US$, millions)

Component 1: Investments in Resilient Landscape Integration in targeted areas	127.51
Component 2: Institutional Framework, Project Management, and Sustainability	7.49

Organizations

Borrower:	Republic of Turkey
Implementing Agency:	General Directorate of Forestry (OGM) General Directorate of Agricultural Reform (TRGM) State Hydraulic Works (DSI) General Directorate of Highways (KGM)

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	164.60
Total Financing	164.60
of which IBRD/IDA	135.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	135.00

Non-World Bank Group Financing

Counterpart Funding	29.60
Borrowing Agency	5.32
Local Beneficiaries	24.28

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2021	2022	2023	2024	2025	2026	2027	2028
Annual	0.00	3.55	4.94	23.83	17.90	26.20	37.49	21.09
Cumulative	0.00	3.55	8.49	32.32	50.22	76.42	113.91	135.00

INSTITUTIONAL DATA

Practice Area (Lead)
Environment, Natural Resources & the Blue Economy

Contributing Practice Areas
Agriculture and Food, Transport, Urban, Resilience and Land, Water

Climate Change and Disaster Screening

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

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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

COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

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

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

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

Legal Covenants

Sections and Description

LA, Schedule 2, Sections I.A.2 and I.D.2(a). By no later than sixty (60) days after the Effective Date, the Borrower, through OGM, shall have established and operationalized, and shall continue to maintain throughout Project implementation: (a) a Project Coordination Unit ("PCU"); and (b) Regional Support Teams; and the Borrower shall, through OGM, assign qualified staff satisfactory to the Bank to perform the core functions for carrying out the Matching Grants activities (including grant coordination and monitoring and evaluation).

Sections and Description

LA, Schedule 2, Section I.A.3. By no later than five (5) days after the Effective Date, the Borrower, through OGM, shall appoint: (a) a PCU head; and (b) a Project coordinator to be responsible for the daily management of the Project.

Sections and Description

LA, Schedule 2, Section I.A.4. By no later than thirty (30) days after the Effective Date, the Borrower, through the relevant Project Implementation Agencies, shall have established and operationalized, and shall continue to maintain throughout Project implementation: (a) Central-level Project Implementation Units ("PIUs") under each TRGM, DSI and KGM; and (b) Regional Implementation Units under each OGM, TRGM, DSI and KGM.

Sections and Description

LA, Schedule 2, Sections I.A.6 and I.A.7. By no later than forty-five (45) days after the Effective Date, the Borrower, through OGM, shall establish, and thereafter maintain throughout Project implementation, a Project Steering Committee, and Regional Steering Committees for the Bolaman Basin and the Cekerek Basin.

Sections and Description

LA, Schedule 2, Section I.A.8. For the implementation of Part 1 of the Project, by no later than two hundred forty (240) days after the Effective Date, the Borrower, through OGM in coordination with the other Project Implementation Agencies, shall have prepared and furnished to the Bank a Project baseline survey and accompanying report, in form and substance satisfactory to the Bank.

Sections and Description

LA, Schedule 2, Section I.A.11. The Borrower, through the respective Project Implementation Agencies, as relevant, shall finance Part 1.1.A(ii)(c), Part 2.1.A, Part 2.1.D, Part 2.2.A(iii)(a), and Part 2.2.B(i) of the Project.

Sections and Description

LA, Schedule 2, Sections I.B and I.D.2(b). By no later than five (5) days after the Effective Date, the Borrower, through OGM, in collaboration with each of the other Project Implementation Agencies, shall have adopted, and shall maintain throughout Project implementation, a Project Operational Manual ("POM") [which shall include the Grants Manual, at a later period as per the disbursement condition].

Sections and Description

LA, Schedule 2, Section I.C.1. In carrying out Part 1 of the Project, the Borrower, through the Project Implementation Agencies, shall ensure that, unless otherwise agreed to by the Bank in writing and thereafter incorporated into the POM, each Subproject is appraised, selected and prioritized in accordance with standards, criteria and procedures acceptable to the Bank, as detailed in the POM, including the criteria set forth in the LA.

Sections and Description

LA, Schedule 2, Sections I.E.1 and 2. The Borrower, through the Project Implementation Agencies, shall ensure that the Project is carried out in accordance with the Environmental and Social Standards, and with the Environmental and Social Commitment Plan, in a manner acceptable to the Bank.

Sections and Description

LA, Schedule 2, Sections I.C.2 and I.C.3. The Borrower, through the relevant Project Implementation Agencies, shall

prepare ILMPs and MCPs for each basin that shall include the selected Subprojects to be implemented; for any Subproject implemented prior to the finalization of the respective ILMP and/or MCP (as relevant), the Borrower shall: (a) ensure the alignment of the Subproject implementation with the criteria detailed in the POM for any activities initiated prior to the completion of ILMPs and/or MCPs; and (b) modify the implementation of Subproject activities as, in the opinion of the Bank, may be needed to align the activities with the ILMPs and MCPs once the said plans are finalized.

Sections and Description

LA, Schedule 2, Sections I.D.1 and I.D.4. For the purpose of carrying out Parts 1.1.A(ii)(g), 1.1A(iv), 1.1.B(i)(c), and 1.1.B(iii), of the Project, the Borrower, through OGM and TRGM, shall make Matching Grants available to eligible beneficiaries for the carrying out of Subprojects, all in accordance with eligibility criteria and procedures acceptable to the Bank and which shall be set forth in this Section I.D and further detailed in the Grants Manual; and in each case, under a Matching Grant Agreement on terms and conditions acceptable to the Bank.

Sections and Description

LA, Schedule 2, Section I.D.3. The Borrower, through OGM and TRGM, shall retain, and furnish to the Bank, at its request: (i) the description and appraisal of the Matching Grant Subproject proposals; (ii) evidence that the proposed Subprojects and Matching Grants have been evaluated in accordance with criteria and procedures acceptable to the Bank; and (iii) such other information as the Bank shall reasonably request.

Sections and Description

LA, Schedule 2, Sections I.F.1 and 2. The Borrower, through OGM in coordination with the other Project Implementation Agencies, shall prepare and furnish to the Bank not later than December 1st of each year during the implementation of the Project, a proposed Annual Work Plan and Budget, afford the Bank a reasonable opportunity to exchange views on each such proposed Annual Work Plan and Budget, and shall thereafter ensure that the Project is implemented with due diligence during said following year, in accordance with such Annual Work Plan and Budget as shall have been approved by the Bank.

Conditions

Type	Financing source	Description
Disbursement	IBRD/IDA	Loan Agreement, Schedule 2, Section III.B.1(b). No withdrawal shall be made for expenditures under Category (2) of the withdrawal table, unless and until the Borrower, through OGM and TRGM, has adopted a Grants Manual, in form and substance satisfactory to the Bank, and incorporated said Grants Manual as part of the Project Operations Manual.

I. STRATEGIC CONTEXT

A. Country Context

1. **Turkey is a large, upper-middle-income country with a strong record of inclusive growth, but recent shocks are putting the economic and social gains made since the early 2000s at risk.** Turkey achieved rapid economic and social development in the 2000s, with poverty incidence more than halving and real Gross Domestic Product (GDP) increasing by 50% by 2008. Since the global financial crisis, rapid growth continued but was increasingly associated with stagnant productivity, a high current account deficit and growing foreign exchange-denominated debt stock. Turkey then experienced a significant external adjustment in mid-2018 as the Turkish Lira depreciated more than 60% against the US Dollar between January and September that year. This triggered a downturn in the Turkish economy as spending fell, inflation spiked, and the corporate sector's debt burdens elevated in 2018-Q3. Turkey experienced three quarters of negative growth from late 2018 to mid-2019, close to one million jobs were lost, and unemployment rose from 11% in January 2018 to 14.1% by January 2020. GDP per capita has fallen to US$9,213 from a high of US$12,582 in 2013, while poverty increased in 2019, reaching nearly the level recorded in 2015.

2. **An emergent economic recovery starting late 2019 has been undermined by the COVID-19 pandemic.** Over the course of late 2018 and 2019, the economy went through significant adjustments. Current account imbalances declined sharply, banks and corporates reduced their exposure to foreign currency debt, private sector credit growth resumed, and demand had started to recover. By the end of 2019, economic activity was rebounding with strong growth in the fourth quarter but was interrupted by the outbreak of the COVID-19 pandemic in early 2020 following general trends around the world.

3. **The COVID-19 health crisis quickly turned into an economic hardship.** The economy faced combined shocks of lower demand, activity restrictions, and supply chain disruption due to the pandemic. This caused a contraction of GDP by 10.3% (year-on-year) in 2020-Q2, the most in over a decade. On the demand side, external trade and finance deteriorated significantly as the global economy pulled down its shutters. Private consumption and investment contracted significantly along with a sharp fall in domestic demand. On the supply side, declining demand and containment measures led to business shutdowns and loss of cash flow, while interruptions to domestic and international trade disrupted supply chains and production. The services sector was also not spared from contraction with the closure of hospitality businesses, declining demand for transport, and others. Real sector impacts have also exacerbated labor market challenges that were already in motion before the pandemic.

4. **The policy response helped to cushion the blow for businesses and households but exacerbated macro-vulnerabilities in the economy.** On the monetary and financial side, the Central Bank injected a significant amount of liquidity and the banking regulator introduced flexibilities that enabled banks to extend credit to some of the most affected parts of the economy. On the fiscal side, the authorities provided support to households by extending social assistance, and to businesses mostly through tax reliefs. Short-term work allowance and unpaid leave support have been provided to prevent massive layoffs and employment losses. All these measures helped the economy to bounce back sharply in 2020-Q2, and Turkey recorded a positive growth of 1.8% in 2020. However, the monetary policy response exacerbated the existing vulnerabilities with renewed pressures on the current account, consumer prices, and the currency. The pace of economic growth in 2021 and beyond will depend on the duration of the pandemic, the availability and distribution of vaccines, and the restoration of international trade and investment flows.

5. **The COVID-19 pandemic has further exacerbated the significant structural challenges that Turkey had already**

experienced prior to the pandemic. Over 2.5 million jobs (mostly informal) were lost during the first wave of the pandemic, while labor market participation shrank by 2.7 million workers over the same period. These challenges particularly aggravated the existing trends of high youth unemployment, which rose from 20.3% in 2018 to 25.3% in 2020, and low female labor force participation, which declined from 34% in 2019 to 32% in August 2020. The pandemic also threatens a significant setback in poverty reduction, which was already affected by the currency shock of 2018. Between 2018 and 2019, the share of people below the $5.5 per capita per day (2011 purchasing power parity) poverty line rose from 8.5% to 10%, pushing around 1.5 million people into poverty. An extra 1.6 million individuals were estimated to fall into poverty in 2020 due to the pandemic. Loss of employment and income, depressed average real wages, and high price inflation are expected to be the main transmission mechanisms of the crisis for low-income households.

6. **Increasing poverty and inequality could further amplify regional disparities, which continue to persist in Turkey, despite significant progress made in inclusive growth since the early 2000s.** Long-term analysis of regional growth in Turkey shows that lagging regions are growing relatively faster. Notwithstanding this process of convergence, large regional disparities remain. The most dynamic parts of the country, mostly in the West and Central regions, concentrate the main poles of economic activity and growth and have the highest living standards. In the southeastern regions, poverty rates are higher and median household per capita income is less than a third of Istanbul and less than half of the Western Marmara region. At the same time, data suggests that extreme poverty is primarily a rural phenomenon, with 80% of the extremely poor population living in rural locations. This is particularly true amongst forest villages[1], most of which experience poverty rates above 43% and reaching nearly 70% in the Mediterranean.[2] Data from OECD show that these inequalities far exceed the disparities seen in global comparators.[3]

7. **Lagging rural regions also face challenges with poor natural resource endowments, limited connectivity and market linkages, insufficient infrastructure, and human capital loss due to significant outward migration.** An assessment of regional competitiveness conducted by the OECD in 2016 indicated that Turkey's top-performing regions consist of provinces classified as predominately urban or intermediate.[4] These provinces enjoy the advantages of agglomeration economies where benefits arise from the presence of large cities or the proximity to large urban centers. Lagging rural regions struggle with connectivity and market access issues which negatively affect their competitiveness. Lagging rural regions generally derive a larger share of their income from agriculture, but also have significantly lower agricultural productivity than better-off regions. Differences in agricultural productivity across rural areas are often due to the differences in resource endowments, the status of the natural resource base, and access to public infrastructure. Scarce human resources, which are aggravated by outward migration, further hamper growth. Between 1927 and 2010, the percentage of Turkey's rural population dramatically decreased from 76% to 8.2%. Population decline due to out-migration to urban areas is particularly prominent among forest villages in rural Turkey. Since the 1980s, over 60% of forest villagers have out-migrated, reducing the total forest village population from 18 million to just over 7 million people in 2014. This massive out-migration is due to the lack of economic opportunities, inadequate infrastructure and social services, and limited access to markets.[2]

8. **Investing in natural capital renewal in lagging rural regions can help mitigate COVID-19 economic impacts on some of the poorest and most vulnerable communities in Turkey, while facilitating a sustainable recovery and green**

[1] Rural populations in Turkey can be classified into two groups: forest villages and other villages. Forest villages are those that contain forest lands within their administrative borders.
[2] World Bank. 2017. Poverty, Forest Dependence and Migration in the Forest Communities of Turkey. Washington, D.C.: World Bank.
[3] OECD. 2019. Regions and Cities at a Glance 2018 – Turkey. Paris: OECD.
[4] OECD. 2016. Boosting Regional Competitiveness in Turkey. Assessing Regional Competitiveness in Turkey. Paris: OECD.

transition to enhance resilience to future shocks. The 2008 global financial crisis provides an example of how rural areas are impacted by external shocks, as the crisis put significant pressure on public spending in virtually all rural regions.[5] Poorer households are also especially affected due to high price inflation denting their purchasing power and have fewer means to cope. Agriculture, which employs over 60% of the rural population in Turkey,[6] is among the five sectors with the highest employment vulnerability in Turkey as a result of the pandemic. The sector also employs 89% of self and unpaid workers and 83% of informal workers[7], many of whom are not covered by the Government's social assistance programs. A healthy natural capital base is critical to ensuring sustainable and resilient growth and facilitating a transition toward a green economy. Investing in sustainable landscape management to renew natural capital in lagging rural regions can help improve agricultural productivity, increase income and job opportunities, and help vulnerable households build buffers against the adverse effects of the current pandemic crisis and future shocks. Increased livelihood opportunities can help reduce rural-to-urban migration trends, facilitate economic growth and human capital in rural areas, and reduce pressure on urban centers whose capacities to adequately provide infrastructure and public services are increasingly strained.

B. Sectoral and Institutional Context

9. **Turkey has made progress in addressing a range of environmental issues, but rapid population growth, urbanization, and industrialization continue to put significant pressure on the country's natural capital.** [8]

(a) Soil erosion, land degradation, and desertification are among the most prominent environmental problems in Turkey. The combination of geographic, topographic, climatic, soil characteristics, and unsuitable farming practices makes Turkey particularly prone to soil erosion. An average of 642 million tons of soil is transported every year in Turkey due to water erosion. Of this amount, 60.28% of the total surface area is classified as very light erosion, 19.13% as light, 7.93% as moderate, 5.97% as severe, and 6.7% as very severe. Pastures and grasslands have the highest erosion rate (53.66%) and percentage of severe erosion class (28.8%). The same rates for agricultural lands are 38.71% and 14%, respectively.[9] Degradation of forest, agricultural, and pasture lands also contribute to land degradation and desertification in Turkey.[10] A recent study estimates 32.1% of the country's territory is at high risk of land degradation and desertification, 33.9% is considered "fragile," and 8% is at "potential" risk.[11] Despite impressive progress in reducing soil erosion from 500 million tons per year back in the 1970s to 154 million tons in 2018 through afforestation, rangeland management, and erosion control activities,[12] more effort is needed for Turkey to achieve its target of reducing soil erosion by an additional 24 million tons in the next five years.

(b) Turkey has undertaken considerable afforestation efforts for erosion control, adding a total of 2.73 million hectares of forest land since 1973, making it the sixth country with the highest average annual net gain in forest area between 2010 and 2020. Despite this significant increase in forest cover, about 43% of Turkey's 22.93 million hectares of forests are classified as degraded and in need of rehabilitation[13]. Turkey has also increased the coverage of its Protected Areas. However, the total Protected Area coverage of 9% of the national territory

[5] OECD. 2016. OECD Regional Outlook 2016: Productive Regions for Inclusive Societies. Paris: OECD.
[6] OECD. 2016. Innovation, Agricultural Productivity and Sustainability in Turkey. OECD Food and Agricultural Reviews. Paris: OECD.
[7] World Bank. 2020. Jobs at Risk in Turkey: Identifying the Impact of COVID-19. Washington, D.C.: World Bank.
[8] OECD. 2019. OECD Environmental Performance Reviews: Turkey 2019. Paris: OECD.
[9] GDDEC, 2018. "DEMIS Turkey Water Erosion Statistics, Technical Summary''. General Directorate of Desertification and Erosion Control Publications, Ankara, Turkey.
[10] Republic of Turkey. Ministry of Forestry and Water Affairs. Turkey Land Degradation Neutrality. National Report 2016 – 2030.
[11] Dengizb, O. et al., C. 2020. Desertification risk assessment in Turkey based on environmentally sensitive areas. Ecological Indicator 114 (2020).
[12] UNCCD, 2018. News Archive. Turkey gets results in combating soil erosion. Available online at www.unccd.int.
[13] World Bank. 2017. Turkey: Forest Policy Note. Washington, D.C.: World Bank

is significantly lower than the Aichi target of 17% for terrestrial and inland water and 10% for coastal and marine areas. Significant portions of steppes and wetlands are also seriously degraded, and biodiversity is increasingly under threat due to habitat loss and fragmentation, pollution, climate change, and invasive species. [14]

(c) Water quality and scarcity are also of serious concern, as they affect water resources available for human consumption and economic uses. Turkey is currently considered a water-stressed country with per capita freshwater availability only half of the global average by international standards. Per 2017 data, at least 15 of its 25 river basins are water-stressed, with water availability below 1,700 m^3 per year. Of these, two basins face absolute water scarcity (less than 500 m^3), six face water scarcity (less than 1000 m^3), and seven face water stress (less than 1,700 m^3). [15] Deforestation, soil erosion and sedimentation, point source pollution from untreated industrial and domestic effluents, insufficient wastewater treatment facilities, and diffuse pollution from agricultural activities all contribute to decreased water quality. A third of Turkey's lakes and up to half of its rivers are considered either "contaminated" or "highly contaminated" by phosphorus and nitrogen.[15] With rapid population growth and rising demand from economic development, Turkey is predicted to become water-scarce by 2030.[16]

10. **Turkey is also vulnerable to a range of natural disasters that cost the country approximately US$1,554 million in asset losses annually.[17]** Seismic risk is the most critical, as the country experiences, on average, one earthquake per year with a magnitude of 5–6 on the Richter scale. Floods and landslides are the second and third most frequent and disastrous natural hazards, accounting for more than 25% and almost 8% of total natural disasters in the country, respectively. Floods and landslides are directly linked to topography, land use, land cover, urbanization levels, and rainfall regimes; and have caused significant localized losses across all parts of the country. On average, flooding causes Turkey 18% more damages to assets than earthquakes, and the long-term average of the annual asset losses due to floods is estimated at US$843 million.[17] Between 1975 and 2015, 1,209 floods were recorded, causing the loss of 720 lives and damaging 894,474 hectares of land.[18] Devastating floods in 2006 and 2009 totaled almost US$1 billion in damage.[19] Hazardous floods are mostly observed in the Black Sea, Mediterranean, and Western Anatolia regions. Recent flash floods in Giresun Province resulted in 5 deaths and 12 people missing and cut off access to 98 villages.[20] Landslides and rockfalls present a localized challenge, creating damages to transport networks and property, with periods of extensive or intense rainfall, land use changes, and earthquakes typically precursors to landslide activities.

11. **Climate change is expected to further aggravate the pressure on the natural resource base of Turkey and pose severe risks to the welfare and livelihood security for rural populations**. The country is already experiencing an increase in annual mean temperature and changes in the precipitation regime. A long-term downward trend in average yearly precipitation is projected for Turkey overall, although the distribution pattern varies across locations. The Eastern Black Sea and northeastern parts of the country will likely experience an increase in the average annual precipitation, while the southern regions will experience a decrease. Projected climate change impacts include

[14] Republic of Turkey. 2020. General Directorate of Forestry Annual report 2020; OECD. 2019. OECD Environmental Performance Reviews: Turkey 2019. Paris: OECD

[15] World Bank. 2020. Turkey Water Sector Engagement Note. Water Security Issues and Priorities for Sector Engagement. Final Report.

[16] Uslu, O. 2020. Water Quality. In: Water Resources of Turkey. World Water Resources 2. Springer Nature Switzerland AG.

[17] World Bank & Global Facility for Disaster Reduction and Recovery. 2020. Country Snapshot, June 2020. Turkey: Understanding Disaster and Climate Impacts on the Poorest and Most Vulnerable. Washington, D.C.: World Bank.

[18] Hafzullah, A. 2020. Surface Water. In: Water Resources of Turkey. World Water Resources 2. Springer Nature Switzerland AG.

[19] World Bank & Global Facility for Disaster Reduction and Recovery. 2017. Turkey Disaster Risk Profile. Available at: *https://www.gfdrr.org*; All historical data on floods and earthquakes are from EM-DAT: International Disaster Database (Université Catholique de Louvain, Brussels, Belgium), www.emdat.be, and the National Geophysical Data Center/World Data Service (NGDC/WDS), Significant Earthquake Database (National Geophysical Data Center, NOAA). Damage estimates for all historical events have been inflated to 2013 US$.

[20] Deutsche Welle (DW), 23/08/2020. Turkey's Black Sea coast pummeled by flash floods. Available at: https://www.dw.com

reduced surface water availability, more frequent and severe incidences of floods, and more prolonged droughts. Extreme precipitation events will negatively affect water holding capacity of the soil's upper layers, further exacerbating soil erosion and increasing the risks of flooding and landslides, particularly in terrains with rough topography.[21] With a mostly arid and semiarid climate and environment, increased frequency and severity of droughts will impact much of central, southern, and south-eastern parts of the country, including Central Anatolia, Mediterranean, Southeast Anatolia, and the Aegean, where agriculture is the main economic sector. More frequent droughts will negatively affect crop yields and threaten food security, while floods and landslides will continue to affect the safety and welfare of hundreds of thousands of people.

12. **Degradation of natural resources and natural and climate-induced disasters disproportionately impact the rural poor, who are most vulnerable due to their low level of socio-economic resilience.** Poor communities, especially in lagging rural areas, are highly dependent on natural resources and agricultural income, making them more vulnerable to the impacts of natural disasters on agricultural yields and ecosystem health. Poor households also tend to have less diversified portfolios; their savings (i.e., home and agricultural assets) are more vulnerable to natural hazards; and they struggle more to cope with loss and recover from disasters, with little resources to cut back or draw on[22]. Degradation of natural resources also inflicts long-term adverse consequences on the welfare and livelihood of the rural poor through reductions in available resources for subsistence (i.e., timber and non-timber forest products, clean water, etc.) and decreases in ecosystem services that sustain agricultural productivity and provide a buffer against natural disasters and climate-induced risks. This is especially prominent among poor households in higher elevation forest areas in Turkey, where incomes and productivity are much lower compared with the lowlands,[23] even in more wealthy regions, due to the precarious state of the natural resource base and limited opportunities for income diversification. Therefore, preserving natural capital, building resilience to natural disasters and climate change, and increasing livelihood opportunities are critical for the economic security and social welfare of millions of rural poor in lagging regions in Turkey, whose development needs and dependency on natural resources are greatest.

13. **Recognizing the importance of adapting to the impacts of climate change and protecting the country's natural capital to sustain current gains, Turkey's Eleventh Development Plan (2019-2023) pays significant attention to a sustainable and inclusive growth pathway**.[24] The Plan places "*Livable Cities and Sustainable Environment*" among its five fundamental pillars of development. Priorities and targets embraced under this pillar include reducing environmental pollution, protecting of biodiversity, and the sustainable management and use of land, forests, water, and other natural resources through Integrated River Basin Management. This pillar also includes targets to ensure access to healthy drinking water, combat poverty, promote the employability of rural labor force, prevent and mitigate disaster risks, and develop climate adaptation capacity and resilience of affected communities. The Plan highlights agriculture and forestry as one of the priority development areas, with the objective of promoting an environmentally, socially, and economically sustainable and competitive agricultural sector. The Plan also emphasizes the need to bridge regional disparities and increase job opportunities for women and youth.

14. **The Eleventh Development Plan also sets out clear objectives for rural development and narrowing regional disparities**. The National Strategy for Regional Development (2014-2023) was approved in 2014 to improve national-

[21] Turkes, M., et al. 2020. Impacts of Climate Change on Precipitation Climatology and Variability in Turkey. In: Water Resources of Turkey. World Water Resources 2. Springer Nature Switzerland AG.
[22] Hallegatte, S., Vogt-Schilb, A., Rozenberg, J., Bangalore, M. and Beaudet, C. 2020. From Poverty to Disaster and Back: a Review of the Literature. *Economics of Disasters and Climate Change* (2020) 4: 223–247.
[23] The average household income in higher elevation forest areas is between 40 to 60% of the average household income in other rural areas.
[24] Government of Turkey. 2019. Eleventh Development Plan (2019 – 2023). Strategy and Budget Office of the Presidency. Ankara, Turkey.

level coordination for regional development and competitiveness and to strengthen the linkages between spatial and socio-economic development policies, based on which Regional Development Plans were developed under the coordination of Regional Development Agencies.[25] The National Rural Development Strategy (NRDS) (2014-2020) and its Action Plan were adopted in 2015, and are currently being updated. Its objectives include (a) economic development and increase in job opportunities; (b) institutional capacity building; (c) infrastructure development in rural areas and increase in the quality of life; and (d) environmental protection and sustainability in rural areas.

15. **Turkey has developed a number of strategies and plans in an effort to tackle environmental, climate, and natural resource management (NRM) challenges.** The key strategies for climate change and NRM include, among others, the Climate Change Strategy (2010-2023), National Climate Action Plan (2011-2023), Climate Change Adaptation Strategy and Action Plan (CCASAP), National Forestry Program (2004-2023), Biodiversity Strategy and Action Plan (2018-2028), National Strategy and Action Plan to Combat Desertification (2015-2023), National Drought Management Strategy and Action Plan (2017-2023), National Water Plan (2019-2023), and National Basin Management Strategy (NBMS) (2012-2023). Turkey also submitted its Intended Nationally Determined Contribution (INDC) for 2021-2030 in 2015, indicating its intention to reduce up to 21% GHG emission from the Business as Usual level by 2030; and highlighting the importance of its forest resources as a carbon sink. Overall, however, there is a need for harmonizing the objectives and targets among the various plans and strategies. NRM and climate adaptation are not yet systematically integrated into sectoral planning, including land-use planning, spatial planning, and agricultural development plans. The NBMS attempts to integrate the objectives of several sectoral strategies and plans by promoting an integrated ecosystem approach at basin or sub-basin scale to enhance the sustainability, while also improving the productivity, of natural resources in Turkey's river basins. However, the various planning instruments under the NBMS[26] are not well integrated nor sufficiently detailed to be operationalized at the sub-basin level, while the investments for meeting water quality and quantity, as well as disaster risk mitigation targets outlined in the NBMS focus primarily on gray (human-built) infrastructure, which can be costly, not always effective, and can create capital lock-in. Another significant barrier to integrated NRM is the lack of innovation and experience in next-generation solutions for effective use of natural resources and risk reduction, such as Nature-Based Solutions (NBS)[27].

16. **A fragmented institutional landscape also poses constraints to the implementation of integrated NRM approaches in Turkey.** The responsibilities for NRM cut across many different institutions, including the Ministry of Agriculture and Forestry (MoAF) and its line agencies such as the General Directorate (DG) of Forestry (OGM), DG of Agricultural Reform (TRGM), DG of Livestock, DG of Crop Production, DG of Water Management, and State Hydraulic Works (DSI), the Ministry of Environment and Urbanization (MoEU), the Ministry of Energy and Natural Resources, and the Disaster and Emergency Management Presidency, as well as the Regional and Provincial Directorates (RD/PDs) of these respective ministries, and local authorities (Municipalities and Special Provincial Administrations), among others. The involvement of numerous institutions poses coordination challenges in management efforts. The institutional arrangement for integrated river basin management in Turkey is meant to bring these institutions together to coordinate their works, as indicated in the 11th Development Plan.

17. **Turkey's 25 river basins vary in their ecological, socio-economic, and demographic conditions, but face common**

[25] OECD. 2019. Regional Outlook 2019. Turkey. Regional Development Policy in Turkey. Paris: OECD.
[26] Instruments under the NBMS include River Basin Management Plans (RBMPs), Flood Management Plans, Drought Management Plans, and Sectoral Water Allocation Plans. RBMPs have been prepared for each of the basins to address the water quality and quantity issues and meet the ecological status for both surface and groundwater bodies according to the requirements of related European Union (EU) water legislation, including the EU Water Framework Directive, Flood Directive, Drinking Water Directive, and Urban Waste Water Directive.
[27] World Bank and World Resources Institute. 2019. Integrating Green and Gray: Creating Next Generation Infrastructure. Washington, D.C.

and interlinked challenges. Rural poverty and high levels of livelihood dependency on natural resources are more common in the upper basins than in the lowland areas. Resources in these upper basins are predominantly used for livestock grazing, small-scale subsistence agriculture, and forestry activities. Agricultural activities, especially irrigated agriculture, are generally more common in the middle and lower basins. The western basins are characterized by higher population density, increasing urbanization and industrialization, decreasing agricultural employment, and more environmental pollution. Soil and water pollution from chemical fertilizers and pesticides concentrate in lower basins and in the western and southern regions. Notwithstanding these differences, the 25 basins in Turkey face common problems. Degradation of natural resources due to overutilization over many years, including pasture, agricultural, and forest lands, has negatively affected upland farmers' livelihoods, resulting in increased poverty rates in these areas. Soil erosion and land degradation have substantially reduced the carrying capacity of pasture lands and the productivity of agricultural lands in the upper basin areas, while the reduction in vegetation cover has led to diminished soil humidity levels and increased vulnerability to drought, floods, and landslides.[28]

18. **Addressing the chronic and multi-faceted problems in Turkey's river basins requires next-generation solutions that can deploy a range of interventions across sectors and institutions through coordinated efforts under an integrated approach that can deliver multiple benefits.** The complex and interrelated problems in Turkey's river basins, including natural resource degradation, climate and disaster vulnerability, water risks, and employment and livelihood insecurity, cannot be addressed by one institution alone or by a single-sector program. Integrated landscape management, incorporating NBS, has been championed as an efficient, cost-effective, and sustainable approach to the combined environmental, social, and economic challenges of river basins.[28] NBS utilizes ecosystem services and natural features (i.e., forests, wetlands, etc.) to address specific problems and deliver multiple benefits simultaneously. These include, inter alia, protection against natural and climate-induced disasters, improvement of water and air quality, reduction of soil erosion and sedimentation, carbon sequestration, and provision of habitats for biodiversity.[29] In many cases, combining green infrastructure (a type of NBS) with traditional human-built gray infrastructure (i.e., reservoirs, retaining walls, embankments, etc.) can create next-generation solutions that can better protect communities by tackling their immediately pressing problems while restoring ecosystems' regulatory functions to enhance the long-term performance, life cycle, and cost-effectiveness of gray infrastructure. NBS can also generate multiple income streams and strengthening resilience to current and future climate risks. In the case of Turkey, these hybrid green-gray solutions can prevent capital lock-in, as most of the interventions implemented and planned at the basin level downstream have been predominantly traditional gray infrastructure.

19. **The project will develop and implement an integrated landscape management approach in two selected sub-basins characterized by a combination of challenges commonly faced by many lagging rural areas in Turkey's river basins.** The Bolaman River Basin (BRB), located in the Eastern Black Sea, and Cekerek River Basin (CRB), located in the Central Anatolia Region, both face a complex set of problems. These include low socio-economic status and high rates of poverty among rural communities, particularly among forest villages in the upper basins, low agricultural productivity and natural resource degradation, inadequate infrastructure (i.e., for water storage, treatment and irrigation), limited connectivity, and loss of human capital due to outward migration. Both basins are particularly vulnerable to climate change impacts, including seasonal floods and droughts, erosion, and landslides triggered by heavy precipitation events. As such, they were selected by the Government of Turkey (GoT) both for their urgent needs for recovery efforts, as well as their replication potential in other priority basins with similar characteristics.

[28] Government of Turkey. 2012. National Basin Management Strategy (2012-2023).

[29] Faivre, N., et al. 2017. Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges. *Environmental Research* 159: 509–518.

C. Relevance to Higher Level Objectives

20. **The proposed project aims to set in motion a national program for landscape resilience in vulnerable rural regions to support Turkey's sustainable recovery efforts and facilitate a green transition.** Through a set of multi-sectoral interventions that invest in NBS, sustainable agricultural practices, value chain enhancement, livelihood diversification and resilient infrastructure, the integrated landscape approach implemented in the selected basins will create shovel-ready jobs and generate livelihood opportunities for poverty reduction in vulnerable rural areas while building climate and disaster resilience and setting the foundations for sustainable management and renewal of natural capital. Scaling-up such an integrated model for NRM through a national program for landscape resilience and sustainable recovery can bring transformative changes to vulnerable areas in Turkey, provide a significant number of jobs,[30] and raise incomes in lagging regions. An integrated package of interventions with combined green-gray infrastructure can also build resilience for local landscapes and communities against climate and disaster risks such as flooding, landslides, drought, and soil erosion in a cost-effective manner. Such a program can also help Turkey build back better and facilitate a green transition to meet multiple sustainable development objectives in the long run. These include, among others, job creation, poverty reduction, rural development, agricultural productivity, food and water security, land restoration, climate change adaptation and mitigation, and disaster risk management.

21. **The project will also contribute to Turkey's 11th Development Plan, as well as to meeting sectoral objectives as set out in multiple national strategies and plans as well as commitments under global conventions**. These include: (i) sustainable development objectives under the 11th Development Plan; (ii) rural development and income generation for rural communities under the RDS (2014-2020) and National Strategy for Regional Development (2014-2023); (iii) climate change adaptation objectives per Turkey's National Climate Change Adaptation Strategy and Action Plan (2011-2023); (iv) increased carbon capture and sink capacity of forests in line with the INDC under the UN Framework Convention on Climate Change and Turkey Climate Change Strategy (2010-2023); (v) voluntary national Land Degradation Neutrality targets for afforestation, soil conservation, and rehabilitation of forest lands and pastures per the commitments under the United Nations Convention on Combating Desertification and National Strategy and Action Plan to Combat Desertification (2015-2023); and (vi) water quality and quantity as well as disaster reduction objectives in line with the EU Water Framework Directive, EU Flood Directive, Drinking Water Directive, Urban Waste Water Directive, and EU Integrated Environmental Approximation Strategy (2007-2023).

22. **The project is aligned with the World Bank Group's Country Partnership Framework (CPF) for Turkey for FY18-FY21 (Report No. 11096-TR; discussed on August 29, 2017) that was extended through the Program and Learning Review (PLR) (Report No. 14253-TR; discussed on March 12, 2020) to cover the FY22-FY23 period.** The CPF/PLR sets out the overall objective of supporting Turkey in achieving more sustainable and inclusive development by focusing on growth, inclusion, and sustainability dimensions. The project will contribute to meeting the revised CPF objective 9 (Strengthened Results Under Climate Action Agenda) under the Sustainability CPF focus area to help Turkey orient its growth toward a more resilient and sustainable trajectory. The project will also contribute to meeting CPF objective 5 (Increased labor force participation of women and vulnerable groups) under the Inclusion focus area by supporting vulnerable communities in lagging rural areas with income generation and livelihood diversification. The project will also contribute to scaling up climate action under Priority III of the World Bank Group (WBG) Climate Action Plan 2016-2020 and meeting the development priorities under the Europe and Central Asia Climate Action Plan 2017-2020 (currently being updated) through investments in sustainable land use management and landscape restoration that are also beneficial for water and food security in the future.

[30] In the USA alone, NBS solutions for restoring degraded land and conservation activities generate an estimated US$3.8 billion per year and currently sustain 126,000 jobs.

23. **The project will directly support Pillar 2 (Protecting Poor and Vulnerable People) and Pillar 4 (Strengthening Policies, Institutions and Investments for Rebuilding Better) of the WBG COVID-19 Approach Paper, in line with the adjustments made to the CPF** (see Annex 7). It will help Turkey support the recovery of local economies in rural areas in a more sustainable and resilient way. It will also support labor-intensive programs that can create jobs quickly, for example, in rehabilitation and sustainable management of forests and pastures, upgrading and construction of road and water infrastructure, and investment in agricultural and livelihood diversification. These activities also generate long-term benefits thanks to reduced water scarcity or flood damages, lower carbon emissions, and higher agricultural productivity and food security.

II. PROJECT DESCRIPTION

24. **Project approach.** The proposed project will support the Government of Turkey (GoT) in addressing the multitude of environmental and socio-economic challenges facing the BRB in the Eastern Black Sea and the CRB in the Central Anatolian Region. The project will also contribute to enhancing the livelihood security and resilience of local communities and ecosystems in these basins against the risks and impacts of climate-induced landslides, flooding, and drought. The project will adopt an integrated landscape management approach in the targeted basins to achieve these objectives through synergies between green and gray infrastructure, while balancing between urgent needs and long-term benefits. Building upon the GoT's and the World Bank's previous experiences in watershed rehabilitation, this project will implement a participatory planning process to incorporate inputs from different stakeholder groups, allowing for the coordination and integration of solutions among various government agencies and between government and local stakeholders. Using Bolaman and Cekerek as proofs of concept, the project will set in motion a national program for landscape resilience and sustainable recovery in lagging rural areas. Component 1 will finance a variety of green and gray infrastructure measures, including afforestation, reforestation, forest rehabilitation, and small-scale erosion, flood, and landslide control works upstream; combined with resilient infrastructure systems mid and downstream for water storage, irrigation, flood and sediment control, and the rehabilitation of rural roads to strengthen climate and disaster resilience. These green and grey infrastructure investments will be combined with support for the adoption of sustainable management practices in agricultural and pasture lands, including support for sustainable and climate-smart production, selected value chain enhancements, and livelihood diversification activities. Component 2 will finance technical assistance for scaling-up the project approach to other priority areas and developing a national strategy for landscape resilience and sustainable recovery, and the necessary institutional capacity building for implementing such strategy; as well as all related project management activities, including monitoring and evaluation and environmental and social risk management.

A. Project Development Objective

PDO Statement

25. The project development objective is to strengthen integrated landscape management and increase access to improved livelihood opportunities and resilient infrastructure services for rural communities in targeted areas of Turkey.

PDO Level Indicators

26. The key results expected by the project and respective PDO indicators are:
    i. National Strategy for Landscape Resilience developed (Yes/No)
    ii. Land area under sustainable landscape management practices (ha)

iii. Poor households benefitting from improved livelihood opportunities supported by the project (Number)
iv. People provided with access to resilient infrastructure services included in an integrated NRM plan (Number). Composite indicator including the following supplemental indicators:
    a. People provided with access to protection against flooding and/or landslides
    b. People provided with access to improved water sources
    c. People provided with access to improved irrigation schemes
    d. People provided with access to rural roads rehabilitated for climate and disaster resilience

27. Additional indicators on gender, climate, and citizen engagement are included in the project's Results Framework.

B. Project Components

28. **Component 1: Investments in Resilient Landscape Integration in targeted areas (US$127.51 million).** This component will finance an integrated set of investments in the forestry, agriculture, water, and transport sectors implemented by the General Directorate (DG) of Forestry (OGM), the DG of Agricultural Reform (TRGM), the DG of State Hydraulic Works (DSI), and the DG of Highways (KGM), respectively. The project will deploy an integrated landscape management model under a framework approach, aimed at building the resilience of natural resources and rural livelihoods in targeted basins. This will be achieved through investments aimed at addressing the multifaceted constraints in these basins that result in higher rural poverty and outward migration, including natural resource degradation, water insecurity, and vulnerabilities to climate and disaster risks. As infrastructure solutions are urgently needed to address these challenges in the targeted basins, a selected subset of investments will be initiated during early project implementation as concrete no-regret measures defined as first steps in a process that ensures sustainable development and future resilience. During the first year of project implementation, the project will develop Integrated Landscape Management Plans (ILMPs) for each basin building on the participatory processes and Strategic Environmental and Social Assessments (SESA) carried out during project preparation. ILMPs will determine the locations of NBS and green infrastructure measures that will complement the gray infrastructure systems at the landscape scale to optimize the combined function of green and gray interventions. This component will include two subcomponents covering the set of green and gray infrastructure subproject typologies identified for the selected basins, respectively. The Project Operational Manual (POM) will prescribe the relevant policies and procedures for project implementation, including for the selection and management of subproject activities under this component (see Annex 1 for details).

29. **Subcomponent 1.1: Green infrastructure and sustainable livelihoods (US$58.84 million).** The objective of this subcomponent is to restore and maintain the health, function, and productivity of critical ecosystems and promote sustainable land uses within the target basins to improve the sustainability of the natural resource base, enhance the livelihood security of local communities, and build resilience against climate-induced hazards. This subcomponent will finance a range of investments which will be planned in a participatory manner with targeted communities through the development of priority Micro-Catchment Plans (MCPs) in each respective basin. Investments will include a variety of green infrastructure measures, sustainable and climate-smart agricultural practices, and livelihood diversification activities to be implemented by OGM and TRGM through their Regional and Provincial offices. The project will maximize the synergies among different interventions to the extent possible. Green infrastructure will strengthen ecosystem services for long-term climate adaptation and mitigation co-benefits such as soil, water and sediment retention, flood and landslide risk reduction, and carbon sequestration. These benefits will help sustain productive agriculture and build resilience in the long run. Green infrastructure will also provide habitats for enhanced biodiversity and generate economic benefits through nature-based tourism. Income

generation and livelihood diversification for the rural poor will enhance their livelihood security and welfare, help reduce pressure on the forest ecosystems, and could contribute to reducing outward migration. Livelihood enhancement will be achieved through improvements in agricultural productivity, diversification of farm products, and value enhancement of select products. Sustainable land use practices will be promoted through livelihood diversification activities (i.e., use of greenhouses, manure management) and demonstrative climate-smart agricultural practices. Investments targeting improved production and diversification initiatives will have a strong emphasis on market demands, with training and support for improving market access, including for establishing producer-buyer linkages and enhancing product quality and/or differentiation. This subcomponent will include two parts, implemented by OGM and TGRM, respectively.

30. **1.1.A. Forest landscapes and livelihoods upstream.** This sub-component will be implemented by OGM. It aims to enhance landscape resilience and the long-term livelihood security for upland forest communities in the targeted basins through NBS measures, small-scale works, and livelihood investments. Subproject typologies include:
    (i) *Small-scale erosion, landslide, and flood control works upstream* aimed at conserving soil, reducing erosion and sedimentation, mitigating landslides, and decreasing runoff, peak flow, and magnitude of flooding downstream. Activities under this subproject typology will include: (a) preparatory studies for the design of erosion, landslide, and flood control measures; (b) soil conservation and erosion control works (i.e., terracing, revegetation, wire mesh fences, etc.); and (c) upstream flood and landslide control small works (i.e., retaining walls, etc.).
    (ii) *Forest rehabilitation and sustainable management* activities aimed at protecting, restoring, and maintaining the health and functionality of basin forests to deliver critical ecosystem services, including soil cover protection, erosion prevention, water retention and regulation, climate adaptation (i.e., buffering against floods and extreme events) and mitigation (i.e., carbon sequestration). Activities supported under this subproject typology include: (a) afforestation and reforestation; (b) forest rehabilitation; (c) maintenance of young forests; (d) production of saplings; (e) production of non-timber forest products; (f) establishment of small facilities for enhancing the ecotourism potential of the target basins; and (g) support, through matching grants, for the adoption of alternatives to fuelwood for cooking and heating (i.e., solar energy heating systems and roofing and insulation materials) in order to reduce pressure on forest resources.
    (iii) *Forest pasture rehabilitation and sustainable management* activities aimed at improving the health, carrying capacity, and productivity of pastures in and adjacent to forest lands upstream to support forest communities' livestock farming in a productive and sustainable way. Healthy pastures will also help reduce methane emissions, improve carbon pools, minimize soil erosion, improve water retention upstream, and reduce runoff downstream. Activities under this subproject typology include: (a) grazing land rehabilitation and management (i.e., restoration of degraded pasture lands, rotational grazing, etc.); and (b) establishment of small facilities for livestock welfare and productivity.
    (iv) *Income generation and livelihood diversification for forest villages* aimed at creating new income-generating opportunities to directly enhance the livelihood security for poor forest communities and reduce the pressure on forest ecosystems upon which these communities traditionally depend. During the participatory micro-catchment planning process, beneficiaries will select options from a range of income-generating activities pre-identified through the stakeholder engagement process during project preparation. These activities will be supported on a cost-sharing basis through small matching grants, including: (a) horticulture (i.e., cultivation of alternative high-value products such as truffle and berries); (b) animal husbandry (i.e., small scale high-yield cattle breeding and farming); (c) sustainable apiculture; and (d) women-led enterprises in forest villages.

31. **1.1.B. Sustainable and climate-smart agricultural value chains.** This sub-component will be implemented by TRGM. It aims to improve livelihood opportunities for rural communities through the promotion of sustainable and climate-

smart agricultural practices and the enhancement of selected value chains in targeted areas. Diversifying livelihoods and promoting sustainable and climate-smart agricultural production will help protect the natural resource base, improve farm productivity, and strengthen communities' adaptation and resilience capacity. Agricultural value chain investments will help boost the marketability and value of select local products. Subproject typologies include:

(i) *Sustainable and climate-smart agricultural practices* aimed at reducing soil erosion, conserving water, and enhancing nutrient capture to improve farm productivity and minimize harmful agricultural runoff. Activities will be tailored to the specific conditions of each basin and guided by sustainability and climate-smart criteria. Activities supported under this subproject typology include: (a) preparatory studies for soil management; (b) dissemination of high quality and climate-resilient seeds; and (c) matching grant support for the promotion of cultivation techniques for soil health and water retention, Good Agricultural Practices (GAPs) for selected crops, and small water-efficient irrigation systems. The project will not implement such measures on a massive scale; rather, it will aim to have a demonstrative effect to encourage and facilitate land users themselves to adopt more productive and protective land management systems across the basins.

(ii) *Pasture rehabilitation and sustainable management.*[31] As in the case of forest pastures above, activities under this subproject typology will support improvements in: (a) grazing land rehabilitation and management; combined with (b) establishment of small facilities to enhance livestock welfare and productivity (i.e., animal sheds with feed storage, caregiver houses, and livestock drinking water systems, etc.). These investments will help improve the resilience of livestock systems, as well as the productivity, carrying capacity, and climate mitigation potential of rural pasture lands by increasing fodder quantity and quality, reducing methane emissions, improving carbon pools, minimizing soil erosion, and providing a sustainable resource base for the activities supported under the following subproject typology.

(iii) *Agricultural diversification and sustainable value chains for rural villages,* aimed at promoting income diversification of poor rural communities and enhancing the performance of selected value chains suitable for the selected basins. These activities will be supported on a cost-sharing basis through small matching grants, including: (a) supporting enhanced production and market linkages of existing value chains, such as cattle/dairy cattle (e.g., via improved breeds, application of good animal husbandry practices such as improved animal health services, on-farm manure management, etc.); hazelnuts (e.g., via improved postharvest drying process to reduce spoilage and enhance quality and value); and beekeeping (e.g., via enhanced quality production and product differentiation), among others; (b) expanding opportunities for income diversification in new products/markets, for example, via cultivation and strengthening market linkages for high value products such as truffles, persimmon, dates, mushrooms, fruits, etc.; (c) supporting women-led enterprises in rural areas to enhance product quality and support product differentiation in the market place; and (d) support for youth employment initiatives in the agricultural sector. By helping rural communities diversify livelihoods vulnerable to climate change impacts, these investments will also help build their adaptation and resilience capacity.[32]

32. **Subcomponent 1.2: Resilient gray infrastructure (US$68.67 million).** The objective of this subcomponent is to help local communities in the targeted basins adapt to the impacts of climate change, including floods, sedimentation, landslides, and droughts, through improved access to resilient infrastructure services for protection against climate-related disasters, water storage, irrigation water supply, and year-round mobility. These investments will be

[31] In accordance with the Pasture Law No. 4342, OGM carries out rehabilitation activities in the pasture lands inside and adjacent to forests, while TRGM is responsible for pasture lands outside forests.

[32] The main agricultural products in BRB (hazelnut) and CRB (field crops) are highly vulnerable to the impacts of climate change. Hazelnut production is impacted by changes in seasonal temperature and precipitation patterns and extreme climatic conditions such as early spring frosts, hails, and heavy precipitation; field crops, such as wheat and barley, are adversely impacted by increased and prolonged droughts. As the majority of farmers in BRB and CRB depend on these key agricultural products, diversifying from these vulnerable livelihood sources, including a shift to more climate-resilient products, will help reduce their vulnerabilities and build resilience to the impacts of climate change.

appraised through subproject-specific feasibility studies, economic analysis, and environmental and social assessments. Engineering designs will incorporate suitable climate and disaster resilient measures through specific resilient infrastructure guidelines developed for the planned subproject typologies based on basin-wide vulnerability assessments carried out during project preparation. Green infrastructure will be designed to complement the gray infrastructure and optimize the functionality, cost-effectiveness, and resilience of the integrated natural and built system. This subcomponent will include two parts, implemented by DSI and KGM, respectively.

33. **1.2.A. Resilient infrastructure for water security.** This subcomponent will be implemented by DSI. It aims to provide local communities with resilient infrastructure systems for drinking water storage, irrigation water supply, protection against climate-induced flooding, and sedimentation control. Subproject typologies will include:
    (i) *Dams and small-scale multipurpose reservoirs* will store and protect surface water sources and ensure water availability during low precipitation months and periods of seasonal droughts to enable the supply of drinking and irrigation water. The reservoirs will contribute to preserving and increasing groundwater reserves through reduced groundwater extraction. Depending on the location, reservoir capacities, and flood peaks, the reservoirs will have multiple functions, such as stream flow control to prevent and minimize flooding incidents.
    (ii) *Irrigation works*, including small irrigation ponds and irrigation systems, will supply water to support agricultural activities in targeted basins with drought and/or water scarcity problems. The availability of irrigation water will help local communities in these basins adapt to current and future climate change impacts and improve their agricultural productivity and farm incomes. Irrigation technologies will be drip and low-pressure sprinkler systems, which will save both water and energy and hence be more efficient and cost-effective.
    (iii) *Flood and sedimentation control structures* downstream will prevent and mitigate the impacts of floods, which have caused loss of life and significant damages to local infrastructure, properties, and agricultural assets, and are even more damaging with landslides occurring during periods of heavy precipitation. Flood and sediment control structures will include check dams, levees, retaining walls, embankments, culverts, bridges, concrete channels, grouted riprap, and stream bed rehabilitation, among others. Specific locations will be determined through hydraulic modeling, historical flood records, flood risk mapping, and other relevant analysis.

34. **1.2.B. Resilient mobility.** This sub-component will be implemented by KGM. It aims at enhancing the resilience of selected rural road segments in targeted basins against climate and disaster risks and improving local communities' year-round mobility and access to markets for employment and commercial opportunities. In BRB, for example, heavy precipitation, flooding, landslides, and rockslides have deteriorated the rural road network, causing traffic disruption, posing safety issues, and impeding the flow of goods and people. Improving the conditions and functionality of critical road segments in this basin will facilitate local labor mobility and transportation of agricultural goods and contribute to encouraging tourist inflows. Subproject typologies will include:
    - *Resilient rural road rehabilitation* will include widening of the lane width to standard levels (by additional 2m) to meet safety requirements and resurfacing using hot mix bituminous asphaltic concrete (BSK), a water and weather-resistant material, to fill in existing cracks and fix raveled surfaces in the selected road segments. BSK will protect the underlying pavement and prevent surface material from washing away from heavy rainfalls and flooding. Comparing to the current surface conditions, BSK will also increase skid resistance to improve traffic safety, decrease vehicle operating costs due to lower surface roughness, and withstand occasional overloads without causing any severe damage. The rehabilitation will also incorporate measures such as drainage systems and protective walls to strengthen the existing road's resilience against climate and disaster risks and impacts.

35. **Component 2: Institutional Framework, Project Management, and Sustainability (US$7.49 million).** This component aims to strengthen the capacity and coordination among TULIP Implementing Agencies (see para 51) to

ensure not only effective and efficient project implementation, but also the establishment of sustainable institutional structures and processes to support integrated landscape planning and management in both the project area and elsewhere. Scaling up the project's Integrated Landscape Management model to other vulnerable rural areas will enable adaptation and resilience building, job creation, and sustainable recovery from the pandemic on a large scale. This component will be implemented by OGM and will include the following two sub-components:

36. **Sub-component 2.1: Implementation Framework for Integrated Landscape Management (US$3.11 million).** This sub-component will support the development of a national strategy for landscape resilience and sustainable recovery for vulnerable rural areas, and the necessary institutional framework and capacity building to support its implementation. The implementation framework for integrated landscape management will prioritize, guide, and facilitate landscape restoration and integrated NRM, sustainable livelihood support, and resilience and adaptation building activities in rural areas vulnerable to climate and disaster risks. Activities under this component will include: (i) support for the establishment of the implementation framework for Integrated Landscape Management, including the development of a national strategy for landscape resilience and sustainable recovery in vulnerable rural areas and the associated regulatory mechanism for institutional coordination; (ii) technical assistance for the development of guidelines to support the implementation of the national strategy for landscape resilience, including for the design of integrated planning tools at the landscape level combining green and gray infrastructure solutions (ILMPs, MCPs, and others); (iii) assistance for the development of ILMPs and MCPs for the BRB and CRB; (iv) support for the development of feasibility studies and Environmental and Social (E&S) tools, as needed, for additional priority basins; and (v) capacity building and awareness-raising for relevant institutions, local authorities, and rural communities for the implementation of sustainable landscape management practices, including on dam safety issues.

37. **Sub-component 2.2: Project management and sustainability (US$4.38 million).** Activities under this sub-component will include support for a Project Coordination Unit (PCU) and Regional Support Teams (RSTs) under OGM, and Project Implementation Units (PIUs) under KGM, TRGM, and DSI for: (i) strengthening capacity for day-to-day project management on technical, fiduciary, Monitoring and Evaluation (M&E), E&S issues; (ii) E&S risk management, including preparation of site-specific E&S instruments and dam safety issues; (iii) grievance redress, citizen engagement, and communications; and (iv) M&E of project activities, including impact assessments, beneficiary satisfaction surveys, and development of an integrated data platform for monitoring of key landscape variables.

38. **Climate change.** Climate change is expected to result in more frequent and severe incidences of floods, more prolonged arid seasons, and a reduction in surface water availability across Turkey. Climate change will also further exacerbate soil erosion and sedimentation and increase the risks of landslides in vulnerable locations. The BRB is already highly prone to soil erosion, landslides, and floods. The CRB is vulnerable to drought, soil erosion, and landslides. Climate change will most likely exacerbate the risk, frequency, and magnitude of these problems, threatening community safety and adversely impacting local infrastructure systems and agricultural production. The availability of drinking water will also be negatively affected due to the likelihood of more prolonged dry seasons and drought periods. The project is designed to enhance the adaptation and resilience capacity of local communities against climate change impacts and climate-related hazards. The project will do so by implementing integrated green-gray infrastructure solutions for mitigating and building buffer against landslides and floods; increasing storage capacity to ensure water availability for drinking and irrigation; strengthening rural road systems for climate and disaster resilience; and promoting sustainable land use and climate-smart agricultural practices to protect the natural resource base and enhance local communities' livelihood security. The project will therefore generate significant adaptation and mitigation co-benefits. Specifically, adaptation co-benefits will be produced through: small-scale erosion, landslide, and flood control works upstream, forest and pasture rehabilitation and sustainable management,

and livelihood, agricultural diversification, and value chain investments under subcomponent 1.1.A and 1.1.B; investments under subcomponent 1.2.A that enhance water security (i.e., dams and multipurpose reservoirs, and irrigation works) and protect against climate risks and hazards (i.e., flood and sedimentation control structures); climate-resilient road rehabilitation under subcomponent 1.2.B; and the development of a national program for landscape resilience under subcomponent 2.1. Several of the investments listed above (i.e., forest management and rehabilitation, soil erosion prevention, and water and energy-efficient irrigation systems) will also yield mitigation co-benefits. Additional mitigation co-benefits will be generated through pasture management and rehabilitation, livestock productivity improvement, and climate-smart agriculture under subcomponents 1.1.A and 1.1.B.

39. **GHG Accounting.** For agricultural and forestry investments, the project's estimated gross and net emissions over its economic lifetime of 20 years are -1,716,795 tCO2e and -2,244,320 tCO2e, respectively; annual net emissions are -112,742 tCO2e per year. For water investments, the project's estimated gross and net emissions over its economic lifetime of 35 years are 26,350 tCO2e and -6,337 tCO2e, respectively; annual net emissions are -181 tCO2e per year. For road investments, the project's estimated gross and net emissions over its economic lifetime of 20 years are 199,142 tCO2e and -4,187 tCO2e, respectively; annual net emissions are -209 tCO2e per year. In aggregate, the project's total estimated gross and net emissions over its economic lifetime are -1,491,303 tCO2e and -2,254,845 tCO2e, respectively. The total estimated annual net emission reductions of the project are -113,133 tCO2e per year.

40. **Gender.** Turkey has a low ranking in the *Economic Participation and Opportunities* category of the Global Gender Gap Index[33]. Women in the country have lower levels of financial inclusion. According to the Global Findex Survey 2018, 70% of Turkish men had formal accounts, compared with only 44% of women. The gender analysis carried out by the project[34] includes several key project-related gender gaps, actions to address them, and indicators to monitor progress in line with WBG Gender Strategy objectives, i.e., 2: Removing Constraints for More and Better Jobs; 3: Removing Barriers to Women's Ownership and Control of Assets; 4: Removing Barriers to Women's Ownership and Control of Assets. The gender analysis identified relevant gender gaps concerning various factors typically related to constraints on women's employment decisions and choices, including gaps in education and skills, occupational sex segregation, mobility constraints, care, and domestic responsibilities, amongst others. Gender and social norms tend to influence the way that these constraints manifest. The project will design actions to narrow several gender gaps (i.e., access to infrastructures for drinking water and irrigation, women's voice and agency in rural committees, etc.). However, greater attention will be paid to reduce gender gaps in women's access to agricultural investments. The WB Enterprise Survey[35] indicates that the share of female participation in firms as owners and managers is low (3.9% for both) in Turkey. In rural areas, women are largely involved in informal agribusinesses, which clearly shows that women will require more support (financial and technical) as they move from informal to formal sectors. Data indicates that women-led microenterprises in Turkey face constraints in access to finance due to lack of entrepreneurial and technical skills, start-up finance, management skills, information, and access to business support, among other barriers[36].

41. The project will increase women's participation in and access to income-earning opportunities and enable the ownership and control of productive assets by providing technical and financial support to women-owned or led

[33] World Economic Forum, 2019. Global Gender Gap Report 2020.
[34] The SESAs of the project includes a gender analysis of the conditions, needs, and aspirations of women and men living within the BRB and CRB, which included direct consultation with women in the planning of project interventions.
[35] Enterprise Surveys *www.enterprisesurveys.org*, The World Bank.
[36] Brock, J. M. and De Haas, R., 2019. Gender discrimination in small business lending. Evidence from a lab-in-the-field experiment in Turkey. EBRD Working Paper No. 232, European Bank for Reconstruction and Development; Demirgüç-Kunt, A., et al., 2018. The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. Washington, DC: World Bank.

enterprises. Women entrepreneurs will be given extra attention to ensure their enterprises have proper financial and technical support (vocational training, capacity building activities, help with business licenses, etc.). To monitor the progress of closing the gender gap in women's access and control of assets, an indicator "*Number of female-owned businesses or associations supported (financially) by the Project (Number)"* has been included in the Results Framework. In addition, the project will adopt a number of measures and mechanisms to support women's active participation more broadly, including selecting service providers with proven capacity in working with women; separate sessions with women to ascertain their opinions and needs; access to child care during training hours; preferential access for women to appropriate activities on a demand-driven basis etc. Furthermore, gender disaggregation will be applied in Project M&E and knowledge management systems whenever possible. A more detailed description of the gender gaps, actions, and indicators is included in Annex 4.

42. **Citizen Engagement (CE).** The project will develop and implement a CE strategy that will be included in the POM. The CE strategy will be designed to actively and regularly solicit unrestricted feedback through multiple channels from citizens and project beneficiaries on project activities as well as the CE process itself. Based on the extensive stakeholder engagement carried out during project preparation through the SESA, the CE strategy will build on the project's Stakeholder Engagement Framework, which outlines mechanisms and actions for enhancing multi-stakeholder dialogue and inclusion throughout the project cycle. The project will implement a participatory planning approach as part of the development of MCPs to engage citizens in the decision-making process for determining activities under subcomponent 1.1. The outreach and engagement strategy for the participatory planning process will include specific measures to be inclusive of vulnerable groups and to identify the priority needs of local communities in an inclusive manner to ensure equitable distribution of project benefits. A Grievance Mechanism (GM) will be established and communicated to local stakeholders during project implementation. This GM will be functional throughout the project duration and will be open to allow citizens to provide unrestricted feedback on any issue pertaining to the project. Additionally, beneficiary satisfaction surveys will be carried out biennially and include qualitative and open questions to ensure a two-way feedback process. An annual stakeholder forum will also be held in each basin to communicate the project progress, publicize the results of the biennial beneficiary satisfaction surveys, report on the functioning of the GM, and obtain feedback on the CE process. The project will include experts who will act as CE facilitators in these forums to encourage active participation and dialogue. The CE strategy and its mechanisms will be adjusted based on the feedback received through the multiple channels. Under Component 2, the project will also support capacity building for government officials and community leaders on CE and efficient response to beneficiary/citizen needs. Finally, the project Results Framework includes an indicator to measure improvement in the CE process.

C. Project Beneficiaries

43. The direct beneficiaries of the project are the local populations in the Bolaman and Cekerek river basins. A total of 90,000 people (out of which about 50% are women) in BRB and CRB will benefit from increased access to resilient infrastructure for flood protection, drinking water storage, irrigation supply for agricultural production, and improved road conditions to facilitate mobility and market access. In addition, approximately 13,000 poor households in forest village communities who depend on pastures and forest resources will benefit from green infrastructure and livelihood diversification activities; and about an additional 20,000 farmers will benefit from technical support for adopting of sustainable agricultural practices and assets for agricultural diversification activities. Project interventions will also generate a significant number of direct and indirect jobs. Temporary jobs will be created through labor-intensive investments in NBS and ecosystem restoration, construction, and civil works. Permanent jobs will be created directly through investments in selected value chains. Investments supporting ecotourism and value

chain enhancement will potentially facilitate job creation in the future through developments in these respective sectors. The project will also enhance the natural capital base and conditions in these basins to sustain long-term economic growth and social development for local youth and contribute to preventing out-migration. A healthy and resilient landscape will provide many beneficial ecosystem services, including water retention and regulation, surface soil retention and protection, buffering against climate risks and natural disasters, carbon capture, improved air quality, and resources for local socio-economic development.

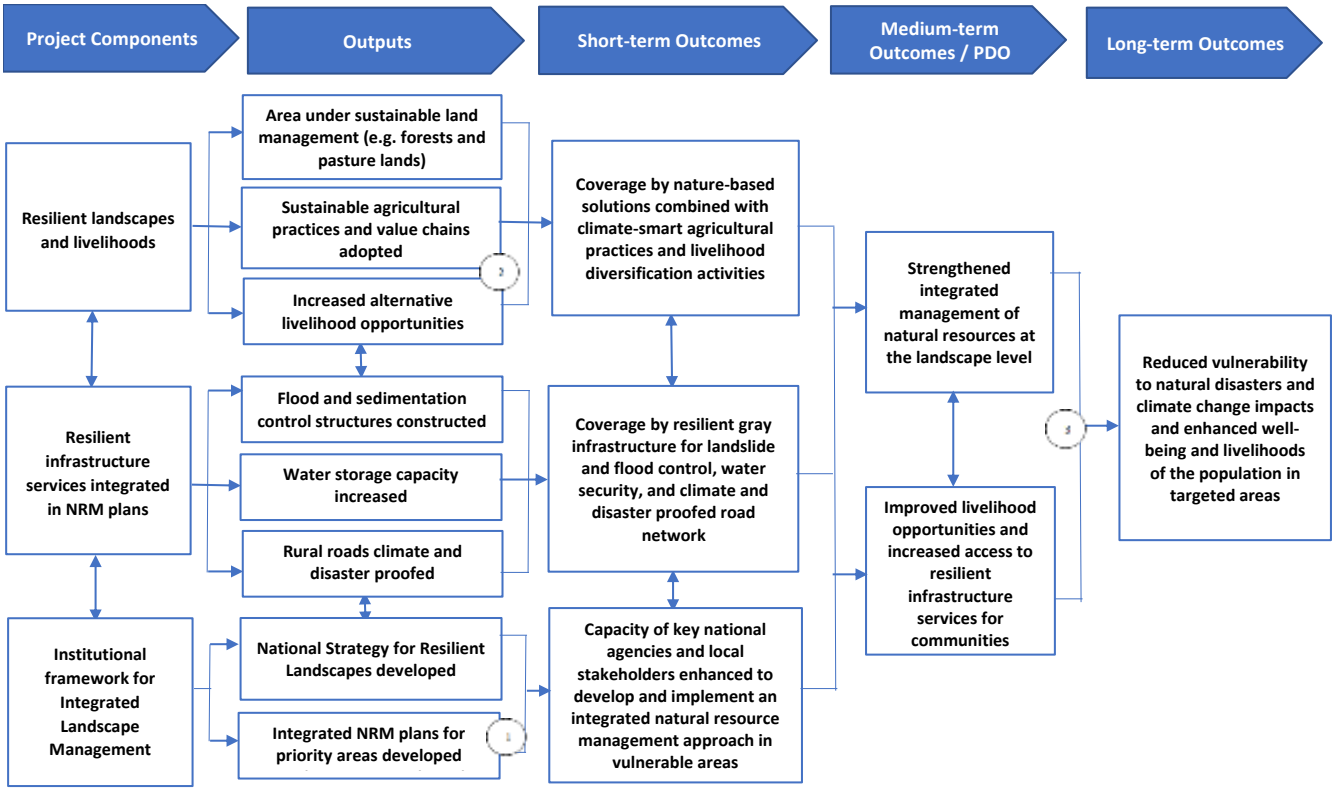
44. The project Implementing Agencies, including OGM, TRGM, DSİ, and KGM, their staff at the national and local levels, as well as the provincial and local governments, will directly benefit from technical assistance and institutional capacity building for sector-specific activities, as well as for integrated landscape management. Scaling up the project approach through a national strategy will enable adaptation and resilience building on a large scale.

D. Results Chain

45. **Theory of Change and Project Design**. The central problem statement the project tries to address is that the degradation of natural resources and unsustainable land use, coupled with climate change, and the challenges in institutional coordination for integrated provision of infrastructure services for landslide and flooding control, water storage, and mobility are affecting the well-being and livelihoods of the local population in the targeted basins. The proposed operation will address these issues through six groups of interventions: (i) restoration of ecosystem functions and services; (i) promotion of sustainable land use practices and diversification of rural livelihoods; (iii) construction of resilient flood and sedimentation control structures; (iv) construction of resilient water facilities for drinking water storage and irrigation water supply; (v) climate and disaster-proofing of rural road network; and (vi) development of a national framework and tools for strengthening of institutional capacities for integrated landscape management. These groups of activities, organized under two components, are expected to strengthen integrated management of natural resources at the landscape level and increase access to climate-resilient infrastructure services for flood and landslide control, water and irrigation services, and mobility for communities under the project lifetime. In the long run, these outcomes will help reduce the vulnerability to natural disasters and climate change impacts and enhance the well-being and livelihoods of the populations in the targeted basins and other vulnerable areas.

TULIP Theory of Change

Problem statement: Degradation of natural resources and unsustainable land use, coupled with climate change, low interinstitutional coordination for integrated natural resources management, and the lack of appropriate infrastructures for landslide and flooding control, water security, and local mobility are affecting the well-being and livelihoods of vulnerable populations in lagging rural areas of Turkey.



Critical Assumptions: (1) lack of coordination among institutions will not hinder effective project implementation in an integrated manner; (2) farmers will respond favorably to proposed package of sustainable land use practices; (3) climate change and other exogenous variables (e.g. earthquakes) will not reduce expected outcomes in the long-term.

E. Rationale for Bank Involvement and Role of Partners

46. **World Bank value addition.** The World Bank has a history of supporting watershed management in Turkey, including support for the NBMS (2012) that provides guidance to State authorities for the medium and long-term investment programs regarding the protection, improvement and sustainable use of the natural resources in basins in Turkey. The World Bank's position as a convener and financier in NRM is well recognized after the experience of implementing two watershed rehabilitation projects, namely the Eastern Anatolia Watershed Rehabilitation Project (P009023) (1993-2001) and Anatolia Watershed Rehabilitation Project (P075094) (2004-2012), both of which supported sustainable NRM practices in micro-catchments in the Anatolia and Black Sea Regions and raised incomes of communities affected by natural resource degradation. The World Bank has also accumulated significant global experience with integrated and multi-sectoral watershed management approaches across the world, with substantial programs in countries such as China, India, and Vietnam that can provide valuable lessons and innovations to Turkey. At present, the World Bank is in the lead in developing a set of tools to employ integrated green and gray infrastructure to increase the resilience of local communities, while delivering environmental, social, and economic benefits. This hybrid approach -combining green and gray infrastructure measures- will be implemented in the Bolaman and Cekerek basins and will generate valuable lessons and knowledge for other areas in Turkey and the world through the World Bank's global network. Given the integrated and multi-sectoral nature of the project, the

World Bank can play a key role, through its convening power, in helping create and sustain the institutional arrangements for integrated development and foster open communications, especially between the implementing agencies and the involved municipal governments and representatives of smaller districts, villages, and rural areas supported by the project.

47. **The World Bank is well-positioned to help Turkey build an enabling institutional framework for replicating and scaling-up the integrated landscape management model.** As a part of this operation, the World Bank will support the development of a national strategy for landscape resilience and sustainable recovery in vulnerable rural areas. The project will also develop a replicable model for integrated NRM that can be taken up by future projects to be financed by other development partners or GoT resources. The integrated nature of this proposed operation calls for a range of technical know-how across relevant sectors and an in-depth understanding of the institutional context in Turkey. The World Bank has been a long-term partner to Turkey in multiple sectors, including natural and water resources management, agriculture, climate and disaster risk management, and transport. With its ability to draw on a wealth of experience from many similar operations across all the relevant sectors in other countries, the World Bank can facilitate knowledge sharing to provide innovative and evidence-based solutions such as NBS to address the multiple challenges associated with NRM in Turkey.

F. Lessons Learned and Reflected in the Project Design

48. The project will incorporate important lessons captured from the implementation of World Bank-financed projects worldwide and in Turkey, building on the country's successful experience in soil erosion management over the last decades. The following lessons learned have been reflected in project design.

- **Stakeholder participation and adaptive management are critical for building ownership, sustainability, and timely adaptation to changing needs and circumstances**. Experiences from both the Eastern Anatolia and Anatolia Watershed Rehabilitation Projects (P009023; P070950)[37] indicate that early involvement of key stakeholders in the project design is essential to ensure ownership and build commitment. Upfront stakeholder analysis is critical to identify losers and winners from specific interventions. All stakeholders should be included in the process, especially the poor and vulnerable so that their voices can be heard. The participatory approach also helps in developing and adopting the most appropriate interventions. Built-in flexibility to allow stakeholders to adapt project interventions to changing circumstances in a timely and cost-effective manner was also essential to the success of the Anatolia Project. Such flexibility prevented implementation delays and lags in disbursement and sustained stakeholder support. For example, agricultural activities such as crop production and orchards are generally seasonal in nature and can be impacted by the unpredictability of nature. The project will adopt a participatory approach for the development of ILMPs and MCPs during the first year of implementation and will consider adaptive management for interventions at the micro-catchment scale. Stakeholder analysis has been a central element of the project's social analysis.

- **Establishing a direct link between natural resource rehabilitation and tangible economic and social benefits is essential for increased uptake of NRM activities.** The best results are obtained where conservation techniques that are profitable for farmers can be developed, and a menu of interventions can be offered that combines income and conservation objectives. Giving stakeholders a secure stake in common-pool resources like forests and pastures, and ensuring that all users, especially the poor, have viable income alternatives when

[37] East Anatolia ICR (P009023); Anatolia ICR (P075094).

closure is involved are also important. The Anatolia project and other watershed projects implemented by OGM demonstrated that activities related to rehabilitation of degraded natural resources in rural areas have a higher uptake when tied to income-generating activities, especially in high poverty areas where protecting the environment per se is not a priority. When beneficiaries benefit economically from engaging in environmental rehabilitation and conservation activities, there is heightened interest and support for natural resource protection. Incentives to participate are improved by generating positive income streams from natural resources intensification, agricultural diversification, downstream processing and marketing, and new income-generating activities.[38] This lesson learned is reflected in the project's livelihood support interventions, which are highly relevant under the extraordinary circumstance of the COVID-19 global pandemic, in which jobs and livelihood security are stakeholders' primary concern.

- **Well-defined institutional arrangements, clearly designated responsibilities, and inclusion of all necessary expertise are crucial for successful implementation.** Different institutions in Turkey made joint efforts in planning and implementing integrated watershed management for the first time through the Eastern Anatolia Project. The project shows that clarity over each institution's responsibilities is an important factor for successful and effective interagency collaboration. The interface among local government, technical agencies, and community organizations needs to be carefully defined and managed. Additionally, it is important to explicitly identify and budget, and build in budget flexibility, to allow for the sourcing of necessary expertise as needed during project implementation. The limited success of pasture management in the Eastern Anatolia Project was attributed in part to a lack of relevant expertise that was not specifically identified and budgeted for at appraisal. The institutional arrangements under the proposed project will reflect this lesson learned, and the technical assistance under Component 2.1 will establish suitable long-term mechanisms for institutional coordination and collaboration for integrated landscape management. The project will also identify and source or build in budget flexibility to source all necessary expertise for successful implementation.

- **Capacity building at all levels and public awareness and communication are important for the widespread adoption of new practices.** The involvement and commitment of government agencies at various levels and community organizations are important factors contributing to project success. Local participation entails decentralization of technical functions, and capacity building is thus much needed. The Mid-Term Review of the East Anatolia Project noted that there were staff who had not been trained three years into implementation. The aggressive public awareness program to disseminate important information on the causes and impacts of natural resource degradation and the associated economic, social, and health benefits of adopting mitigation technologies/practices was also critical in achieving the Anatolia Project objectives. This project will include necessary capacity building activities under Component 2.1 for all IAs and their field staff to ensure all stakeholders are sufficiently equipped to support the project.

- **Successful design, implementation, and maintenance of NBS requires a systems perspective, integration with gray infrastructure, and a common understanding of the importance of NBS by all stakeholders early-on.** Through scoping studies on NBS and resilient infrastructure, the project has identified broad types and locations of NBS that can help address the typical challenges in Turkey's river basins (see Annex 5). The ILMPs that will be developed for each basin under TULIP will incorporate lessons learned and serve as an important instrument to help the different institutions to be aligned on the integration of NBS throughout the project cycle, from identification to implementation and maintenance. As awareness raising for NBS usually takes significant time,

[38] FAO, 2017. Watershed Management in Action; ICR of Anatolia Watershed Rehabilitation Project (P075094).

particularly for challenges in the fields of conventional engineering (i.e., flood protection and water security), green infrastructure has been communicated as one of the main interventions of the TULIP project from an early stage. Project activities will also include technical assistance and capacity building on NBS.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

49. **The responsibility for overall project management and coordination will lie with the General Directorate of Forestry (OGM) under the Ministry of Agriculture and Forestry (MoAF).** OGM is tasked with the protection and sustainable management of the country's forest resources, including soil rehabilitation and erosion control, and the implementation of integrated watershed rehabilitation projects under the Forest Code (Law No6831). OGM has previous experience in working with the World Bank (through the Anatolia and Eastern Anatolia Watershed Projects) and more recently with other development partners. It operates through 21 Departments located in its headquarters, 28 Regional Directorates of Forestry and 12 Research Institute Directorates, with a total of approximately 40,000 staff at the national level. A project preparation team led by the Head of the Soil Conservation and Basin Rehabilitation Department of OGM was established early on and has been working closely with other agencies in the preparation of the project in a coordinated way.

50. **Other agencies that will be involved in project implementation include the General Directorate of Agricultural Reform (TRGM) and the State Hydraulic Works (DSI) under the MoAF, and the General Directorate of Highways (KGM) under the Ministry of Transport and Infrastructure.** TRGM is tasked with improving living conditions in rural areas by promoting the country's agricultural development and competitiveness and supporting agricultural infrastructure and capacities. DSI is the state agency responsible for water resources planning, operations, and management. Its primary focus is to plan, design, construct and operate dams, hydroelectric power plants, water supply and wastewater treatment infrastructure, irrigation schemes, and implement structural flood protection and control measures. It has been affiliated with the MoAF since 2018. KGM is tasked with identifying, constructing, and maintaining highways, state and provincial road networks, and bridges to ensure safe transport across the country.

51. **A Project Steering Committee (PSC) will be established to ensure effective coordination among Implementing Agencies (OGM, TRGM, DSI, KGM).** The PSC will be chaired by the Vice-Minister of MoAF and include senior leadership from the Implementing Agencies (IAs) and representatives from other relevant institutions. The PSC will periodically review progress, provide policy guidance, and resolve potential bottlenecks in project implementation.

52. **Responsibility for day-to-day project management, coordination and supervision will be assigned to a Project Coordination Unit (PCU) and line agency-specific Project Implementation Units (PIUs).** The PCU will be housed under OGM, reporting directly to the Deputy Director General. It will be led by a Project Coordinator (PC) and will consist of a dedicated multi-disciplinary team with project management, technical, financial, procurement, M&E, and E&S experts satisfactory to the World Bank. The PCU will be responsible for overseeing overall implementation and management of the project, ensuring proper application of all project-related requirements, and preparing all project implementation documents. Central-level PIUs in each of the other IAs (TRGM, DSI, KGM) will be established to oversee Ankara-based project activities under their respective sub-components. At the basin level, the project will be implemented by the Regional/Provincial Directorates (RDs/PDs) of each IA and their respective Field Offices through Regional Implementation Units (RIUs). A Regional Support Team (RST) will be established in each basin and housed under OGM to strengthen field implementation capacity and institutional coordination. See Annex 1 for more

details on institutional arrangements, implementation modalities, and implementation support.

B. Results Monitoring and Evaluation Arrangements

53. **The overall project M&E will be under the responsibility of the PCU under OGM, which will be supported in this task by dedicated staff.** The PCU will coordinate with the PIUs of respective IAs at the central level on M&E activities, including for collecting data on their respective activities and results indicators per the project's Results Framework. The PIUs will provide periodic reports to the PCU in agreed formats specified in the POM. Semi-annual Progress Reports for monitoring implementation progress and results will be prepared by the PCU and submitted to the PSC and the World Bank for information and decision-making on corrective measures and annual work plans and budgets.

54. **The M&E system of the project will comprise both performance and impact monitoring.** Building on OGM's previous experience with watershed rehabilitation projects, the project M&E system will include both annual performance targets and special-purpose M&E indicators for impact assessments related to poverty and jobs, soil erosion and vegetation cover, agricultural productivity and water security, avoided damage from climate and disaster events, and improved mobility, among others. An integrated Monitoring Information System (MIS) will be developed and made publicly accessible to communicate results to project stakeholders on the dedicated project website. Participatory monitoring methods will be used where possible to create awareness among local communities by involving them in data collection and interpretation, and dissemination of results. The incremental costs for the Project M&E arrangements will be covered under Component 2 of the Project.

55. The PCU will carry out baseline, mid-term, and completion assessments to evaluate the achievement of project outcomes and impacts, including biennial beneficiary satisfaction surveys and E&S impacts. The mid-term review will also assess the overall implementation progress and identify and resolve any key issues affecting implementation. A final assessment will also be carried out at the end of the project to provide inputs for the Implementation Completion and Results Report to evaluate the final results, assess overall performance, and capture key lessons.

C. Sustainability

56. **The project will lay the foundations for future scale-up of the integrated landscape management approach that will be demonstrated in the Bolaman and Cekerek basins.** As a part of this operation, OGM will lead the development of a national strategy for landscape resilience and sustainable recovery in vulnerable rural areas. The project will also support the development of an integrated NRM model at the basin/sub-basin level and the preparation of feasibility studies for high-priority areas for near future investments. National and sub-national capacity for applying this integrated model for landscape management will also be strengthened through appropriate and targeted institutional capacity building. All these elements will form an enabling institutional framework to facilitate the replication and scale-up of the project's integrated landscape management approach in other vulnerable rural areas.

57. **The project will adopt a participatory planning approach at the micro-catchment level to ensure local stakeholders' buy-in and commitment.** The CE strategy to be included in the POM will inform the participatory planning approach for priority MCPs. Additionally, green infrastructure, livelihood, and agricultural diversification interventions will be designed based on sound technical, social, and financial analysis to achieve synergies between resource conservation and income generation. Beneficiaries will also be required to contribute some co-financing for some of these activities implemented through matching grants, starting from 40% for some activities. These factors are expected

to create a sound basis for local stakeholders' ownership and thus, ensuring the sustainability of project interventions at the local level.

58. The location of infrastructure subprojects will be informed based on basin-wide vulnerability assessment to minimize the impacts of climate change and natural disasters to enhance structural integrity and longevity. Resilient measures, as determined in resilient infrastructure guidelines, will also be incorporated into the design of gray infrastructure systems for water and transport subprojects. Additionally, NBS and green infrastructure will be designed with the aim to complement gray infrastructure systems, optimize their functionality, and extend their lifecycle. The project will also assess and carry out the necessary capacity-building activities to ensure both national and local stakeholders are well-equipped to take over the operation and maintenance (O&M) of the infrastructure systems financed under the project. Subproject O&M arrangements will be further specified in the POM.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

59. **Technical design.** The project builds on GoT's extensive experience and capacity in soil and water resources management. Project preparation has been carried out in close technical collaboration with the GoT to ensure appropriate design and inclusiveness across all the relevant IAs for strong ownership. Additionally, the project structure has been designed to ensure complementarities and efficiency among the different green and gray infrastructure measures planned under an integrated landscape management approach aimed at creating cumulative benefit accrual to the beneficiaries and the environment, while ensuring implementation effectiveness by maintaining clear roles and responsibilities among IAs for the implementation of each project component. Mechanisms will also be put in place to ensure efficient and effective coordination among all IAs (i.e., communication and reporting protocols, joint development, and co-signing of ILMPs, etc.). A Panel of Experts (POE) for dam safety will also support sound project design and quality in terms of dam safety. All other investments will follow applicable technical guidelines to be included in the POM (see Annex 1 for details). OGM and TRGM have a good track record in implementing watershed rehabilitation projects and developing MCPs for the activities under Component 1.1. Subproject investments under Component 1.2 have been pre-identified based on the strategic plans of DSI and KGM and their suitability assessed through the SESA. Detailed appraisal of each subproject will be carried out by the World Bank team during project implementation through subproject-specific feasibility studies and/or planning reports, engineering designs, and E&S instruments.

60. **Economic analysis.** The project will bring innovative measures in integrated NRM to the benefit of local communities. By increasing mitigation against erosion, flood, landslide, and drought risks and impacts in the BRB and CRB through a mix of green and gray infrastructure, the project will contribute significantly to reducing the degradation of natural and physical capital in these basins, while acting as a replicable model for scaling-up integrated landscape management in other vulnerable rural areas. Project interventions will generate climate resilience co-benefits through afforestation, forest and pasture rehabilitation, better water quality and water filtration, soil erosion reduction, flood/landslide and drought risk reduction, biodiversity preservation, and climate regulation from carbon sequestration. Furthermore, the project is expected to generate other co-benefits, including improved livelihoods and poverty reduction through increased agricultural productivity and income diversification, improved water availability to support people's health, increased economic opportunities as a result of road improvements and better access to potential economic opportunities through better market access and tourism. Gray infrastructure measures control residual risks not addressed by green infrastructure, in safeguarding local communities' livelihoods.

61. **Economic analysis results and justification for public provisioning of finances are strong.** [39] The economic analysis considers the incremental benefits of nine categories across BRB and CRB to cover: (i) the reduction of flood and landslide repair costs; (ii) forest rehabilitation; (iii) pasture rehabilitation; (iv) fuelwood use reduction; (v) agricultural diversification and productivity; (vi) irrigation; (vii) erosion control; (viii) road improvements; (ix) water supply and people's health. Total project benefits, with total economic values for costing of USD 146 million[40], returns a Net Present Value (NPV) of US$65.3 million, an economic internal rate of return (EIRR) of 12.8%, and a benefit-cost ratio (BCR) of 1.42, using a social discount rate of 6%. In Bolaman, where precipitation is 30% higher and more erratic than 40 years ago, returns are driven mainly by savings in flood and landslide repair costs. In Cekerek, changes in agronomic practices with the availability of irrigation and flood control drive the benefits. In Bolaman, the economic analysis returns an NPV figure of US$49.9 million, an EIRR of 17.9%, and a BCR of 1.70. In Cekerek, the economic analysis returns an NPV figure of US$ 24.7 million, an EIRR of 11%, and a BCR of 1.32. All figures are without GHG sequestration benefits and the SPC.

62. **Sensitivity analysis demonstrates that the project can absorb substantial negative impacts**, including delays in the start of project benefits, increases in costs and decreases in benefits, reduced adoption rates, and an increased discount rate - and still generate an EIRR above the 6% discount rate. Benefits or costs would have to either decrease or increase by 30% for the project to reach a negative NPV. The project is projected to reach payback in year 13 of the discount period. Total cost estimates are based on the investment and recurrent costs of project implementation from project years 1 to 7, plus an average annual maintenance cost of US$ 3.2 million (or 6%) from years 2 to 20. Adding the shadow price of carbon (SPC) to the analysis increases the EIRR from 12.8 to between 19.4, 24.3, and 32.9%, when using the World Bank standard rates for the market, low and high SPC. Global benefits of carbon sequestration contribute an estimated 63.1% of overall project benefits when using the market SPC of US$ 8/tCO2.

63. **Development Impact and Poverty Reduction.** The project makes significant efforts to address poverty in forest villages, where income is heavily reliant on forest-dependent sources. By improving agricultural productivity and diversifying incomes away from forest products, the project is projected to increase the incomes of direct beneficiaries by generating additional ecosystem services per farming household. Villagers and farmers outside of forest villages will also benefit from agricultural investments contributing to productivity and livelihood gains. Improved water supply, water quality, and modernization of irrigation schemes for greater efficiency will contribute to better water servicing and management, while improved watershed management will contribute to reduced flood and landslide damages. Improved roads will reduce journey times and vehicle maintenance.

64. **Non-quantifiable and in-direct benefits.** In addition to the quantifiable benefits described above, the project is expected to generate other non-quantifiable benefits that will contribute to improving local communities' resilience and well-being. These include indirect use values that determine the reduced loss of lives, pollution abatement and better water resource regulation, while other non-quantified benefits include the future use of recreational areas for ecotourism and biodiversity conservation.

B. Fiduciary

(i) Financial Management

65. Current financial management arrangements for the project are satisfactory to the Bank. The project will be

[39] The economic and financial analysis considers only the two basins (BRB and CRB) that were prepared by appraisal.

[40] Total project economic costs of US$ 146.0 million exclude taxes (VAT) and are based on total project financial costs of US$ 162.4 million for the two basins considered.

implemented by OGM, TRGM, DSI, and KGM. The responsibility for overall project management and coordination will lie with OGM. OGM will establish a PCU that will be responsible for implementing its investments and liaising with other IAs.

66. The IAs in collaboration with SBO will ensure that the Project is included in the Annual Investment Program of the Government. OGM and other IAs will have allocations in their annual budgets to execute the project activities during a particular year. The establishment of the PCU at OGM and PIUs at the other three IAs and assignment of staff and/or hiring of consultants with satisfactory experience and qualifications to work on project financial management in the PCU and PIUs are required no later than 60 and 30 days, respectively, after project effectiveness. The POM will describe the project implementation arrangements including, for financial management. An action plan to enhance the financial management arrangements for the Project during implementation is included in the financial management section in Annex 1.

67. The PCU under OGM will be responsible for keeping consolidated accounting records for the project. Each PIU will also keep accounting records for expenditures realized under its respective component/subcomponent. For investments at the regional and provincial level, the relevant RDs/PDs and respective RIUs of the IAs will be responsible for the procurement and signing of contracts, except for KGM which will carry out its procurements through its central PIU. They will also be responsible for preparing the payment orders and processing the payments through the designated account (for OGM) or designated sub-accounts (for OGM, DSI, TRGM, and KGM).

68. There will be one Designated Account for the project and four sub-accounts that will be opened at the Central Bank of Turkey. All payments to the contractors, suppliers, and consultants will either be made directly from the designated account through OGM (direct payment) or the designated sub-account with the authorization of the responsible personnel. The authorized personnel will include those staff working at the regional level for expenditures incurred at the local level. OGM is currently working on a model that complies with the national legislation and World Bank requirements. If the proposed system where the authorized staff at the local level will prepare the payment form that would release funds from the Designated Account is not accepted by the MoTF, payment authorizations for expenditures of the IAs will be centralized at their PIUs in Ankara.

69. As part of the World Bank's auditing requirements, the Project Financial Statements (PFS) will be subject to external auditing. The Treasury Controllers will audit the PFSs in accordance with International Auditing Standards, and the reports will be made publicly available in line with the Bank's Access to Information Policy.

(ii) Procurement

70. The World Bank Procurement Regulations for IPF Borrowers – November 2020 ("Procurement Regulations") will apply to the proposed project. The World Bank's "Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15, 2006 and revised in January 2011 and as of July 1, 2016 (Anti-Corruption Guidelines)" will also apply to the proposed Project.

71. The Borrower, through MoAF, has developed a Project Procurement Strategy for Development (PPSD) pursuant to paragraphs 4.1 and 4.2 of the Procurement Regulations. The PPSD discusses the Borrower's procurement implementation arrangements and an initial potential list of contracts is considered for the first 18 months of the project. Investment contracts will be included in the procurement plan once they are approved by the Bank in accordance with the eligibility criteria specified in the POM. The initial potential list of contracts includes their cost estimates, selection methods, review procedures, and envisaged time frame according to paragraph 4.4 of the

Procurement Regulations. The PPSD concludes that the majority of the proposed procurements are of small or medium size and for most of them, the suppliers are available in the national market.

72. The Borrower, through MoAF, will use the Bank's Systematic Tracking of Exchanges in Procurement (STEP), an online procurement tracking tool to prepare, clear, and update its Procurement Plans and conduct all procurement transactions.

73. Each IA will conduct their respective procurements through their central PIUs and/or RDs/PDs, which will result in a complex structure. The procurements under the small matching grants scheme that will be implemented by TRGM under sub-component 1.1b of the Project may be carried out by the eligible project beneficiaries. The overall procurement risk is assessed as substantial. To mitigate the risks, the PCU at the central level and two RSTs at the basin level under OGM will be established. At least two Procurement Specialists will be recruited for each RST to support the RDs/PDs at basin level with the procurement activities. The Central PCU will be supported by a Procurement Specialist who will be the focal point for all procurement matters. The other IAs will establish their respective teams comprised of qualified staff in relevant technical fields with procurement and contract management experience. More details on the procurement assessment findings, proposed procurement supervision arrangements, risks, and relevant mitigation measures are provided in Annex 1.

C. Legal Operational Policies

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

D. Environmental and Social

74. The environmental and social (E&S) risks of the project have been assessed and rated at Concept and reconfirmed at Appraisal stage under the new Environmental and Social Framework (ESF) as Substantial. The following Environmental and Social Standards (ESSs) have been found relevant to the project: ESS1 on Assessment and Management of Environmental and Social Risks and Impacts; ESS2 on Labor and Working Conditions; ESS3 on Resource Efficiency and Pollution Prevention and Management; ESS4 on Community Health and Safety; ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement; ESS6 on Biodiversity Conservation and Sustainable Management of Living Natural Resources; ESS8 on Cultural Heritage; and ESS10 on Stakeholder Engagement and Information Disclosure.

75. **Environmental.** The investment interventions under Component 1 will envisage improvement of upstream landscape and livelihoods (i.e., small-scale erosion, landslides, and flood control works upstream, forest rehabilitation and sustainable management, forest pasture rehabilitation and sustainable management, income generation and livelihood diversification for forest villages); introduction of sustainable and climate-smart agricultural value chains (i.e., pasture rehabilitation and sustainable management and agricultural diversification and sustainable value chains for rural villages); construction of resilient gray infrastructure for water security (i.e., dams and multipurpose reservoirs, irrigation works, flood and sedimentation control structures); and rehabilitation of rural roads to be more resilient. The risks associated with implementing green and gray infrastructure and related civil works include generation of various types of wastes, dust, and noise, occupational health and safety (OHS) matters, disturbance to

biodiversity, and temporary disturbance to neighboring communities. Risks associated agricultural diversification activities may include increased use of pesticides, increased animal wastes generation, and pressure on pastures due to increased grazing. Those risks will have limited footprints and can be effectively avoided, minimized, or mitigated subject to the establishment of a proper E&S management system within the project. Eventually, these interventions will have highly positive environmental effect on the project area. However, their design and implementation will require careful consideration of risks related to the identification of ecosystems to be restored, implementation of civil works for soil retention and water regulations, and risks of potential alteration of water regimes, etc. Green infrastructure will be designed in conjunction with gray infrastructure to optimize the functionality, cost-effectiveness, and resilience of the integrated natural and built system.

76. Since the project interventions will include a wide range of green and grey infrastructure improvements across the BRB and CRB Basin areas, the environmental and social needs and challenges of the basins are assessed under the SESAs. The SESA for Bolaman was carried out prior to project Appraisal; and the one for Cekerek will be finalized within 60 days of project Effectiveness and before any investments take place. The SESAs review sub-projects proposed by the IAs at the early stage of project identification to verify and confirm their potential to respond to the Basin specific challenges and serve as tool to inform the project design. The SESAs also provide inputs into the basin-specific ILMPs, which will be developed during project implementation to facilitate the decision-making process on specific interventions throughout the project life. The priority sub-project investments are identified through the Feasibility Studies. The SESAs findings should guide further identification and prioritization of subproject investments in the targeted basins.

77. An **Environmental and Social Management Framework (ESMF)** has been prepared and disclosed prior to project Appraisal to set up procedures, arrangements, and responsibilities for identifying subproject-specific impacts, developing respective ESF instruments (i.e., Environmental and Social Impacts Assessment – ESIAs, or Environmental and Social Management Plans - ESMPs), and implementing measures to meet the requirements of respective ESSs. The ESMF provides guidance for screening project activities for environmental and social risks and identifying respective mitigation measures. The ESMF also establishes a methodology for monitoring the effectiveness of mitigation tools and defines implementation arrangements and institutional responsibilities for ensuring all project activities are environmentally and socially compliant. The detailed consideration of site-specific risks and impacts will inform and improve subproject interventions to maximize the environmental benefits in the long run. Any activity deemed to be a High risk from the screening per the criteria provided in the ESMF and based on the findings of site-specific ESIA/ESMP, which will be prepared during project implementation, will not be eligible for the project financing and excluded from the project scope.

78. Subproject-specific ESF instruments to be developed during project implementation will also be disclosed and consulted before the tendering process for civil works initiates. Subproject-specific ESF instruments, which will be an integral part of the bidding packages for respective sub-projects, will set the environmental and social requirements for contractors and supervision consultants, including for any associated facilities.

79. **Social.** The project activities will have overall positive social impacts by diversifying and improving the livelihoods and increasing the resilience of rural communities in the targeted basins. The basins are prone to natural disasters and exhibit natural resource degradation, which has resulted in limited and fragile livelihood options for communities and contributed to out-migration of the working-age population. The project activities may also have potential adverse impacts for local communities, which have been assessed in a participatory manner through the SESA for each basin. Green infrastructure, water infrastructure, and road rehabilitation civil works under Component 1.1 and

1.2 present labor and working conditions risks, community health and safety risks, land acquisition and resettlement risks, and cultural heritage risks. Livelihoods activities under Component 1.1 present potential exclusion risks for vulnerable groups if not implemented in a participatory and inclusive manner. The SESAs have been used to identify potential vulnerable groups such as refugees, elderly people, poor households, women-headed households, people dependent on forest products, children and youth engaged in the agriculture sector (especially in hazelnut production), seasonal agricultural workers (including migrants), women population dependent on social assistance, and disabled people. The SESAs for each basin included rigorous stakeholder mapping and engagement to identify potential negative impacts, potential trade-offs for different basin users, feasible livelihoods activities, and potential vulnerable groups in a participatory manner. The ESMF of the project outlines the mitigation measures required to address the identified adverse impacts.

80. A **Labor Management Procedure (LMP)** has been prepared to outline the categories of workers, identify potential labor risks, and define mitigation measures in line with ESS2. For civil works under the project, most of the workforce is expected to be local and no significant labor influx is anticipated. However, some large civil works and forestry activities may require a large number of workers coming into the basins. As a result, labor-related risks associated with the civil works contractors and their compliance with ESS 2 are assessed as substantial. The civil works may generate temporary community health and safety risks and impacts, as well as OHS risks among civil works contractors. These risks will be managed by contractors' Labor Management Plans, to be prepared before civil works commence. National legislation on the prevention of forced labor is in place and forced labor is not expected under the project. Sexual exploitation and abuse/sexual harassment (SEA/SH) risks associated with civil works are assessed as moderate based on gender assessments conducted under the SESAs. These will be mitigated by sensitization and training of the project management units and contracted workers on SEA/SH prevention measures, abiding by the ethical behaviors described in the Code of Conduct, and a grievance mechanism adapted to receive SEA/SH complaints. The LMP describes the workers' grievance mechanism that will be established for the project. COVID-19 specific measures have also been incorporated into the LMP. In the agriculture sector overall and potentially related to some of the livelihoods activities under the project, there are contextual labor risks of seasonal migrant workers and refugees living and working in poor working conditions and risks of child labor in hazelnut production. The LMP includes screening and monitoring measures for these risks and a Code of Conduct in line with ESS2. Civil society working on migrant labor and child labor issues were consulted during the preparation of the SESAs and will be engaged throughout project implementation as described in the Stakeholder Engagement Framework (SEF).

81. A **Resettlement Framework (RF)** was prepared to outline procedures for land acquisition, land use restriction, involuntary resettlement, compensation, and livelihood restoration in line with ESS5. While major land acquisition or physical resettlement is not anticipated, construction and rehabilitation of road, water infrastructure, and flood and landslide protection investments may lead to small-scale land acquisition and resettlement. The exact scale and scope of land acquisition are not known at this time since the exact locations of project activities are not finalized.

82. A **Stakeholder Engagement Framework (SEF)** was prepared that outlines the general principles and strategy to identify stakeholders and plan for an engagement process per ESS10. Each IA in each basin will prepare Stakeholder Engagement Plans (SEPs) for a bundled group of activities under their implementation in line with the SEF before civil works or livelihood activities begin. The SEF and SESA mapped out direct, affected and interested stakeholders for the project, as well as vulnerable and disadvantaged stakeholders. The SEF then outlines different engagement modalities tailored to the needs and characteristics of each stakeholder group, and factors in COVID-19 sensitive measures. The SEF commits to inclusive and accessible consultations and project grievance mechanisms.

83. The ESMF, LMP, RF, SEF, Bolaman-SESA, and the project's Environmental and Social Commitment Plan (ESCP) have been disclosed and consulted prior to Appraisal. Public consultations factored in COVID-19 considerations. Virtual consultations were supplanted by other mechanisms to provide information and feedback using social media. The ESCP was disclosed on May 12 by the Borrower, through OGM, and on May 17 by the Bank.

84. **Safety of Dams.** As the project will finance dam construction, the Bank's ESS4 on Safety of Dams is relevant. The Borrower through MoAF will hire an independent POE with expertise in the various technical fields related to the safety aspects of the dams. The POE will review and advise the Borrower on matters related to dam safety and other critical aspects of the dams, including their appurtenant structures, the catchment areas, areas surrounding the reservoir, and downstream areas, for investigating, designing, constructing, and operating the dams. The Borrower, through MoAF, will prepare and implement dam safety plans, including Construction Supervision and Quality Assurance Plan (CSQAP), Instrumentation Plan, Operation and Maintenance Plan (O&MP), and Emergency Preparedness Plan (EPP) for dams to be constructed. The Terms of Reference of the CSQAP was prepared by project Appraisal. The CSQAPs, draft Instrumentation Plan, O&MP, and framework of EPP are to be prepared by completion of the Feasibility Study Report of the dams. The IP will be prepared before bid tendering. The final O&MP will be prepared 6 months prior to the initial filling of the reservoirs, and the final EPP will be prepared 12 months prior to initial the filling of the reservoirs. The project will select dams without high risk following the Good Practice Note on Dam Safety issued by the World Bank.

V. GRIEVANCE REDRESS SERVICES

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

VI. KEY RISKS

85. **The overall risk of the project is rated Substantial**, based on the technical, institutional, fiduciary, E&S, and COVID-19 risks. The following table provides the risk rating summary, followed by the considerations made for each risk category rated *Substantial* and above.

Risk Categories	Rating (H, S, M, or L)
1. Political and governance	M
2. Macroeconomic	M
3. Sector strategies and policies	L
4. Technical design of project or program	S

5. Institutional capacity for implementation and sustainability	S
6. Fiduciary	S
7. Environment and social	S
8. Stakeholders	M
9. Other (COVID-19)	S
10. Overall	**S**

86. **Technical design risk is considered Substantial.** Most technologies to be promoted under the project have already been tested and validated in Turkey under other internationally financed projects, and participating IAs have a well-documented track record in their respective areas of work. The risk is driven by the innovative design and multi-sectoral nature of the project (i.e., ILM combining green and gray infrastructure) and its limited testing in Turkey before, as well as by the need to increase the technical capacity of IAs in this area. The project will mitigate this risk by: (i) hiring additional experts within the PCU, as well as the RSTs at the basin level to provide full-time technical support to OGM and the other IAs during implementation in line with the integrated nature of the project; (ii) financing technical assistance activities to establish guidelines for the design of ILM approaches; and (iii) the inclusion of specific guidelines, processes, and criteria in the POM to guide the selection and implementation of subprojects. Risks are also associated with farmer adoption and replication of the sustainable and climate-smart agriculture practices promoted by the project, given complex incentive structures at the farm level, particularly for poorer households. This risk will be mitigated by the inclusion of a grant mechanism that will be managed in an adaptive manner during project implementation to facilitate the uptake of ILM practices by targeted farmers. The Bank will also provide technical assistance and implementation support throughout the project, including the incorporation of multiple sectoral expertise from the Bank and global expertise (e.g., FAO) to support careful subproject planning and ensure that investment options are effective and sustainable in the long term.

87. **Institutional capacity for implementation and sustainability risk is considered Substantial**. The institutional capacity for project implementation at the national and field level is adequate in all IAs. The project builds on the institutional capacity and close collaboration established between OGM and TRGM under previous projects for the development of integrated and participatory MCP approaches and expands on these strengths by involving DSI and KGM. However, the required coordination among multiple IAs; their limited recent experience with Bank-financed projects, particularly regarding Bank fiduciary and E&S policies; and human capacity constraints to absorb additional workload could hinder their ability to manage the project effectively and efficiently. The sustainability of intended outcomes will also depend on the capacity of the IAs to mainstream the project's innovative approaches through adequate institutional structures and coordination mechanisms to scale up and replicate them in other areas of the country through a national strategy. Mitigation of this risk will be the focus of Component 2, which will include activities to: (i) strengthen interagency coordination needed to successfully develop and implement integrated and cross-sectoral NRM interventions, including through the establishment of a PSC; and (ii) support for scaling up the project's integrated approach through a national strategy for landscape resilience, which will facilitate the conditions for public funds or funding from other partners to support similar approaches in more regions. Furthermore, IAs will be required to maintain, throughout project implementation, an adequate number of qualified project management, technical, fiduciary, and E&S staff in their respective PIUs, both at the central and basin level. The risk will be further mitigated by procedures established in the POM to clearly designate and coordinate the implementation responsibilities among all IAs.

88. **Fiduciary risk is considered Substantial**. Except for DSI, the IAs do not have recent or any experience with the Bank's financial management requirements and procurement procedures. Additionally, there are multiple IAs both within or affiliated with the MoAF and KGM. The coordination for the use of the project funds and the consolidation of

disbursements for project reporting would require the adoption of internal control procedures that would be developed specifically for the complex implementation arrangements. Together with the limited knowledge and experience of the IAs in Bank-financed projects, the integrated fiduciary risk is assessed as Substantial at this stage. These risks will be mitigated by strengthening the IAs' capacity on the Bank's fiduciary systems and procedures, including through the inclusion of specialized fiduciary capacity within the PIUs. Detailed financial management and procurement assessments have been carried out during project preparation, and detailed mitigation measures have been established.

89. **Environmental and Social risks are both rated Substantial.** While the project's overall and long-term environmental impacts are expected to be highly positive, the environmental risks are mainly associated with the implementation of civil works within the scope of a wide range and considerable scale of the various proposed interventions (both green and grey). The implementation arrangements envisage the involvement of four IAs with varying environmental management capacities. Therefore, the overall project environmental risk is rated Substantial. The environmental risks will be managed by developing and implementing respective ESF instruments and strengthening the environmental management capacity of OGM (lead IA), as well as TRGM, DSI, and KGM.

90. The project's social risks include labor, community health and safety, land acquisition and resettlement, and exclusion risks. The workforce is expected to be local, and therefore labor influx and SEA/SH risks associated with civil works are assessed as low. There is a contextual risk in both basins due to seasonal migrant workers in the agriculture sector. In the Bolaman basin, there is a contextual risk due to the use of child labor in the hazelnut sector; however, the national law and legislation on prevention of child labor is in place and will be implemented as necessary. Civil works may require land acquisition and economic and physical displacement of a small scale and may generate temporary community health and safety risks and impacts, as well as OHS risks among civil works contractors. Livelihoods investments carry risks of exclusion of vulnerable households. These risks will be mitigated through ESF-compliant documentation, including extensive stakeholder engagement under the SESAs prepared for each basin. The risk presented by multiple IAs will be mitigated by capacity building and coordination as part of ongoing Bank implementation support. Both E&S risks will be rated based on the criteria presented in the project ESMF and reconfirmed within the scope of site-specific ESF documents to be developed of each sub-project/specific investment. Any activity found to be of High risk will not be eligible for the project financing.

91. **Other risks - the risk of economic and logistical disruption from COVID-19 is rated Substantial**, as related travel restrictions hinder project preparation, implementation, and supervision. The project will mitigate this risk by adopting a combination of remote tools for supervision, coupled with field-based staff and consultants that will enable basic monitoring and reporting even in case of prolonged lockdowns.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Turkey

Turkey Resilient Landscape Integration Project (TULIP)

Project Development Objectives(s)

The project development objective is to strengthen integrated landscape management and increase access to improved livelihood opportunities and resilient infrastructure services for rural communities in targeted areas of Turkey.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
to strengthen integrated landscape management			
Land area under sustainable landscape management practices (CRI, Hectare(Ha))		0.00	150,000.00
National Strategy for Resilient Landscape Integration developed (Yes/No)		No	Yes
to increase access to improved livelihood opportunities for rural communities in targeted areas			
Poor households benefitting from improved livelihood opportunities supported by the project (Number)		0.00	13,000.00
increase access to resilient infrastructure services for rural communities in targeted areas			
People provided with access to resilient infrastructure services included in an integrated NRM plan (Number)		0.00	90,000.00
People provided with access to protection against flooding and/or landslides (Number)		0.00	23,000.00
People provided with access to improved water sources		0.00	18,000.00

Indicator Name	PBC	Baseline	End Target
(Number)			
People provided with access to improved irrigation schemes (Number)		0.00	4,000.00
People provided with access to rural roads rehabilitated for climate and disaster resilience (Number)		0.00	45,000.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
Component 1.1 Green Infrastructure and Sustainable Livelihoods			
Reduction of soil erosion (Percentage)		0.00	10.00
Reduction of fuelwood use (Percentage)		0.00	30.00
Farmers adopting improved agricultural technology (CRI, Number)		0.00	6,000.00
Farmers adopting improved agricultural technology - Female (CRI, Number)		0.00	1,000.00
Farmers adopting improved agricultural technology - male (CRI, Number)		0.00	5,000.00
Farmers reached with agricultural assets or services (CRI, Number)		0.00	15,000.00
Farmers reached with agricultural assets or services - Female (CRI, Number)		0.00	2,300.00
Number of female owned businesses or associations supported by the Project (Number)		0.00	150.00
Number of jobs created through green infrastructure and		0.00	4,000.00

Indicator Name	PBC	Baseline	End Target
sustainable livelihood activities (Number)			
Component 1.2 Resilient gray infrastructure services included in an integrated NRM plan			
Flood control structures constructed (Number)		0.00	18.00
Storage capacity of safe drinking water (Cubic meters/year)		0.00	2.38
Improved irrigation efficiency (Percentage)		0.00	55.00
Resilient roads rehabilitated (Kilometers)		0.00	45.00
Increased vehicle flow (Percentage)		0.00	30.00
Infrastructure constructed or rehabilitated with climate and disaster-resilient measures (Number)		0.00	30.00
Component 2. Institutional Framework, Project Management, and Sustainability			
Integrated Landscape Management Plan and Micro-catchment Plans developed and adopted (Number)		0.00	26.00
Monitoring Information System for Integrated Landscape Management developed and operational (Yes/No)		No	Yes
People trained on integrated landscape management (Number)		0.00	2,400.00
of which are female (Percentage)		0.00	30.00
Share of project beneficiaries with rating 'Satisfied' or above with Citizen Engagement process (Percentage)		0.00	75.00
of which are female (Percentage)		0.00	50.00

Monitoring & Evaluation Plan: PDO Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Land area under sustainable landscape management practices	The indicator measures, in hectares, the land area for which new and/or improved sustainable landscape management practices have been introduced. Land is the terrestrial biologically productive system comprising soil, vegetation, and the associated ecological and hydrological processes; Adoption refers to change of practice or change in the use of a technology promoted or introduced by the project; Sustainable landscape management (SLM) practices refers to a combination of at least two technologies and approaches to increase land quality and restore degraded lands for example, agronomic, vegetative, structural, and management measures that, applied as a combination, increase the	Biannual	Project Reports, M&E systems of IAs	Field measurements, implementation reports, and spot-checks	OGM, TRGM, DSI

	connectivity between protected areas, forest land, rangeland, and agriculture land.				
National Strategy for Resilient Landscape Integration developed	This indicator will measure the development of a National Strategy for Resilient Landscape Integration in lagging rural areas and its submission for adoption by the relevant authorities.	Annual	Government official report and publication	Availability online	OGM
Poor households benefitting from improved livelihood opportunities supported by the project	This indicator measures the number of poor households (based on a targeting strategy) who directly benefited from the project through the following alternative income-generating initiatives: (i) Livestock production ; (ii) Crop production; (iii) Timber and Non-timber Forest Products production; (iv) Value chain enhancements; (v) Ecotourism/recreational activities; (vi) Fuelwood alternatives; (vii) other alternative income opportunities	Biannual	Project Reports, M&E systems of IAs	Field implementation reports and spot-checks; beneficiary databases and surveys.	OGM, TRGM
People provided with access to resilient infrastructure services included in an	This indicator measures the number of people that	Biannual	Project Reports,	Field implementation reports and spot-	OGM, DSI, KGM

integrated NRM plan	directly benefited from access to resilient infrastructure services supported by the project. It is composed by supplementary indicators for each type of infrastructure supported by the project, including: (i) flood and landslides protection; (ii) drinking water sources; (iii) irrigation; (iv) roads.		M&E systems of implementing agencies	checks, complemented by beneficiary databases and surveys. Duplicates will be eliminated from the composite indicator by screening for same locations to ensure beneficiaries are not counted twice.	
People provided with access to protection against flooding and/or landslides	This indicator measures the number of people who directly benefit from increased access to resilient infrastructure for flood and landslide protection supported by the project.	Biannual	Project Reports, M&E systems of IAs	Each flood & landslide control subproject will have an assigned number of direct beneficiaries based on proximity to targeted locations/villages	OGM, DSI
People provided with access to improved water sources	This indicator measures the cumulative number of people who benefited from increased water storage capacity that has been provided through the Project.	Biannual	Project Reports, M&E systems of IAs	Each drinking water subproject will have an assigned number of direct beneficiaries based on proximity to targeted locations/settlements.	DSI, OGM
People provided with access to improved irrigation schemes	This indicator measures the number of people who directly benefit from	Biannual	Project Reports, M&E systems	Each irrigation infrastructure subproject will have an	DSI, OGM

	increased access to resilient infrastructure for irrigation supported by the project.		of IAs	assigned number of direct beneficiaries based on proximity to targeted locations/settlements.	
People provided with access to rural roads rehabilitated for climate and disaster resilience	This indicator measures the number of people who directly benefit from increased access to resilient road infrastructure supported by the project.	Biannual	Project Reports, M&E systems of IAs	Each road rehabilitation subproject will have an assigned number of direct beneficiaries based on proximity to nearby locations/villages.	KGM, OGM

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Reduction of soil erosion	This indicator measures the reduction of soil erosion in the project intervention areas at the basin level. The baseline value for soil erosion in the Bolaman basin is 2.87tons/ha/year and in the Cekerek basin is 3.94 tons/ha/year, as provided by OGM and estimated through GIS.	Annual	Project Reports, M&E systems of IAs	Soil erosion will be measured annually through established geographic information/remote sensing systems and approaches, complemented by photographic evidence and spot-checks.	OGM

Reduction of fuelwood use	This indicator measures the decrease in the amount of fuelwood consumption by project beneficiaries to meet their heating and cooking needs. The baseline value for average annual household fuelwood use in the Bolaman and Cekerek basins is 10 m3/year.	Annual	Regional Forest Offices' databases complemented by annual household survey as needed.	Comparison of fuelwood consumption for a sample of project beneficiaries against baseline values	OGM
Farmers adopting improved agricultural technology	This indicator measures the number of farmers (of agricultural products) who have adopted an improved agricultural technology promoted by operations supported by the World Bank. NB: "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber and non-timber forest products. Adoption refers to a change of practice or change in use of a technology that was introduced or promoted by the project. Technology includes a	Biannual	Project Reports and M&E systems of IAs (TRGM), complemented by beneficiary databases and surveys as needed.	A list of sustainable and climate-smart technologies that will be promoted by the project will be identified in the Project Operational Manual.	TRGM

	change in practices compared to currently used practices or technologies (seed preparation, planting time, feeding schedule, feeding ingredients, postharvest storage/ processing, etc.). If the project introduces or promotes a technology package in which the benefit depends on the application of the entire package (e.g., a combination of inputs such as a new variety and advice on agronomic practices such as soil preparation, changes in seeding time, fertilizer schedule, plant protection, etc.), this counts as one technology. Farmers are people engaged in farming of agricultural products or members of an agriculture related business (disaggregated by men and women) targeted by the project.				
Farmers adopting improved agricultural technology - Female			According to the Farmer Registration		

			System, 18% of the farmers are female in Bolaman and 15% in Cekerek		
Farmers adopting improved agricultural technology - male					
Farmers reached with agricultural assets or services	This indicator measures the number of farmers who were provided with agricultural assets or services as a result of World Bank project support. "Agriculture" or "Agricultural" includes: crops, livestock, capture fisheries, aquaculture, agroforestry, timber, and non-timber forest products. Assets include property, biological assets, and farm and processing equipment. Biological assets may include animal agriculture breeds (e.g., livestock, fisheries) and genetic material of livestock, crops, trees, and shrubs (including fiber and fuel crops).	Biannual	Project Reports and M&E systems of IAs (TRGM), complemented by beneficiary databases and surveys as needed.	A list of agricultural assets and services that will be provided by the project will be identified in the Project Operational Manual, in line with national legislation	TRGM

	Services include research, extension, training, education, ICTs, inputs (e.g., fertilizers, pesticides, labor), production-related services (e.g., soil testing, animal health/veterinary services), phyto-sanitary and food safety services, agricultural marketing support services (e.g., price monitoring, export promotion), access to farm and post-harvest machinery and storage facilities, employment, irrigation and drainage, and finance. Farmers are people engaged in agricultural activities or members of an agriculture-related business (disaggregated by men and women) targeted by the project.				
Farmers reached with agricultural assets or services - Female		According to the Farmer Registration System, 18% of the farmers are female in Bolaman			

		and 15% in Cekerek			
Number of female owned businesses or associations supported by the Project	This indicator measures the number of female led or owned businesses or associations financially and technically supported by the Project to increase access to improved livelihoods.	Biannual	Project Reports, M&E systems of IAs	Field implementation reports and spot-checks; beneficiary databases and surveys.	OGM, TRGM
Number of jobs created through green infrastructure and sustainable livelihood activities	This indicator measures the number of direct and indirect jobs (full-time equivalents) created by the project through green infrastructure (afforestation, pasture improvement, erosion and flood control works, construction of recreation areas, etc.) and improved livelihoods (livestock/crop production, irrigation and related value chain enhancements) activities.	Biannual	Project Reports, M&E systems of IAs	A methodology for monitoring of the actual number of jobs created will be developed at implementation start	OGM, TRGM, DSI
Flood control structures constructed	This indicator measures the number of flood and sedimentation control subprojects supported by the Project to protect vulnerable population against flood risk in selected	Biannual	Project Reports, M&E systems of IAs	Field implementation reports and spot-checks.	DSI

	priority locations of the target basins.				
Storage capacity of safe drinking water	This indicator measures the increase in storage capacity of safe drinking water in the target basins through the reservoirs supported by the project.	Annually	Project Reports and M&E systems of IAs	Existing monitoring systems used by DSI.	DSI
Improved irrigation efficiency	This indicator measures the improved efficiency achieved in irrigation schemes achieved through additional storage and new sprinkler and drip systems, averaged over the irrigation subprojects supported by the Project.	Annual	Project Reports, M&E systems of IAs	Irrigation scheme efficiency will be calculated by using the conveyance efficiency which represents the efficiency of water transport in canals and the field application efficiency which represents the efficiency of water application in the field.	DSI
Resilient roads rehabilitated	This indicator measures the length (kilometers) of roads that are rehabilitated by the project and that have incorporated climate/disaster resilient design standards.	Biannual	Project Reports, M&E systems of IAs	Construction completion reports	KGM
Increased vehicle flow	This indicator measures the average percentage increase in vehicle flow on the roads rehabilitated by the project	Annual	Project Reports, M&E systems of IAs (KGM)	This indicator is estimated by measuring the flow of vehicles circulating on the road	KGM

	as a measure of road improvement to promote economic activities in the project's intervention areas			per hour, based on existing monitoring systems and methodologies of the IA (KGM).	
Infrastructure constructed or rehabilitated with climate and disaster-resilient measures	This indicators measures the number of infrastructure subprojects supported by the project that incorporate climate and disaster resilience measures in their design.	Biannual	Project Reports, TORs, Bidding packages	Review of TOR, bidding packages, and construction supervision reports	DSI, KGM
Integrated Landscape Management Plan and Micro-catchment Plans developed and adopted	This indicator measures the number of ILMPs (two) and MCPs (8 in Bolaman and 16 in Cekerek) adopted and implemented in a participatory manner in the project's intervention areas.	Biannual	Project Reports and website	ILMPs and MCPs developed, adopted and published online on project website	OGM
Monitoring Information System for Integrated Landscape Management developed and operational	This indicator measures the development and operationalization of an online, GIS-based Monitoring Information System (MIS) for key landscape variables in the targeted basins supported by the Project.	Annual	Availability online	Review or Project Reports and project website	OGM
People trained on integrated landscape management	This indicator measures the number of people trained in the application of integrated	Biannual	Project Reports complement	Training completion reports and satisfaction surveys.	OGM

	landscape management instruments, disaggregated by: (i) farmers; (ii) technical staff of the IAs; (iii) local authorities; (iv) gender.		ed by trainee satisfaction surveys.		
of which are female					
Share of project beneficiaries with rating 'Satisfied' or above with Citizen Engagement process	This indicator measures the satisfaction level of the beneficiaries with the citizen engagement process by the project, disaggregated by gender	Biennial	Project Reports	Beneficiary satisfaction survey	OGM
of which are female					

ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

Institutional and Implementation Arrangements

1. **Borrower.** The Borrower of the IBRD Loan will be the Republic of Turkey, represented through the MoTF.

2. **Implementing Agencies (IAs).** The project will have four IAs, namely OGM, TRGM, DSI, and KGM, as project activities are cross-sectoral, covering a broad spectrum of interventions in the forestry, agriculture, water, and transport sectors and reflecting the integrated landscape approach promoted by the project. OGM will have overall responsibility for project management and coordination acting as the Lead IA, based on its mandate for the implementation of integrated basin projects as per the Forest Law. OGM will manage the Project Designated Account in the Central Bank and be responsible for overall project reporting to the World Bank. Project Components will be implemented directly by the IAs through their respective PIUs, using agreed implementation provisions specified in the POM.

3. **Project Steering Committee (PSC).** A PSC will be established to ensure effective coordination among IAs. The PSC will comprise of senior leadership from the IAs, other relevant DGs (i.e., DG of Water Management and DG for Combatting Desertification and Erosion), and representatives from other relevant institutions. The PSC will be chaired by the Deputy Minister of the MoAF, with the Deputy General Director of OGM acting as the Secretariat. The key functions of the PSC will be to review the annual workplans and budgets (AWPB), monitor implementation progress, ensure effective institutional coordination, and provide guidance as needed for ensuring the delivery of project outputs and achievement of project outcomes. The composition and ToRs of the PSC will be further specified in the POM.

4. **Central-level implementation arrangements.** A Project Coordination Unit (PCU) will be established and housed within OGM at the central level, reporting directly to the Deputy General Director, who will act as PCU Head. OGM will assign a Project Coordinator who will be in charge of day-to-day project-related activities and coordination with other IAs for project execution. The PCU will be responsible for overall project coordination and management, including coordinating the development of project-related AWPB with the other IAs, project supervision, M&E, and communication and reporting with the World Bank on fiduciary, E&S aspects, and overall project implementation progress. The PCU will also act as the PIU of OGM for the implementation of OGM specific activities at the central level. The PCU will be composed of both OGM staff and specialized consultants on fiduciary, E&S, and technical aspects, among others. The composition and ToRs of the PCU will be further specified in the POM.

5. **Central-level PIUs** will also be established in each of the other IAs (TRGM, DSI, KGM) and will be in charge of Ankara-based project activities, including the preparation of IA-specific project AWPBs and coordination with their respective Regional and/or Provincial Directorates (RD/PDs). Each Central PIU will be responsible for the implementation of project activities under their respective subcomponents, and for operating their respective project sub-accounts in the Central Bank. They will coordinate with their respective RD/PDs for the implementation of project activities at the basin level, including procurement processes, as needed. Central-level PIUs will report to the PCU periodically on the realization of relevant project targets and achievement of outputs. Each IA will assign a Project Focal Point acting as Head of its PIU and dedicated staff on fiduciary, E&S, and M&E issues, as well as on other technical aspects as needed. The composition and ToRs of the PIUs will be further specified in the POM.

6. **Basin-level implementation arrangements.** Activities at the basin level will be implemented by the RDs/PDs of each IA and their respective Field Offices (FO). The project will be implemented in two sub-basins, within the borders of five provinces (Ordu, Tokat, Yozgat, Sivas, and Çorum). Thus the project will be executed in three RDs of OGM (Giresun, Amasya, Kayseri), four RDs of DSI (Samsun, Kayseri, Sivas, Ankara), one RD of KGM (Samsun), and five PDs of TRGM (Ordu, Tokat, Yozgat, Sivas and Çorum). Each RD/PD will have dedicated staff assigned by each IA to support project implementation through a Regional Implementation Unit (RIU). To further enhance the capacity for implementation in the field and ensure effective coordination among RD/PDs, a Regional Support Team (RST) will be established in each basin under OGM. The physical location of the Bolaman RST will be in the Ordu Province, and the Cekerek RST in the Yozgat Province. RSTs will include both staff and specialized consultants to strengthen the technical and administrative capacity of the IAs at the basin level. The composition and functions of the RIUs and RSTs will be further specified in the POM, taking into consideration a flexible structure adaptable to the project needs during implementation.

7. **Regional Steering Committees (RSCs)** will also be established at the basin-level to ensure effective coordination with local authorities such as Provincial Governors, Municipal Administration and Services in the Bolaman basin, Special Provincial Administrations in the Cekerek basin, Producer Organizations, civil society organizations, and other stakeholders. The composition and functions of the RSCs will be further specified in the POM.

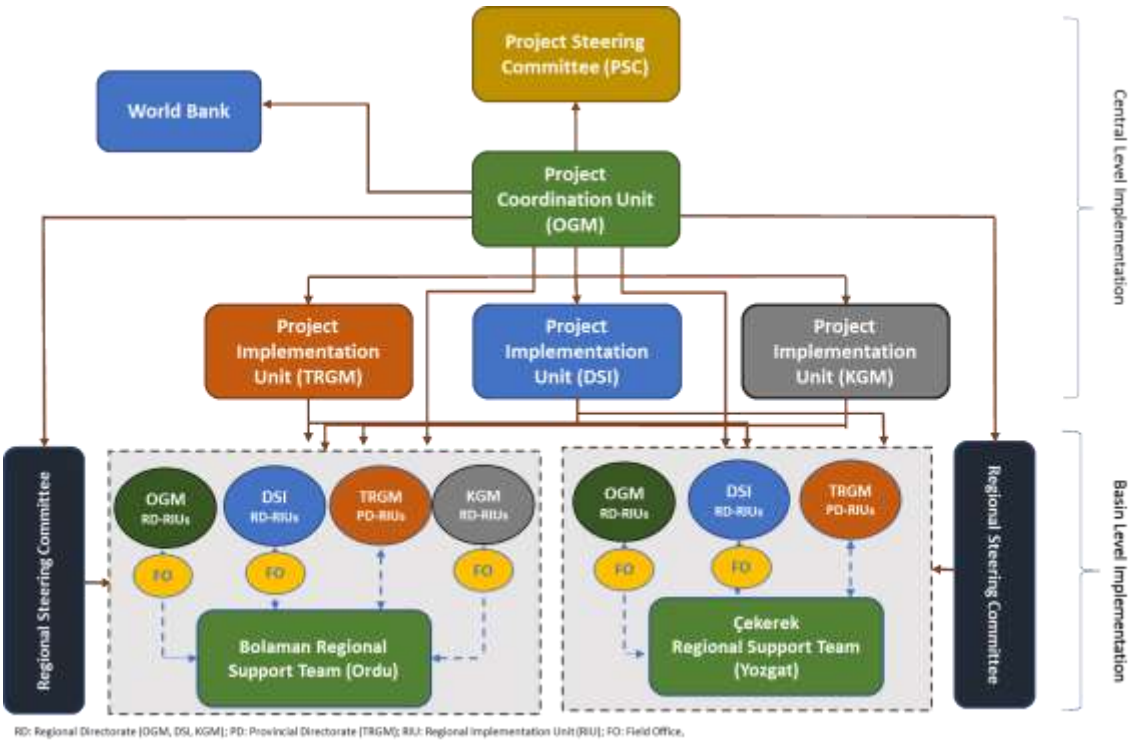


Figure 1. Project Implementation Arrangements

8. **Relevant Departments of Implementing Agencies.** A number of Departments from each IA will be involved in the design and implementation of project activities. Each IA will assign a Focal Point from the main Department that will act as the PIU Head for overall project management and reporting and for coordinating project activities with other relevant Departments within the IA. The Table below presents the different Departments of each IA involved in project implementation and their key functions, as well as other relevant DGs expected to be involved in a technical capacity. The coordination mechanisms with these Departments will be specified further in the POM.

Table 1. Relevant IA Departments involved in Project implementation

Implementing Agency	Relevant Departments	Key Functions in Project implementation
General Directorate of Forests (OGM)	Project Coordination Unit (PCU)	• PCU will be established under OGM as a separate unit and headed by the Deputy Director General. • A Project Coordinator will be assigned by OGM to be responsible for day-to-day project management and directly report to the Deputy Director General. • Responsible for overall project coordination and management • Acting as PIU for OGM project related activities. • Reporting to the WB on project implementation progress, including technical, fiduciary, E&S, and M&E aspects. • Preparation of OGM AWPB and consolidation of Project AWPB.
	Soil Conservation and Watershed Rehabilitation Department	• Erosion, flood, and landslide control works upstream. • Preparation of Integrated Landscape Management Plans at basin level and Micro Catchment Plans. • Development of Integrated Landscape Data/GIS Platform.
	ORKOY (Forest Villages) Department	• Income generation and livelihood diversification activities in forest villages through small-grant schemes.
	Afforestation Department	• Afforestation and forest rehabilitation activities in forest lands.
	Forest Administration and Planning Department	• Preparation of forest management plans and maps.
	Silviculture Department	• Preparation silviculture plans for the regeneration and maintenance of young forests.
	Non-Timber Forest Products Department.	• NTFP and ecosystem services management, including evaluation and preparation of plans and operations for water resources, hunting and wildlife, grazing and beekeeping, ecotourism activities and recreation areas, urban forests, and tree parks.
	Nursery and Seed Works Department	• Establishment, operation, and closure of nurseries. • Production and distribution of all kinds of forest tree and shrub saplings, seeds, and other production materials, including medicinal, ornamental, and aromatic plants.
	Construction and Supply Department	• Maintenance of forest road network to facilitate forest management, afforestation, and fire and pest control activities.
	External Relations, Training and Research Department	• Planning and execution of capacity building activities.
	Strategy Development	• Budgeting and spending.
	Regional Directorates	• Responsible for OGM project management at the basin level, including procurement related activities through RIUs.
	Forest Operation Directorates (Field Offices)	• These offices are located at the provincial level and are responsible for the implementation and supervision of OGM field activities.
General Directorate of Agrarian Reform (TRGM)	Surveys and Projects Department	• Acting as PIU for TRGM project related activities. • Responsible for coordination and implementation of TRGM project activities. • Preparation of TRGM AWPB. • Reporting TRGM project implementation progress to the PCU, including on technical, fiduciary, and E&S aspects.

		• Coordination with DGs of Crop Production, Livestock, and Food Control
	Provincial Directorates of Agriculture and Forestry	• Responsible for TRGM project management at the basin level, including procurement related activities, through RIUs. • Reporting to the TRGM PIU at central level on all project aspects.
	District Directorates	• These offices are located at the district level and are responsible for the implementation and supervision of TRGM field activities.
General Directorate of Crop Production (coordination)	Pasture, Rangeland and Fodder Crops Management Department	• Technical coordination on TRGM project activities related to pasture and rangeland management and improving fodder crop production.
	Field and Orchard Crops Department	• Technical coordination on TRGM project activities related to the application of Good Agricultural Practices, increased agricultural production, productivity, quality, and diversification.
General Directorate of Livestock (coordination)	Cattle and Sheep Breeding Department	• Technical coordination on TRGM project activities related to cattle and sheep farming and productivity, meat and milk production, and value chain development.
General Directorate of Food Control (coordination)	Border Inspection for Animals and Animal Products Department	• Technical coordination on TRGM project activities related to livestock production and animal husbandry for food health and safety related issues.
State Hydraulic Works (DSI)	Projects and Construction Department	• Acting as PIU for DSI project related activities. • Responsible for coordination and implementation of DSI project activities in collaboration with relevant departments. • Preparation of DSI AWPB. • Reporting DSI project implementation progress to the PCU, including on technical, fiduciary, and E&S aspects. • Preparation and implementation of multipurpose reservoirs, flood and sedimentation control, and irrigation subprojects.
	Dams and Hydroelectric Plants Department	• Preparation of planning and engineering studies for the construction of ponds and dams under the project. • Responsible for dam safety issues.
	Operations and Maintenance Department	• Responsible for the operation and maintenance of DSI investments.
	Strategy Development Department	• Budgeting and spending.
	Regional Directorates	• Responsible for DSI project implementation at the basin level, including procurement related activities, through RIUs. • Reporting to the DSI PIU at central level on all project aspects.
	Section Directorates (Field Offices)	• Located at the provincial level and are responsible for the implementation and supervision of DSI field activities.
General Directorate of Highways (KGM)	Road Construction Department	• Acting as PIU for KGM project related activities. • Responsible for coordination and implementation of KGM project activities in collaboration with relevant departments, including procurement related activities. • Preparation of KGM AWPB. • Reporting KGM project implementation progress to the PCU, including on technical, fiduciary, and E&S aspects. • Construction and rehabilitation of State and Provincial roads based on relevant plans and programs.

	Strategy Development Department	• Budgeting and spending.
	Regional Directorates	• Responsible for KGM project management and implementation at the basin level, through RIUs. • Reporting to the KGM PIU at central level on all project aspects.
	Section Directorates (Field Offices)	• Located at the provincial level and are responsible for the implementation and supervision of KGM field activities.

9. **Other agencies involved in coordination.** Other agencies that will be participating in project coordination and oversight include the DG of Combatting Desertification and Erosion, DG of Water Management under the MoAF, the Ministry of Environment and Urbanization (MoEU), and the Disaster and Emergency Management Presidency of the Ministry of Interior, and others as needed and instructed by the PSC.

10. **Project Operational Manual (POM).** OGM and the other IAs will implement the project based on a POM approved by the Bank. The POM will include: (i) detailed description of all project activities and prospective timetable and targets; (ii) detailed implementation arrangements and responsibilities (i.e., composition of and ToRs for PSC, PCU, PIUs, RIUs, RSTs, and RSCs); (iii) detailed policies and procedures guiding the selection, implementation, and management of subprojects (i.e., criteria for the prioritization, screening and selection of subprojects; technical guidelines for the selection and implementation of all subprojects; O&M arrangements, etc.); (iv) a grants manual, guiding the selection and implementation of subprojects financed through matching grants; (v) guidelines and arrangements for environmental and social requirements, including CE strategy; (vi) arrangements and procedures for disbursements and financial management, including process for preparing, reviewing, and approving the AWPB; (vii) applicable procurement rules and plans; (viii) Anti-Corruption guidelines; (ix) coordination mechanisms among relevant parties; and (x) requirements and procedures for Project monitoring, evaluation, reporting, and communication. The implementation arrangements outlined in the POM will adopt an adaptative management approach to allow for flexibilities and changes should the needs arise during implementation.

11. **Annual Workplan and Budget (AWPB).** A Project AWPB will be prepared, consolidated, and finalized by the PCU every year in close coordination with the other IAs and reviewed during annual project meetings. An advanced draft will be sent to the World Bank and the PSC for comments and information. Once approved, each IA will then include its respective AWPB in its Annual Investment Program with SBO and the procurement plan of the project. The detailed process for preparing, reviewing, and approving the AWPB will be further specified in the POM.

12. **Implementation modalities for non-grant subprojects under Component 1.1**: The POM will outline the detailed policies and procedures for selecting and managing all non-grant activities under this subcomponent. These will include: (i) criteria for the selection of priority MCs, taking into account natural and socio-economic characteristics such as natural resources degradation, vulnerability to erosion, sedimentation & landslides, poverty rate, etc.; (ii) guidelines and criteria for the selection of specific subprojects to ensure alignment with the PDO and the respective subproject typologies, technical feasibility, and financial and economic suitability; iii) specific technical guidelines for the subproject typologies, based on best practices available and mitigation principles outlined in the ESMF, to ensure consistency with the ILM approach, ensure E&S sustainability and build resilience, including guidelines for sustainable climate-smart agricultural practices, GAPs (i.e., soil erosion management, water retention, animal waste management, and nutrient management, etc.), NBS and green infrastructure implementation, biodiversity mainstreaming, and resilient infrastructure; (iv) tentative schedule of activities; (v) implementation arrangements, which clearly delineate the roles and responsibilities of different IAs and their respective PIUs for the implementation of subprojects; and (vi) other implementation mechanisms such as local labor sourcing plan for subproject implementation, etc.

13. **Implementation modalities for grant-financed subprojects under Component 1.1**. OGM and TRGM will jointly develop a Grants Manual detailing the implementation arrangements for activities supported through matching grants with local beneficiaries, building on their experience with previous watershed projects. The Grants Manual will be included as an Annex to the POM and will detail: (i) guidelines and criteria for the selection of beneficiaries, taking into account factors such as poverty rate, vulnerable groups, female unemployment, youth unemployment, etc., so that investments will be channeled through a targeted strategy to ensure inclusiveness and sustainability; (ii) guidelines and criteria for the selection of specific subprojects to ensure alignment with the PDO and the respective subproject typology, technical feasibility, financial and economic suitability, demand and needs-driven, and environmental and social sustainability; (iii) strategy for disseminating information, communicating and consulting with participating beneficiaries and local stakeholders based on the CE strategy; and (iv) implementation mechanisms, including cost-sharing requirements for the different types of activities[41], grant application templates and instructions, grant agreement template, grant provision mechanisms, monitoring, evaluation, and reporting. OGM and TRGM will closely coordinate during the development of the priority MCPs in each basin to ensure the complementarity of their activities. They will also maintain dedicated staff to perform core functions (including grant coordination and M&E) related to grant-financed activities.

14. **Implementation modalities for infrastructure subprojects under Component 1.2**. All subprojects under Subcomponent 1.2 will be subject to their respective feasibility analysis and E&S assessment. The investment of these subprojects will only take place if the results of such analysis are appraised and deemed satisfactory per the Bank's requirements. Additionally, the Bank will also review and provide inputs on the engineering design and tender packages of these subprojects. The POM will prescribe these requirements and will outline criteria and processes for the prioritization, screening, and selection of subprojects and specify O&M arrangements.

Implementation Support Plan

15. **The World Bank will support project implementation is in line with its procedures, standards, and requirements**. The World Bank has put in place a task team comprising a diverse skill mix from various Global Practices, including Environment, Natural Resources, and Blue Economy; Water; Agriculture and Food; Transport; Social, Urban and Resilience; Poverty and Equity; Social Protection and Jobs, among others. The skill sets required for continuous effective implementation support include, among others, project management, landscape and natural resource management, watershed and water supply management, agriculture and agribusiness development, transport, community development, M&E, procurement, financial management, communications, citizen engagement, environmental and social risks management, and legal. The Bank team will conduct technical due diligence and appraise all individual subprojects, including reviewing subproject-specific feasibility studies and/or planning reports, engineering design, tender packages, and E&S instruments. It is expected that implementation support by the Bank team will be more intense during the first two years of operation. Project Reports will be reviewed periodically by the World Bank as part of project implementation support missions to be carried out at least twice a year. Additional global expertise (e.g., FAO) will also be sought to support the technical aspects of implementation.

Financial Management

16. Current financial management arrangements for the project are satisfactory to the Bank. The MoTF will assume the coordinating role for the IBRD loan, and the Bank will sign the Loan Agreement with MoTF. The Law on Public Finance

[41] Cost-sharing is expected to start on a 40% basis with local beneficiaries for certain activities based on the Rural Development Strategy and will be managed in an adaptive way throughout project implementation to ensure participation and adoption rates of target beneficiaries.

and Debt Management No. 4749 (the Debt Law) describes the procedures for international borrowing in the Republic of Turkey. The Debt Law classifies international borrowing under three categories: allocation, on-lending, and guarantee. The debt law authorizes MoTF to allocate foreign-financed loans to general budget institutions, including TRGM through MoAF and those specifically mentioned, which include OGM, KGM, and DSI.

17. All IAs are subject to The Public Financial Management and Control Law, which provides the main financial management framework applicable to various types of public administrations in Turkey. Their detailed accounting records are maintained in the Government's centralized accounting system, Public Information Management System, operating in Turkish Lira and using the specific chart of accounts of the public financial management system. Controls of payments by verifying the supporting documentation and compliance with rules and regulations are exercised by the managers responsible for the expenditure and sometimes ex-ante by the Strategy Development Directorates of the IAs for larger expenditure amounts.

18. The project will be implemented by OGM, TRGM, DSI, and KGM. The responsibility for overall project management and coordination will lie with OGM. OGM will establish a PCU that will be responsible for liaising with other IAs and implementing OGM investments. OGM does not have any recent experience in implementing World Bank-financed projects, and additionally, most investments will be executed at the provincial level. OGM will ensure that there is sufficient financial management capacity at the PCU. Other IAs will also establish their own PIUs to implement the project activities under their respective responsibilities.

19. The investments under the project must be included in the investment programs of the IAs. In this regard, the requirements of Public Law 5018 (Public Financial Management and Control Law) are applicable to Bank-financed loans. In addition to having the overall investment approved by the SBO, IAs must project their expected expenditures annually and have allocations for such expenditures in their annual budgets. The IAs in collaboration with SBO will ensure that the project is included in the Government's Investment Program, and all IAs will ensure that sufficient funds are allocated in their annual budgets over the life of the project.

20. OGM and other IAs are responsible for assigning staff with satisfactory qualifications and experience to conduct financial management responsibilities for the Project. All PIUs will include either a financial management department (in the case of OGM PCU) or designated financial management staff. The IAs will either hire or assign financial management staff from their current qualified staff no later than two months after the Project becomes effective.

21. The PCU under OGM will be responsible for keeping consolidated accounting records for the Project. Each PIU will also keep accounting records for expenditures realized under its subcomponent. For investments at the regional and provincial level, the RDs/PDs of the IAs will be responsible for the procurement and signing of contracts, except for KGM, which will carry out its procurements through its central PIU. The PCU and PIUs will also be responsible for preparing the payment orders and processing the payments through the designated account (for OGM) or designated sub-accounts (for OGM, DSI, TRGM, and KGM). OGM is currently working on ensuring the proposed model, where the local offices will be responsible for releasing payments from the Designated Account at the Central Bank, will comply with the local legislation and World Bank requirements.

22. The PIUs will maintain detailed accounts of the project, covering all components in the loan currency, in an accounting software to be purchased. The software will be customized to facilitate its use by all PIUs. Each PIU will prepare interim unaudited financial reports and year-end financial reports; the OGM PCU will consolidate these reports. The accounting software will become operational no later than two months after Project Effectiveness.

23. The project will include matching grants to finance a range of investments aimed at generating and improving livelihood opportunities for poor households in the targeted basins. OGM and TRGM will be involved in implementation of these matching grants. All the internal control procedures and systems will be detailed in a "Grants Manual" that will be a disbursement condition for the matching grants.

24. There will be one Designated Account for the Project and four sub-accounts that will be opened at the Central Bank of Turkey. All payments to the contractors, suppliers, and consultants will either be made directly from the designated account through OGM (direct payment) or from the Designated Account or designated sub-accounts with the authorization of the responsible personnel.

25. The project will employ the traditional disbursement method using the Designated Account. The minimum application size for payments made directly from the Loan Account for issuing Special Commitments, as well as the statements of expenditure (SOEs) limits, will be described in the disbursement letter. Full documentation in support of SOEs will be retained by the IAs for at least two years after the Bank has received the audit report for the fiscal year in which the last withdrawal from the Loan Account was made. This information will be made available for review during supervision by the Bank staff and for annual audits.

26. The IAs will maintain records and ensure appropriate accounting for the funds provided for the project. The interim un-audited financial reports (IFRs) will be prepared quarterly and submitted to the Bank no later than 45 days after the end of the quarter. The IFR templates will be attached to the minutes of negotiations.

27. As part of the Bank's auditing requirements, the project financial statements (PFS) will be subject to external auditing. The first set of audit reports will be submitted to the Bank before June 30th of the year following the calendar year in which the first disbursement from the loan or grant has been made. The PFSs will be audited by the Treasury Controllers in accordance with International Auditing Standards. The Treasury Controllers are the external auditors for all projects implemented by the ministries in Turkey. Table 1 presents the audit reports and their due dates. The audit reports will be made publicly available in line with the Bank's access to information policy.

Table 1. Project audit reports and due dates

Audit Report	**Due Date**
Project financial statements (PFS) for the IBRD loan.	Within six months after the end of each calendar year and at the closing of the project.

28. The action plan to enhance financial management arrangements is provided below:

Action	**Responsibility**	**Deadline**
Project will be included in the investment plan and the required budget allocations will be made on an annual basis.	IAs and SBO	Completed
The IAs will assign FM experts to work on project preparation.	OGM, DSI, KGM and TRGM	Immediately
Accounting software will be purchased and customized for project purposes.	OGM, DSI, KGM and TRGM	At implementation, no later than two months after effectiveness
FM consultants will be hired (OGM and RSTs) and financial management staff will be assigned (DSI, TRGM and KGM).	OGM, DSI, KGM and TRGM	At implementation, no later than two months after effectiveness

The POM, which include financial management arrangements, will be prepared.	OGM, DSI, KGM and TRGM	No later than two months after effectiveness

29. During project implementation, the Bank will supervise the project's financial management arrangements in two main ways: (i) reviewing the project's interim unaudited financial reports, project's annual audited financial statements, and auditor's management letter; and (ii) during the Bank's supervision missions, reviewing the project's financial management and disbursement arrangements (including a sample of SOEs and movements on the Designated Account) to ensure compliance with the Bank's minimum requirements. The frequency of these visits will be determined in accordance with the project's risk rating, which will be monitored over its lifetime. The supervision missions will also include site visits to monitor physical progress, compared with the financial information.

Procurement

30. **Applicable Procurement Regulations.** The World Bank Procurement Regulations for IPF Borrowers – November 2020 ('Procurement Regulations') will apply to the proposed project. A General Procurement Notice (GPN) will be published on the World Bank's external website and the United Nations Development Business's website immediately after the project negotiations.

31. **Anticorruption Guidelines**. The Bank's 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants' (revised as of July 01, 2016) ('Anticorruption Guidelines') will apply to the project.

32. **Project Procurement Strategy for Development (PPSD)**. OGM developed the PPSD in coordination with TRGM, DSI, and KGM pursuant to paragraphs 4.1 and 4.2 of the Procurement Regulations. The PPSD has been agreed upon by the Bank and will be recorded in the project files after the loan negotiations. The PPSD describes how procurement activities support project operations for achieving the PDO and deliver value for money. The PPSD is linked to the overall project implementation strategy by ensuring proper sequencing of procurement activities. It describes the institutional arrangements of all participating IAs for procurement activities, including roles and responsibilities, proposed thresholds and procurement methods, prior reviews, and other requirements needed for carrying out procurement. The PPSD also includes a detailed description of the capacity needed by the IAs for carrying out procurement, with a specific focus on managing contract implementation, governance structure, and accountability framework. In addition, the PPSD is supported by market research and analysis assessing market-related risks and opportunities that will affect the preferred procurement approach and strategy. The PPSD discusses the IAs' procurement implementation arrangements and an initial potential list of contracts considered for the first 18 months of the project. Investment contracts will be included in the Procurement Plan once they are approved by the Bank in accordance with the eligibility criteria specified in the POM. The initial potential list of contracts includes their cost estimates, selection methods, review procedures, and envisaged time frame according to paragraph 4.4 of the Procurement Regulations. According to the findings, it is not possible to identify the individual procurement packages at this stage for goods contracts under the small matching grant schemes of subcomponents 1.1a and 1.1b due to their demand-driven nature. At this stage, OGM envisages conducting the procurements under the grant schemes through their RDs and delivering the procured goods to the beneficiaries whereas TRGM may allow eligible beneficiaries to carry out their own procurements through acceptable commercial practices. The procurement arrangements for the small grant schemes will be detailed in the Grant Manual agreed by the Bank with due consideration to acceptable commercial practices of the grant beneficiaries, if the beneficiaries allowed to conduct their own procurements.

33. The PPSD confirmed that the commercial procurement practices of small firms, groups of people, and individuals in Turkey follow the general rule that they procure the least cost goods, works, and services consistent with acceptable quality requirements. The Bank has provided financing to various credit line operations in Turkey in which the end users were private sector firms or individuals. All such Bank-financed credit line projects confirmed that the funds were used by the beneficiaries for the intended purposes, with due consideration of economy and efficiency. Thus, in the case of any procurement that may be carried out by the beneficiaries under sub-component 1.1b of the project will be done in accordance with well-established commercial practices as stipulated in the Grants Manual and confirmed by TRGM that these practices are consistent with the Bank's Core Procurement Principles of value for money, economy, integrity, fit for purpose, efficiency, transparency, and fairness.

34. Based on the PPSD, the majority of the contract sizes will be small or medium scale, and the monetary value of the procurements will be within the national procurement thresholds. Considering the estimated sizes and types of the contracts, the procurements are expected to be advertised at the national level. Additionally, it is envisaged that the language of the bids will be Turkish. The Turkish translation of the Bank's Standard Procurement Documents (SPDs) with minor modifications will be used as fit for purpose. It is also expected that some procurements of goods and consulting services for design and supervision will be advertised at the international level. For such procurements, the SPDs will be in English.

35. The PPSD discusses that within the context of the approved selection method for Community-driven Development specified in Paragraphs 6.52-6.53 of the Procurement Regulations, priority will be given to Village Communities, in case workmanship is required for afforestation works as per Article 40 of the Turkish Forest Law No. 6831. A Village Community could be in the form of "Orman Koyluleri Kalkindirma Kooperatifi" or "Koy Tuzel Kisiligi" or the individual villagers. It has been envisaged that the maximum size of such individual contracts may not exceed US$100,000. Hence, the afforestation works may need to be directly contracted to "Village Communities" through a standard written agreement provided in the POM based on the unit prices determined annually by OGM. In case there is no interest from the "Village Communities" in the vicinity of the afforestation areas, contractors could be employed through competitive procurement methods. The details of the procurement procedures for employing "Village Communities" will be defined in the POM as acceptable to the Bank.

36. The PPSD further discusses that the production of fruit and forest tree seedlings is highly specific with large quantities and requires knowledge, experience, and production capacity. In this respect, considering the unique and exceptional nature of the required services and the absence of suitable private sector alternatives, the PPSD proposes that OGM and TRGM RDs/PDs may enter into agreements with OGM Nursery Directorate(s) that have the capacity to produce the required quantities at reasonable prices. Such procurement arrangement is possible as the OGM Nursery Directorates are financially autonomous, operating under revolving funds, and found eligible per Paragraph 3.23 (c) of the Procurement Regulations. To mitigate any conflicts of interest, OGM and TRGM RDs/PDs will not procure such seedlings from any OGM Nursery Directorate that operates under the same OGM RD. However, the project procurements may include the procurement of supply and services required for the seedling production by OGM Nursery Directorates in the Bolaman and Cekerek Basins. In such cases, the seedlings will be supplied to OGM and TRGM RDs/PDs in the project basins free of charge. The details of the implementation arrangements will be provided in the POM as agreed by the Bank.

37. The investments included in the PPSD and potential list of contracts considered for the first 18 months of the project were determined by the IAs as priorities among all the investments planned. Investment contracts will be included in the Procurement Plan once they are approved by the Bank following the eligibility criteria specified in the POM. Those

investments are envisaged to be included in the ILMPs and MCPs of both basins. Supplementary PPSDs will be prepared for additional activities/procurements identified after the completion of these Plans. The potential list of contracts covering the first 18 months does not include the construction of any dam. Dams will be included in the Procurement Plan after the approval of relevant E&S studies by the Bank and preparation of the supplementary PPSDs. The procurements for all dam subprojects will be subject to prequalification of the contractors and prior review of the procurement process by the Bank.

38. The hiring of the individual experts required for the PCU/PIUs, RSTs and RIUs, as needed, will be conducted by the IAs following the individual consultant selection procedures specified in the Procurement Regulations. These include, but may not be limited to, a procurement specialist, a financial management specialist, a social development specialist, an environmental specialist, and relevant technical experts.

39. **Procurement Plan and procurement tracking.** Paragraph 5.9 of the Procurement Regulations requires the Borrower to use the World Bank's Systematic Tracking of Exchanges in Procurement (STEP), an online procurement tracking tool for preparing, clearing, and updating its Procurement Plans and conducting all procurement transactions. The IAs will create the Procurement Plan through STEP before initiating any procurement activity. The investment activities approved by the Bank per the criteria specified in the POM will be identified as a procurement activity. The PPSD and the underlying Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs. The Procurement Plan and its updates shall be subject to the Bank's review and approval. A list of any procurements that may be performed by beneficiaries under subcomponent 1.1b will be recorded in a format agreed by the Bank and specified in the Grants Manual, and these records will be uploaded into STEP by PCU/RSTs at least annually. All the procurement-related complaints will be recorded in the STEP complaint module by the IAs.

40. **Advance procurement**. Procurement Regulations Paragraphs 5.1 and 5.2 (Advance Contracting and Retroactive Financing) permits the IAs, if they wish, to proceed with the procurement process before signing the Legal Agreement. In such cases, if the eventual contracts are to be eligible for World Bank financing, the procurement procedures, including advertising, shall be consistent with Sections I, II, and III of the Procurement Regulations, which cover the Bank's Core Procurement Principles of economy, efficiency, transparency, fairness, fit-for purpose, value for money, and integrity. With this understanding, the IAs may initiate the selection of PIU consultants immediately after project negotiations upon the publication of the GPN.

41. **Procurement risk assessment.** OGM, as the leading IA, will be the focal point for all World Bank communications. All project procurements will be conducted by each IA through their Central and/or Regional/Provincial Directorates (RDs/PDs), which will result in a complex structure. OGM will establish one PCU at the central level in Ankara and two Regional Support Teams (RSTs) at the basin level (one in Ordu province and the other one in Yozgat province). One procurement specialist for the PCU and at least two procurement specialists for each RST will be recruited to support the PIUs of the IAs with procurement activities. OGM will conduct the procurements under the Component 2 of the project through its PCU. Other procurements of OGM under Component 1 will be conducted by the RIUs of OGM under the supervision of the relevant OGM RDs. TRGM will adopt a similar implementation structure, with all procurements to be done at the PDs of Agriculture and Forestry. TRGM will be responsible to supervise any procurements that may carried out by the eligible beneficiaries under subcomponent 1.1b through matching grants, in accordance with procedures stipulated in the Grants Manual. DSI will implement its procurement activities through its responsible RDs in the two basins. KGM will conduct its procurements at the central level in Ankara, while its RDs will support field information supply and contract implementation. All IAs under the project are highly specialized; therefore, they are equipped with qualified and sufficient number of technical and non-technical staff, including public procurement

experts. All IAs' procurements are subject to the Public Procurement Law. As indicated in Table 1 above, all the planned procurements under the project are similar to the procurements under their regular investment programs that have been implemented for many years. Hence, both technical and procurement capacity are available in all IAs. In most cases, technical specifications are ready for the project implementation. The only difference from their regular investment programs is that the WB Procurement Regulations will apply to the procurements under the project. A few experts in several IAs in the Cekerek Basin already have experience in the WB procurement procedure through the Anatolia Watershed Rehabilitation Project (P070950), which was closed in 2012. Considering that most procurements will be conducted at the national level and in the national language, procurement implementation risks will be mitigated by introducing the above-mentioned PCU and RSTs. Moreover, each IA will establish its PIU for implementing its respective the project activities; the PIU will include experts experienced in public procurement and contract management. The PCU and RSTs will be supported by experts such as procurement specialists experienced in international procurement practices and contract management, financial management specialists, social specialists, environmental specialists, and relevant technical specialists, who are familiar with the applicable Bank procedures. The procurement specialists in PCU and RSTs will train IAs' staff on the WB Procurement Regulations throughout project implementation. The POM will include a procurement section, with sample procurement documents acceptable to the Bank, to ensure consistency in procurement implementation among the PCU/PIUs/RIUs.

42. Given the complexity of the Project and the IAs' lack of or limited familiarity with Bank procurement procedures, the project's overall procurement risk is assessed as "Substantial." The risk rating can be lowered to "Moderate" when the agreed actions in Table 2 below have been completed.

Table 2: Identified Risks and Agreed Action Plan

Action No.	Identified Risk	Mitigation Measure	Responsible Party	Time Frame
1.	PIUs staff will not be familiar with the World Bank Procurement Regulations. It may cause noncompliance and delay in procurement activities.	OGM will maintain a dedicated PCU centrally and a RST in each basin with procurement specialists familiar with the procurement procedures of International Financial Institutions, preferably the World Bank.	OGM	The PCU/RSTs will be established at implementation, no later than two months after project effectiveness and maintained during the implementation. The procurement specialist will be assigned no later than one month after the project effectiveness.
2.	Potential delays in the procurement process due to limited familiarity of the PIUs' bid evaluation committee members with World Bank procurement process.	The procurement specialists in the PCU/RSTs will arrange trainings on World Bank Procurement Regulations for the PIUs' bid evaluation committee members.	OGM	Throughout the project.
3.	Differences in procurement implementations may create unnecessary questions from the procurement stakeholders.	Develop a Project Operations Manual with a procurement section for project implementation.	OGM	At implementation, no later than 5 days after effectiveness.
4.	Incomplete environmental and social studies may delay the	All environmental and social studies will be completed before the	OGM/PIUs	Throughout the project.

	commencement of contract implementation.	initiation of procurements and/or signing of contracts.		
5.	Contract deliverables may not be used for the intended purposes by the beneficiaries under small grant schemes.	OGM and TRGM will conduct physical reviews of the procured items to ensure that they will be used for the intended purposes. In addition, TRGM will verify the quality of the procured goods, works and services and the consistency of the contract prices with the market prices.	OGM/TRGM	Throughout the project.
6.	Misinterpretation of the Procurement Regulations and terms and conditions of the contracts may cause noncompliance and schedule and cost overruns in contract implementation.	Procurements done by the PIUs will be reviewed by the RSTs and PCU. The PCU will work closely with World Bank Procurement Specialist.	RSTs/PCU	Throughout the project.
7.	COVID-19 Outbreak will impact procurement processes.	Special procurement arrangements to address this risk will be applied as deemed appropriate in the POM.	PCU/RSTs	Throughout the project.

43. **Bank review of procurement transactions.** The World Bank will review the IAs' procurement arrangements, including contract packaging, applicable procedures, and scheduling of procurement processes, for their conformity with the Legal Agreement. Those procurements that did not have ex-ante due diligence by the World Bank will be subject to ex-post due diligence on a sampling basis per the procedures set forth in Paragraph 4 of Annex II to the Procurement Regulations. The World Bank will typically undertake annual post reviews of the procurement documents during its supervision missions, or it may request to review any particular contract at any time. In such cases, the PCU/RSTs/PIUs shall provide the World Bank the relevant documentation for its review. The PCU/RSTs/PIUs will keep complete and up-to-date records of all procurement documentation and relevant correspondences, which will be reviewed by Bank staff during implementation support missions. Procurement and contract management monitoring reports will be submitted semi-annually as an integral part of the reporting on project implementation.

44. **Complaint review.** The procurement complaints, other than those covered under Annex III of the Procurement Regulations, are to be handled by the IAs following the procedures agreed by the Bank and stipulated in the POM. Immediately upon received, the complaints will be recorded in the STEP complaint module by the PCU/RSTs. The IAs will not proceed with the next stage of the procurement process, including contract awarding, without satisfactory resolution of the complaint(s).

45. Operational costs will not be considered under procurement implementation. Such operational costs are reasonable incremental expenses directly incurred on account of the implementation, management, and monitoring of the project by the IAs. Such costs may include, as relevant and as the Bank agrees, for the following: (a) travel, accommodation, and per diem associated with training, workshop, and study tour for participants and trainers, and other training-related miscellaneous costs; (b) office supplies; (c) office rental; (d) vehicle rental; (e) office and equipment maintenance and repair; (f) communications; (g) translation and interpretation; (h) travel for project supervision; (i) publication fees; (k) ownership of intellectual property rights; and (l) other miscellaneous expenses directly associated with the project and agreed between the Bank and the Borrower.

ANNEX 2: Detailed Project Description

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

1. **Project approach**. The project aims to strengthen integrated landscape management and increase access to improved livelihood opportunities and resilient infrastructure for rural communities in targeted areas of Turkey. The project will adopt an integrated landscape management approach at the basin scale to achieve these objectives. Building on the GoT's and the Bank's previous experience in watershed management, as well as GoT's extensive experience in erosion control, the project will deploy an integrated set of green and gray infrastructure solutions, combined with income-generation activities, as both short and long-term responses to climate-induced risks (i.e., floods, landslides, and drought) for enhancing the resilience of local communities and ecosystems. The project will implement a participatory planning process to consider inputs from different stakeholder groups, allowing for the coordination and integration of solutions among various government agencies and local stakeholders.

2. **Targeted areas**. The project will be implemented in two targeted sub-basins selected by the GoT, as they are characterized by a combination of challenges commonly faced by many of Turkey's river basins and have the potential for replicability in similar contexts. The Bolaman (in the Eastern Black Sea) and Cekerek (in Central Anatolia) basins both face a complex set of problems, including low socioeconomic status and high rates of poverty among rural communities, particularly among forest villages in the upper basins; low agricultural productivity; degradation of natural resources, which further perpetuates the cycle of poverty; vulnerability to and frequent impacts from climate and disaster risks such as floods, landslides and drought; inadequate infrastructure and connectivity; and loss of human capital over the years due to massive outward migration. Using Bolaman and Cekerek Basins as proofs of concept, the project will set in motion a national program for landscape resilience and sustainable recovery in lagging rural areas.

3. **Project Components and Costs.** The Project has two components. Component 1, , Investments in Resilient Landscape Integration in targeted areas, will finance a set of integrated investments in the forestry, agriculture, water, and transport sectors under an integrated landscape approach aimed at building the resilience of landscapes and livelihoods in the Bolaman and Cekerek basins. These investments will address the multifaceted environmental and socioeconomic challenges facing the local populations in these basins, including rural poverty and outward migration, natural resources degradation, water insecurity, and vulnerabilities to climate and disaster risks. This Component will include four parts under two sub-components to be implemented by OGM, TRGM, DSI, and KGM, respectively. Subproject typologies will include a variety of green and gray infrastructure measures, including afforestation, reforestation, forest and pasture rehabilitation and sustainable management, and small-scale erosion, sedimentation, and flood control works upstream; resilient infrastructure systems mid and downstream for water storage, irrigation, and flood, landslide, and sediment control; and the rehabilitation and construction of rural road networks to be climate and disaster-proofed. These green and grey infrastructure investments will be combined with support for the adoption of sustainable management practices in agricultural and pasture lands, including support for sustainable and climate-smart production, selected value chain enhancements, and livelihood diversification activities. Component 2, Institutional Framework, Project Management, and Sustainability, will support technical assistance for scaling-up the project approach to other priority areas, developing a national strategy for landscape resilience and sustainable recovery, and the necessary institutional capacity building for implementing such strategy, as well as all related project management activities, including monitoring and evaluation and environmental and social risk management. The Project costs per Component and basin are summarized in the table below.

Project Components	IA	Bolaman (US$)	Cekerek (US$)	Total (US$)
Component 1: Investments in Resilient Landscape Integration in targeted areas				**127,505,000**
Sub-Component 1.1. Green infrastructure and sustainable livelihoods				**58,839,000**
1.1.A. Forest landscapes and livelihoods upstream	OGM	11,190,000	24,659,000	35,849,000
1.1.B. Sustainable and climate-smart agricultural value chains	TRGM	9,448,000	13,542,000	22,990,000
Sub-Component 1.2. Resilient gray infrastructure				**68,667,000**
1.2.A. Resilient infrastructure for water security	DSI	31,421,000	24,090,000	55,267,000
1.2.B. Resilient mobility	KGM	13,402,000	n/a	13,400,000
Component 2: Institutional Framework, Project Management, and Sustainability				**7,495,000**
Sub-Component 2.1: Implementation Framework for Integrated Landscape Management				3,113,000
Sub-Component 2.2: Project management and sustainability				4,382,000
			TOTAL	**135,000,000**

Component 1: Investments in Resilient Landscape Integration in target areas.

Planning process for Component 1. Due to the pressing problems of flooding and landslides, more prolonged drought events, the lack of water storage and irrigation infrastructure, and poor road conditions affecting local mobility and market access, infrastructure solutions are urgently needed to address these challenges in the targeted basins. Therefore, to jumpstart the project, an initial set of investments were pre-identified during project preparation through the strategic plans of the IAs and validated through the participatory SESAs developed for each basin. A selected subset of these investments will be initiated during early project implementation through the development of subproject-specific Feasibility and E&S studies appraised by the Bank, as concrete no-regret measures defined as first steps in a process that ensures sustainable development and future resilience. During the first year of project implementation and building on additional analysis and stakeholder engagement, OGM will lead the development of ILPMs for each basin, with other IAs' active participation and co-ownership, that will determine the locations of NBS and green infrastructure to complement the gray infrastructure systems at the landscape scale and optimize the combined function of green and gray measures. The ILMP for each basin will also identify a set of priority Micro-catchments (MCs) for the development of MCPs. While the design of the ILMP is formed by a "top-down" approach, the MCP process takes into account "bottom-up" approaches to reflect the needs and ideas of local villagers through participatory methods, enabling the consideration of both micro-scale local conditions and spatial integration among areas with diverse characteristics. The process of developing MCPs consists of four stages: (i) division of the basin into MCs based on the ILMP; (ii) classification of the MCs based on their respective biophysical and socio-economic conditions; (iii) selection of priority MCs that are in need of interventions; and (iv) preparation of MCPs, which will include forestry, agricultural and livelihood investments and small-scale measures for erosion, floods, and landslide mitigations. MC-specific landscape and livelihood investments will be planned in a participatory manner with targeted communities and selected from a range of activities that were pre-identified as most suitable to the conditions of each respective basin from early stakeholder engagement during the process of project identification and SESA scoping. The locations of small-scale measures for erosion, flood, and landslide risk mitigation will be identified during the MC planning process through complementary preparatory studies such as landslide, rockfall, avalanche, flood, and erosion mapping.

Detailed description of subproject investments in the Bolaman River Basin (BRB)

BRB Context. The BRB has its distinct geographical boundaries and hydrological structure and covers an area of 158,886 hectares almost entirely within the Ordu Province. The Basin consists of Aybastı, Çamaş, Çatalpınar, Fatsa, Gölköy, Gürgentepe, Kabataş Korgan, Perşembe, and Ulubey Districts of Ordu Province and Başçiftlik and Reşadiye District of

Tokat Province. The BRB has a population of 255,000, most of whom reside rural areas. There are 97 villages in the Basin, of which 53 are forest villages. The average annual income of non-forest and forest households in BRB is US$2,916 and US$2,362 per year, respectively, which are significantly lower than the Turkish national average annual income per capita of US$9,213. BRB populations are highly vulnerable to the impacts of flooding, landslides, and soil erosion, which are prevalent due to a combination of humid climate with high annual precipitation levels, rough mountainous topography, steep slopes, short rivers, abundant snow cover, and significant land use change over time. Over 33% of the basin area under high to very high risks of flooding, 46% under high to very high risks of landslides, and 72% under high to very high risks of erosion. Flood and landslides have costed lives and caused substantial damages to local infrastructure, properties, and agricultural and assets.[42] Degradation of natural resources such as forests and pastures, as a result of agricultural expansion,[43] further exacerbate vulnerabilities to climate-related risks. Communities in BRB depend on agriculture as the main source of income, but about half of the employment in the sector is in the form of unpaid family work and the vast majority of the remaining individuals are self-employed (more than 40 percent of total agricultural employment), while wage labor is limited (about 2%)[44]. Hazelnut is the dominant agricultural commodity,[45] but profits are limited due to low productivity.[46] Generally, low agricultural productivity in BRB is attributable to poor resources endowment and degradation (i.e., small and fragmented land ownership[47], adverse terrains, soil erosion, etc.), vulnerability to climatic extremes, limited financial capital, significant outmigration,[48] weak market access, and limited focus on commercialization. Poor road conditions, due to frequent damages from floods and landslide, further impede year-round labor mobility and access to markets for inputs and commercial opportunities. The welfare of BRB populations are also affected by the lack of access to safe and clean drinking water, due to seasonal droughts, severe surface water pollution, sedimentation, and insufficient storage and treatment facilities. Climate change will likely exacerbate all these challenges, threatening the safety, welfare, and livelihood security of communities in BRB.

BRB Investment Strategies. The project will support an integrated package of investments in forest and non-forest lands to address the drivers of landscape degradation and support improvements in livelihood opportunities. Livelihood improvement strategies include support for both production and market approaches. On the production side, sustainable and climate-smart agriculture will be promoted for hazelnut cultivation, the largest agricultural commodity in the basin, via implementation of GAPs that improve soil health and water retention (terracing, efficient input/fertilizer use, etc.) and enhanced processes for value addition and market integration. For livestock, the strategy

[42] Between 1950 and 2011, 368 incidences of landslides, 44 incidences of flooding, and 36 incidences of falling rocks occurred in Ordu Province. Recent landslide and flood events in Ordu have caused substantial damages to roads, settlements (including the collapse of an entire village in Aybastı district), bridges (including a large bridge connecting several districts), and agricultural and forest areas.

[43] Over 58% of the basin area is agricultural land, of which 39% is cultivated land, and 19% is pastureland. Forest land has been largely converted to hazelnut groves over the years and currently only accounts for 28.9% of the basin area. Hazelnut is cultivated monoculturally, accounting for 98% of cultivated lands.

[44] Labor data related to agriculture includes agriculture, forestry and fishery activities as identified in NACE Rev.2 1-digit classification. National labor force indicators are from the Household Labor Force Survey microdata by the Turkish Statistical Institute and are reported for broader zones (NUTS2 level). Sector shares of employment for Bolaman are from the zone covering Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane (TR90).

[45] Ordu is the biggest hazelnut producer in Turkey, accounting for 35% of the national production in 2018 with export valued at US$3 billion.

[46] The average yield of hazelnut in BRB was ~6.7 ton/ha between 2012-2019, compared to the national average of ~8.1 ton/ha.

[47] The structural problem of small and fragmented agricultural lands a well-known problem in Turkey, for both forest and rural villages. The problem is even more severe in BRB with over 74% of registered agricultural enterprises working on land parcels of 0.2 ha or less. The minimum sufficient land size required for hazelnut gardens is 0.28 ha. In upland forest villages, land for agriculture and pasture is extremely limited. On average, households in forest villages in BRB have access to 0.25 ha of land, which is much lower to the Turkish national average of 0.64 ha.

[48] Between 1990 and 2007, the rural population in Ordu was reduced by over 33%. People migrate to urban areas in search of employment and economic opportunities. Outmigration rate is especially high among educated youths due to high unemployment rate among university graduate (25%), resulting in disproportionately high percentage of elderlies in BRB. This combined with seasonal migration of landowners result in less investment in and maintenance of agricultural areas.

will consist of mainstreaming, both in forest and non-forest lands (but with a strongest focus on the latter), strategies for sustainable pasture management that contribute to reducing erosion, enhancing carbon retention, and increasing the overall availability and quality of feeding sources. At the same time, complementary investments will be supported to enhance livestock resilience and productivity, including productive infrastructure (barns, shading canopies, salt licks, etc.), improved animal breeds, and the application of good animal husbandry practices (i.e., better veterinarian services). Furthermore, diversification toward new and higher value products such as truffles, persimmons, and mushrooms, which require fewer investments and smaller land areas, will be promoted to reduce pressures on natural resources in the basin. On the market side, training and support will be provided to enhance market access, including establishing producer-buyer linkages and product differentiation via labels and certifications, among others. The project will also support investments to promote nature-based tourism in BRB to generate more livelihood opportunities for local communities. This integrated package of investments will be complemented with resilient green and grey infrastructure investments to prevent further landscape deterioration. Green investments will focus on improving the health and maintaining the land cover of existing forests, especially young forests with high ecosystem service potentials, and reducing human pressure on forests, via alternative energy options. Opportunities for afforestation are limited due to scarcity in land availability and adverse terrains (i.e., shallow topsoil layer on steep slopes). Gray investments include small works upstream to prevent erosion and landslides and reduce the risks and magnitude of flooding to downstream areas, and larger infrastructure system mid and downstream to store water, mitigate the impacts of floods, and reduce sedimentation. These will help improve the welfare and living conditions of communities in BRB. Additionally, gray investments also include rehabilitation of critical road segments to improve their resilience and facilitate market access and rural connectivity. The investments planned for BRB have been grouped into two large subcomponents, as presented below.

Sub-component 1.1. Green infrastructure and sustainable livelihoods

1.1.A Forest landscapes and livelihoods upstream (IA: OGM)

(i) Small-scale erosion, landslide, and flood control works upstream will be implemented in the upstream areas of the Bolaman and Ilica rivers and small creeks and gullies in BRB micro-catchments. Specific locations will be identified through the MPC planning process and preparatory studies such as landslide, rockfall, avalanche, flood, and water erosion mapping. Soil erosion control works will include wire mesh fences to stabilize slopes and reduce sedimentation and small check dams to prevent gully erosion. Upstream flood control works will include small structures such as stone and concrete diversion ditches, V-shaped and trapezoidal channels, mortar check dams, and steel debris barriers to decrease flow velocity, trap sediment, and reduce the quantity of runoff flowing downstream. Additionally, culverts will be installed under road systems to drain runoff, and closed channels will be constructed to safely control runoff downstream. Landslide control works will mostly include retaining walls installed in landslide-prone areas.

(ii) Forest rehabilitation and sustainable management. Activities to be supported will include the maintenance of young forests through sustainable forest management practices to ensure optimal growth and maximize the health and ecosystem services of basin forests, production of saplings, production of NTFPs, establishment of small facilities for enhancing the ecotourism potentials of BRB, and provision of matching grants to promote adoption of alternatives to fuelwood use. Investments supporting the production of healthy saplings will include sapling production machines, soil sieving facilities, and other machinery and equipment. Machinery and equipment to be financed by the project will include cultivators, rotators, and generators, among others. These will also be used for essential forestry activities such as silvicultural interventions (thinning and pruning) and trail maintenance. To reduce the pressure on forests from unsustainable fuelwood harvesting, the grant-matching program will promote the use of photovoltaic (PV) systems for electricity generation and water heating and exterior insulating sheathing and sheet metal roofs for poor households

in the basin. The project will also finance the establishment of small facilities to tap into the potential of the BRB for nature-based tourism and thus help generate new income opportunities for local villagers. These will tentatively include a variety of recreation areas and ecotourism facilities (i.e., parks, picnic and camping sites, walking and biking paths, viewing terraces, artificial ponds, seating areas, sale points for local products, among others).

(iii) Forest pasture rehabilitation and sustainable management: Investments under this subproject typology will include grazing land management activities such as weed removal, seasonal closure, and rotational grazing to be implemented in priority pasturelands in the Ordu and Tokat Provinces, identified through MC planning process. Grazing land management will be complemented by the establishment of small productive and climate-resilient facilities such as shelters, shading canopies, feeding stalls, salt licks, scratching posts, drinking water troughs, sheep baths, and fences will be established to enhance animal welfare and improve the productivity and resilience of livestock systems.

(iv) Income generation and livelihood diversification for forest villages. Activities under this subproject typology will include investments in a range of income-generating activities for poor households living in forest villages across the BRB. These will be supported through a grant matching program and tentatively include, among others: breeding of high yield dairy cattle and buffalo, which will be supported by investments in pasture improvements; beekeeping and honey production; cultivation of high-value products such as truffles, truffle-inoculated seedlings, berries and mushrooms; and establishment of small women-led businesses to support women's employment.

1.1.B. Sustainable and climate-smart agriculture and value chains (IA: TRGM)

(i) Sustainable and climate-smart agricultural practices. These practices will be implemented in a demonstrative manner across the basin based on sustainability and climate-smart criteria specified in the POM. For example, in hazelnut production, activities to be supported will include, among others: cultivation techniques such as pocket terracing for hazelnut gardens on sloping lands to improve water retention and nutrient capture to improve yield and promotion of Good Agricultural Practices (GAPs) to reduce chemical use and improve soil health. In apiculture, activities to be supported include integrated pest management to combat bee diseases, as Ordu is one of the largest honey-producing provinces in Turkey.

(ii) Pasture rehabilitation and sustainable management. The project will support pasture management improvements in priority pasture lands to be identified through the MC planning process. Proposed investments will support similar activities as in forest pasturelands, including weed removal, seasonal closure and rotational grazing, with additional support for grass planting to extend pasture areas, studies to improve quality of pasture lands, and pasture management training for farmers. As in the case of forest lands, the establishment of small climate-resilient and productive facilities will also be supported to enhance animal welfare and the productivity and climate resilience of livestock systems. These will tentatively include shelters and sheds, feed storage and feeding stalls, shading canopies, caretaker houses, water tanks and troughs, scratching posts, salt licks, etc. Investments in pasture management and livestock-related facilities will provide a sustainable resource base for the animal husbandry activities under the *Agricultural diversification and sustainable value chain* subproject typology below.

(iii) Agricultural diversification and sustainable value chains in rural villages will include investments aimed at enhancing value chain performance and promoting income diversification among rural households and small enterprises in BRB. Tentative investments will support expanding opportunities in existing value chains, for example in

cattle/dairy cattle value chain, via enhancing production (i.e., improved breeds, barn renovation, application of good animal husbandry practices, including improved animal health services and on-farm manure management, etc.) and market linkages; in hazelnuts, via improved postharvest and added value processes (i.e., supported investments in portable blend and hazelnut drying stations); in poultry farming and beekeeping, via enhancing quality production and product differentiation (i.e., free-range organic egg production, new apicultural products, etc.). Additionally, investments will also support expanding opportunities in new products/markets for income diversification, for example, via cultivation and strengthening market linkages for high-value products such as truffles, persimmon, dates, mushrooms, berries, etc., and support women-led small scale enterprises (SMEs) in enhancing product quality and product differentiation in the market place. Installation of greenhouses with ventilation and small-scale irrigation systems and facilities for mushroom production will be financed to support these horticultural activities.

Sub-component 1.2. Resilient gray infrastructure

1.2.A. Resilient infrastructure for water security (IA: DSI)

(i) Dams and multipurpose reservoirs subprojects for drinking water that have been pre-identified in the BRB include the following:

Location	Scope	Readiness[49]
Çatalpınar District Reservoir, Ordu Province	Construction of Çatalpınar Reservoir in Çatalpınar: Storage dam height from riverbed is 38.50m. Reservoir will source water from Dikyol stream and supply water to Çatalpınar treatment plant at a capacity of 1.82 hm^3/year. Reservoir storage volume is 0.45hm^3; total body volume is 249,000m^3.	FS: completion in 2022 ESS: completion in 2022 ED: completion in 2023 CW: start in 2023
Aybastı District Reservoir, Ordu Province	Construction of Aybastı Reservoir in Aybasti: Storage dam height from riverbed is 23m. Reservoir will source water from Erisk stream and supply water to Çatalpınar treatment plant at a capacity of 1.61hm^3/year. Reservoir storage volume is 1.03m^3; total body volume is 95,000m^3.	FS: completion in 2022 ESS: completion in 2022 ED: completion in 2023 CW: start in 2024

(ii) Flood and sedimentation control structures will be constructed in various locations to protect local populations, agricultural lands, and industrial facilities in the BRB. The following subprojects have been pre-identified:

Location	Scope	Readiness
Keş Stream Flood and Sedimentation Control, Catalpınar District, Ordu	1100m streambed rehabilitation; 2200m two-way grouted riprap (width: 30m; height from riverbed:3.2m); 1 bridge (30m span).	FS/ED: completed ESS: completion in 2022 CW: start in 2022
Şahsene Stream Flood Control, Ordu	760m embankment (2.8m); 2300m stone intrenchment (height from riverbed: 2.8m).	FS/ED: completion in 2021 ESS: completion in 2021 CW: start in 2022
Fatsa Industrial Estate Flood and Sedimentation Control	2000m reinforced concrete U channel (width: 4.5m; height of channel: 4.5m).	FS/ED: completion in 2022 ESS: completion in 2022 CW: start in 2022
Şifalısu Stream Flood Control point, Çatalpınar-Elmaköy Neighbourhood	600m stream bed rehabilitation; 600m fortified impoundment (width: 45m; height from riverbed: 4m).	FS/ED: completion in 2022 ESS: completion in 2022 CW: start in 2022
Güllü Stream Flood and	400m retaining riprap (width: 25m; height from riverbed:	FS/ED: completion in 2022

[49] FS: Feasibility Studies; ESS: Environmental and Social Studies; ED: Engineering Designs; CW: Construction Works.

Sedimentation Control, Korgan-Tepealan Neighbourhood	2.1m).	ESS: completion in 2022 CW: start in 2023
Karaağaç Stream Flood and Sedimentation Control, Gölköy-Karahasan Neigbourhood	500m stream bed rehabilitation; 600m retaining wall (width: 15m; height from riverbed: 3.8m).	FS/ED: completion in 2022 ESS: completion in 2022 CW: start in 2023
Bolaman River Flood Control, Fatsa, Ordu Province	2,000m two-way retaining wall (height from riverbed: 5.6m); 11,000m two-way stone entrenchment (height from river bed: 4,6m- width: 70m); 10 culverts (minimum 2.0x2.0m or 2.5x2.5m); 2 bridges (70m span).	FS/ED: completion in 2022 ESS: completion in 2022 CW: start in 2023
Bolaman River Levee, Ordu Province	35 levees (approximate height from riverbed: between 3-8m).	FS: completed ED: completion in 2022 ESS: completion in 2022 CW: start in 2022
Fatsa-Karadere Flood Control	1800m two way retaining wall (width: 20m; height from riverbed: 1.5m).	FS/ED: completion in 2022 ESS: completion in 2022 CW: start in 2023

1.2.B. Resilient mobility (IA: KGM)

(i) Resilient rural road rehabilitation investments will target road segments located in areas with active and potential risk of landslides, rock falls, floods, and other damages in BRB caused by excessive rainfall and winter conditions which, combined with the lack of drainage have caused the road surface to severely deteriorate. The following subprojects have been pre-identified during preparation:

Location	Scope	Readiness
Kabataş - Aybastı Road	Length: 8km; 8m wide hydraulic structures, bituminous hot mix coating, drainage, protective walls, road width extension by 2m.	FS: completed ESS: completion in 2021 ED: completion in 2021 CW: start in 2022
Aybastı - Gölköy Road	Length: 37km; bituminous hot mix coating, drainage system, protective wall, rigid curve improvement, road width extension by 2m.	FS: completed ESS: completion in 2021 ED: completion in 2021 CW: start in 2022

Detailed description of subproject investments in the Cekerek River Basin (CRB)

92. **CRB Context.** The Cekerek Basin is located in the Central Anatolia region and covers an area of 876,551 hectares. The basin comprises the Akdağmadeni, Aydıncık, Çayıralan, Çekerek, Kadışehri, Saraykent, Sorgun and Merkez Districts of the Yozgat Province; the Yıldızeli District of the Sivas Province; the Artova, Sulusaray and Yeşilyurt Districts of the Tokat Province; and the Alaca and Ortaköy Districts of the Çorum Province. The CRB is severely affected by wind and water-induced soil erosion with high soil erosion sensitivity and intensity. This is due to the combination of semi-arid climatic conditions, highly uneven topography, steep valley sides, large areas of barren lands, and heavy and disruptive precipitation, together with a long history of rapid human expansion, overgrazing, and unsustainable land use. A high level of vulnerability to droughts is also a prominent issue. Although forested areas cover 35.4% of the region, the region's forests are of low quality, with half the standing forests and coppices degraded. Illegal cuttings are widespread in the region, as forest cuttings are 2.6 times the natural growth calculated in forest management plans. Loss of

biodiversity as a result of overexploitation of ecosystems is also severe in the region. Unplanned agricultural practices also exert significant pressure on forests and pastures, while dryland cultivation due to inadequate irrigation infrastructure further reinforces soil erosion problems. Landslides and flooding are also aggravating issues. Most of the basin [50]population lives in predominantly rural areas and have low socioeconomic status, with most districts ranking low in relevant surveys.[51] Agriculture, animal husbandry, and agriculture-based enterprises are the key pillars of the economy and employ most of the working population in CRB. However, agriculture is still mostly subsistence-based, and more than half of the employment is in the form of unpaid family work. High vulnerability to droughts, inadequate irrigation infrastructure, and scarcity of irrigated lands have constrained agricultural productivity and growth, while the shift towards the industrial and services sector at the national level has triggered outward migration and reinforced the long-term downward trend in agricultural employment. Consequently, agricultural productivity has decreased over the years, despite the availability of almost half a million hectares of land suitable for cultivation and animal husbandry. Communities in CRB are also vulnerable to the risks of flooding, especially in the upper basin area, and landslides. Floods in CRB mostly occur following heavy storms. Though not a prominent problem, landslides have resulted in damages to many homes in Çorum and Tokat in the past.

CRB Investment Strategies. Similar to BRB, the project will support an integrated package of investments to create synergies between landscape restoration and livelihood improvements. As in BRB, livelihood improvement strategies in CRB will focus on enhancing productivity in key production systems (i.e., livestock) and diversifying towards other product types such as truffles and wine grapes. These are complemented with enhanced market access and value addition via the establishment of producer-buyer linkages, product differentiation, and quality improvements via post-harvest processing, branding, and certification, among others. Livelihood strategies also incorporate sustainable and climate-smart practices in key production systems to reduce pressure on the landscape, while the green and gray investments both address pressing problems and build resilience in the long run. Green investments in CRB include afforestation, reforestation, forest rehabilitation, and revegetation to increase forest and vegetation cover on barren lands to combat widespread erosion problems in the basin. Gray infrastructure investments will largely focus on irrigation works to tackle drought problems and support agricultural activities, as well as flood control works. A detailed description of planned investments is presented below.

Subcomponent 1.1. Green infrastructure and sustainable livelihoods

1.1.A Forest landscapes and livelihoods upstream (IA: OGM)

(i) Small-scale erosion, landslide, and flood control works upstream. Investments under this subproject typology will support small works to address issues of landscape deterioration in CRB. Specific locations will be determined through the MC planning process, which will include preparatory studies such as landslide, rockfall, avalanche, flood, and water erosion mapping. Soil conservation measures, such as revegetation in barren areas and improvement of existing vegetation cover, will be implemented to minimize surface and gully erosion. These will include activities such as tillage, terracing, planting of grass and suitable local species, and removal of degraded oaks. Additionally, small works, including wire mesh fences, mortar structures, and mortar and non-mortar transverse structures, will be implemented to rehabilitate gullies, minimize erosion, reduce flow velocity, and prevent flooding downstream.

[50] General Directorate of Forestry, Ministry of Agriculture & Forestry. 2021. Turkey Resilient Landscape Integration Project (TULIP). Strategic Environmental and Social Assessment Scoping Report. Cekerek River Basin.

[51] All but one district ranked low in a 2014 socio-economic status Survey run by the State Planning Organization, which uses variables including demographics, employment, education, healthcare, industry, agriculture, construction, finances, and other indicators of well-being. All four provinces of CRB were ranked second and third lowest in a 2017 Socio-Economic Development Ranking Survey run by the Ministry of Industry and Technology, which uses similar variables.

(ii) Forest rehabilitation and sustainable management. Activities in this sub-project typology will mainly include afforestation, reforestation, and forest rehabilitation activities, and related investments. Forest and vegetation in degraded areas will be restored, and suitable fruit-bearing species will be planted in barren areas. Lands will be tilled and terraced in preparation for afforestation activities. This sub-project will also finance the production of NFTP and the establishment of small facilities for sapling production. To reduce the pressure on forests from unsustainable fuelwood harvesting, as in BRB, a grant matching program will be implemented to promote the use of photovoltaic (PV) systems for electricity generation and water heating, as well as exterior insulating sheathing for poor households in the CRB. Similar to BRB, the project will also make investments to enhance the potential for nature-based tourism in order to enhance livelihood opportunities for local communities. Recreational areas and facilities under consideration include walking paths, biking paths, camping areas, viewing terraces, picnic areas, artificial ponds, children's playgrounds, adventure parks, and sale points for local products.

(iii) Forest pasture rehabilitation and sustainable management. This subproject typology will finance grazing management activities in pastures located within designated forest lands, including weed removal, fertilizer application, rotational grazing and seasonal closure, terracing, gully rehabilitation, and pasture management studies to improve the area and quality of pasturelands. Moreover, investments in small climate-resilient productive facilities will complement grazing management to enhance animal welfare and the productivity and resilience of livestock systems. These may include shelters, shading canopies, water troughs, scratching poles, salt licks, and pasture fences and access roads.

(iv) Income generation and livelihood diversification for forest villages Activities under this subproject typology will include a range of investments aimed at generating improved livelihood opportunities targeting poor households in CRB forest villages. Livelihood activities will be supported through matching grants and will include breeding of high-yield dairy cattle and dairy sheep to improve the productivity of animal husbandry; beekeeping and diversification of bee products; cultivation of high-value products such as truffles and mushrooms; installation of greenhouses to support year-round climate-smart horticulture; and establishment of small businesses to support women's employment.

1.1.B. Sustainable and climate-smart agricultural value chains (IA: TRGM)

(i) Sustainable and climate-smart agricultural practices. These practices will be implemented on a demonstrative basis in CRB. They will include, among others, preparatory studies such as soil analysis, GAPs, and training to farmers on nutrient management (correct and efficient application of fertilizers) to reduce nutrient runoff and promote soil health. This subproject typology will also support the dissemination of high-yield and climate-resilient seeds for wheat, barley, chickpea, potato, onions, and forage crops cultivation; and installation of small-scale demonstrative water-efficient irrigation systems to promote the use of these systems in the basin.

(ii) Pasture rehabilitation and sustainable management. The project will support grazing land management in several districts in Çorum, Sivas, and Tokat Provinces to reduce grazing pressure in priority areas identified in MCPs. As in the case of BRB, these will include improved management practices such as rotational grazing and seasonal closure, weed removal, combined with seeding and fertilizing to rehabilitate degraded pasturelands. Such activities will be designed with ample participation and training of shepherd and farmers on sustainable pasture management. They will also be complemented by investments in small climate-resilient rangeland infrastructure and facilities such as watering points for livestock, scratch posts, shelters, shading canopies, feeding stalls, pasture fences, and access roads to enhance

animal welfare and the productivity and resilience of livestock systems. As in BRB, these investments will provide a sustainable natural resource base for the investments in animal husbandry management that will be supported under *Agricultural diversification and sustainable value chain* subprojects below.

(iii) Agricultural diversification and sustainable value chains in rural villages. This subproject typology will include a range of income-generation activities for households in CRB through small matching grants. As the basin is within proximity to large markets such as Izmir and Istanbul, the project will support diversification towards products with potential and high demands in these markets and generate employment opportunities, particularly for women and youth. Specifically, the project will invest in expanding opportunities in existing animal husbandry value chains through improved production (i.e., high-yield breeds, barn renovation, improved animal health services, and other GAPs, etc.) and enhanced market linkages to add value to the most dominant income generating activities in the basin. Similarly, the project will support quality enhancement and product differentiation in apiculture and expansion of opportunities in new and higher quality products such as fruits, mushrooms, and wine grapes. Greenhouses will be installed to support the cultivation of these products. The investments supporting production activities will be complemented with market access-related support such as establishing producer-buyer linkages and market promotion/differentiation. Additionally, support will be provided to women-led enterprises to enhance quality, support product differentiation, and support female employment. A training and coaching program will also be implemented to support youth employment in the agricultural sector.

1.2.A. Resilient infrastructure for water security (IA: DSI)

(i) Dams and multipurpose reservoirs subprojects for irrigation water that have been pre-identified in the CRB include the following.

Location	Scope	Readiness
Ağmusa Reservoir Construction, Artova District, Tokat Province	Storage capacity of 0.604hm^3 (normal water level) - 0.694 hm^3 (maximum water level); sediment volume (dead volume): 0.045 hm^3; storage dam height from thalweg: 27,55m as clay-core rock fill.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2023
Yukarı Karahacılı Reservoir, Çekerek District, Yozgat Province	Storage capacity of 1.2hm^3 (normal water level) - 1.35hm^3 (maximum water level:); sediment volume (dead volume): 0.163hm^3; storage dam height from thalweg: 37m as front side geomembrane coated rock fill.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2023

(ii) Irrigation works will be constructed and installed to supply irrigation water to support agricultural production in the CRB. The following structures have been pre-identified during preparation:

Location	Scope	Readiness
İbrahimköy Irrigation System, Alaca District, Çorum Province	Irrigation main transmission line (length: 5024m); Network type: high pressure piped; Irrigation technology: sprinkler + drip.	FS: completed ESS: completion in 2022 ED: completion in 2021 CW: start in 2022
Seyitnizam Irrigation System, Alaca District, Çorum Province	Irrigation main transmission line (length: 4884m); Network type: high pressure piped; Irrigation technology: sprinkler + drip.	FS: completed ESS: completion in 2022 ED: completion in 2021 CW: start in 2022

Kızılhamza Irrigation System, Ortaköy District, Çorum Province	Irrigation main transmission line (length: 3362m); Network type: high pressure piped; Irrigation technology: sprinkler + drip.	FS: completed ESS: completion in 2022 ED: completion in 2021 CW: start in 2022
Artova Reservoir Irrigation System, Artova District, Tokat Province	Construction of main irrigation line and auxiliary lines (length: 23,000m); Irrigation system is pressure piped with sprinkler and drip technology; System supply capacity is 2.58hm^3/year.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2023
Ağmusa Irrigation System, Artova, Tokat Province	Construction of main irrigation line (length: 2,817m; material: HDPE 100; diameter); Irrigation system is pressure piped with sprinkler and drip technology; System supply capacity is 0.582hm^3/year.	FS: completed ESS: completion in 2022 ED: completion in 2023 CW: start in 2023
Yukarı Karahacılı Irrigation System, Çekerek District, Yozgat Province.	Construction of main irrigation line (length: 4,550m; material: HDPE 100; diameter); Irrigation system is pressure piped with sprinkler and drip technology; System supply capacity is 0.742hm^3/year.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2023
Büyükmahal Irrigation System, Merkez District, Yozgat Province	Construction of main irrigation line (length: 5,700m; material: HDPE 100; diameter); Irrigation system is pressure piped with sprinkler and drip technology; System supply capacity is 1,137hm^3/year.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022

(iii) Flood and sedimentation control structures will be constructed in multiple locations across the CRB to protect settlements and agricultural lands. The following subprojects have been pre-identified:

Location	Scope	Readiness
Karalar Village Flood and Sedimentation Control, Yıldızeli, Sivas Province	3500m streambed rehabilitation (width: 8m x height of channel: 1.2m); 890m two-way reinforced concrete U type channel (width: 4m x height of channel: 1.75); 4 culverts; 4 culverts renewal (4x2m); and 1 check dam (height from riverbed: 3m).	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Özderesi - Çime -Village Flood and Sedimentation Control	560m streambed rehabilitation; 485 m retaining wall (width: 5m x height of channel: 2m); 75m concrete U type channel (2x1.4); and 3 culverts.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Yeniköy-Kurt Stream Flood and Sedimentation Control, Yeşilyurt, Tokat Province	500m streambed rehabilitation; 500m two-way reinforced concrete U type channel (width: 2m x height of channel: 1.7m); 4 culverts (2.0x2.0); and 1 check dam (height from river bad: 4m).	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Kunduz Village- Karasu Stream Taşkın Flood Control, Artova, Tokat Province	1400m streambed rehabilitation; 300m retaining wall; 2 culverts; rectangular channel (width: 10m, the height: 3m).	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Külekçi Village- Sarsak and Deve Streams Flood and Sedimentation Control, Çayıralan District, Yozgat Province	1100m trapezoidal stone lined channel with mortar; 5 bridges; and 1 check dam. In Deve Deresi, 300m long trapezoidal stone lined channel (base width: 2m, height: 1.4m, top width: 4.8m); and 1 check dam (height from riverbed: 3m). In Sarsak Creek, 800m long trapezoidal stone covered channel with	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022

	(base width: 7m, height: 1.9m, top width: 10.8m).	
Arpaç Village- Kavaklı and Hocanınpınar Flood and Sedimentation Control, Çekerek, Yozgat Province	850m trapezoidal stone covered channel with mortar; 4 bridges; and 1 reverse dam. In Hocapinar Strem, 500m long trapezoidal mortar paved channel (base width: 2m, height: 1.2m, top width: 4.4m); and 1 check dam (height from river bed: 2m). In Kavaklı Stream, a 350m long trapezoidal stone lined channel (base width: 1.5m, height: 1.3m, top width: 4.1m).	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Çandır Village- Kabak and Seynikkızıyunak Streams Flood Control, Çekerek, Yozgat Province	1800m trapezoidal stone lined canal with mortar; 7 arch-section bridges; and 1 reverse dam. In Kabak Stream, 1,000m trapezoidal stone lined channel (floor width: 12m, height: 1.2m, top width: 14.4m); and 1 check dam (height from river bed: 4m). In Seynikkiziyunak Stream, 2.4m base width, 1.2m height, 4.8m top width, 20cm thick, 800m long trapezoidal stone covered channel.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Çamsaray Village- Kuru Stream Flood Control, Kadışehri, Yozgat Province	500m vertical wall concrete channel (width: 1.5m x height of channel: 1.1m); and 3 arch bridges.	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022
Yelten Village-Seyhan Stream (Kirazlı Stream) Flood and Sedimentation Control, Kadışehri, Yozgat Province	180m vertical wall concrete canal; 500m trapezoidal section mortared stone lining channel; and bridges with arch cross section. 180m concrete channel with a vertical wall (width: 1m, height: 1.4m) in Kirazlik Stream. In the Seyhan Stream, a 500m long trapezoidal stone covered channel (base width: 2.4m, height: 1.75m, top width: 5.9m).	FS: completed ESS: completion in 2022 ED: completion in 2022 CW: start in 2022

4. **Component 2: Institutional Framework, Project Management, and Sustainability.** This component aims to strengthen the capacities and coordination among participating institutions, to ensure not only effective and efficient project implementation but also to support the establishment of institutional structures and processes for integrated landscape planning and management in both the areas targeted by the project as well as other priority locations in Turkey. It will support the development of a national strategy for landscape resilience in vulnerable rural areas, including the necessary technical assistance and capacity building for implementing such a strategy. It will also support project management activities, including monitoring and evaluation and environmental and social risk management. This component will include two sub-components to be implemented by OGM.

5. **Sub-component 2.1: Implementation Framework for Integrated Landscape Management.** This sub-component will include the following main activities:

(i) Implementation framework: activities will support the development of the implementation framework for Integrated Landscape Management, including developing a national strategy for landscape resilience and sustainable recovery in vulnerable rural areas and the associated regulatory mechanism for its implementation. Planned activities include necessary studies and stakeholder consultations for the strategy development, including a framework for prioritization of near-future investments.

(ii) Technical assistance: activities will support (a) the development of technical guidelines to support the implementation of the national strategy for landscape resilience, including for the design of integrated planning tools at the landscape level combining green and gray infrastructure solutions (i.e., ILMPs, MCPs, SESA, among others, including high-resolution flood modeling and dam safety guidelines); (b) development of ILMPs for the BRB and CRB,

building on their SESAs, to serve as models for other priority basins that would be implemented under the national strategy for landscape resilience, and development of participatory MCPs for a number of priority-MCs in the BRB and CRB; (c) development of feasibility studies and E&S tools, as needed, for selected priority basins.

(iii) Capacity building: activities will include developing and implementing a capacity-building program with agency staff, local authorities, and local farmers to support the application of the ILM approach and associated sustainable landscape management practices supported by the project. The program will be designed in consultation with relevant institutions and stakeholders based on a capacity needs assessment and will aim to bring innovation in NRM practices in Turkey. Potential activities may include workshops, seminars, farmer training schools, and study tours to other countries for knowledge exchange.

6. **Sub-component 2.2: Project management and sustainability.** Activities under this sub-component will include: (i) project management support, including staffing of the PCU and RSTs with fiduciary, E&S, M&E, and technical specialists as needed; as well as operational costs for the day-to-day project implementation activities; (ii) support for environmental and social risk management, including preparation of site-specific E&S instruments and support for dam safety management; (iii) grievance redress, citizen engagement, and implementation of a Communications and Visibility Plan; and (iv) Monitoring and Evaluation, including the development of a Monitoring Information System (MIS) based on an integrated data/GIS platform for monitoring key landscape variables; impact assessment studies at project start (baseline), mid-term, and completion; and biennial beneficiary satisfaction surveys as part of continuous citizen engagement efforts.

ANNEX 3: Economic and Financial analysis

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

1. This annex presents the economic and financial analysis for the two river basins - Bolaman and Cekerek - under the TULIP Project. The project is expected to generate significant net incremental benefits for approximately 90,000 direct beneficiaries, with substantial off-site benefits, from four types of investment: (i) green infrastructure and sustainable livelihoods upstream; (ii) sustainable agriculture and value chains; (iii) water storage and irrigation; and (iv) resilient mobility (roads). To justify the benefits of the project, this annex is structured around three key sections on: (i) the project's development impact; (ii) public provisioning of finances; and (iii) the World Bank's value addition.

2. The analysis draws a link between the indirect and direct benefits of investments that assume direct interactions between natural resources management, improved and diversified livelihood activities, and poverty reduction. Improved public goods and services in the shape of green and gray infrastructure are central to establishing a platform for vulnerable rural communities to build more resilient livelihoods in the face of continued land degradation and climate change. In estimating the indirect benefits and cost savings, the analysis uses values of soil and nutrient replacement, biomass increases in forests, reduction in repairs/losses from floods/landslides/drought, improved water storage capacity to support people's health, improved roads, and better market linkages. Direct benefits are associated with increased agricultural production and revenues, improved water storage capacity and irrigation efficiency, and improved market linkages.

3. To estimate the benefits of the project investments, the 'without-project' and 'with-project' scenarios are modeled as two hypothetical scenarios. In the without-project scenario, costs/outputs remain stable over the period equivalent to the project lifetime; in the with-project scenario, costs/outputs increase by an average of 40% over the project lifetime. Both scenarios use a discount rate of 6% over a 20-year period. By using the incremental changes in output (relative to the counterfactual simulated as the continuation of past trends in output growth), the economic internal rate of return (EIRR) for TULIP investments is estimated.

4. The assumptions used for the analysis are based on local, regional, and global conditions. Local assumptions include: (i) operation and maintenance are 6%; (ii) discount period is 20 years; (iii) agricultural activities increase productivity between 5-40%; (iv) grant subsidies are limited to 50% of the costs of financed activities; (v) reduction in waterborne diseases begin to decline after three years of implementation; (vi) agency and user benefits from road use increase due to lower vehicle and operational costs, road maintenance and reduced journey time. Regional assumptions include: (i) better management of ecosystem services results in the reduction of soil loss; (ii) soil nutrient replacement improves the resilience of agricultural production that is affected by a warming climate and potential water deficits; (iii) repairs associated with damages from floods and landslides are reduced due to increased flood protection based on Google Earth map data; (iv) road maintenance cost per km travelled are reduced; (v) increased capacities and reduced repair and maintenance costs in multiple sectors supported by the project enhances the overall resilience of public authorities and private households to adapt to forces of change. Global assumptions include carbon sequestration per hectare following the World Bank 2017 Guidance Notes on Shadow Price of Carbon (SPC). Low and high SPCs start at USD$ 41 and US$ 82 per tCO2 in 2021 and increase up to US$ 63 and US$ 125 in 2040.

5. **Project development impact.** The modeling bases the calculation on key project benefits, including: (i) the reduction of flood and landslide damage; (ii) forest rehabilitation; (iii) pasture rehabilitation; (iv) fuelwood use reduction; (v)

agricultural diversification and productivity; (vi) irrigation; (vii) erosion control; (viii) road improvement; and (ix) increased drinking water availability and people's health. Total project benefits, with an estimated total economic cost value (excluding taxes) of US$ 146 million, returns an NPV of US$ 65.3 million, an EIRR of 12.8%, and a BCR of 1.42, using a social discount rate of 6%. In Bolaman, where precipitation is currently 30% higher and more erratic than 40 years ago, the returns are driven mainly by savings in repair costs from flood and landslide damages. In Cekerek, changes in agronomic practices with the availability of irrigation and cost savings from reduced flood damages and fuelwood consumption drive the benefits. In Bolaman, the economic analysis returns an NPV of US$ 49.9 million, an EIRR of 17.9%, and a BCR of 1.70. In Cekerek, the economic analysis returns an NPV of US$ 24.7 million, an EIRR of 11%, and a BCR of 1.32. All figures are without GHG sequestration benefits and the SPC.

6. **Forest and pasture rehabilitation.** The analysis looks at how the delivery of ecosystem services through forest and pasture rehabilitation provides multiple benefits to local communities in the project areas while also generating global benefits such as GHG emissions reduction and sequestration. The analysis initially assessed the return of investments from afforestation and forest rehabilitation in each basin (6,316 ha in Bolaman and 5,964 ha in Cekerek). The model utilizes technical parameters and project costs for each basin's activities to determine the incremental benefits. The analysis assumes an increase in forest products of $3m^3$ per hectare, at an estimated value of US$ 58 per MT, after the third year of the project. In Bolaman, the analysis returns an NPV of US$ 6.0 million and an EIRR of 34% over 20 years. In Cekerek, the analysis returns an NPV of US$ 3.3 million and an EIRR of 14.4% over the same period. Benefits from pasture rehabilitation were estimated for a total of 5,826 ha of pastureland in Bolaman (including 3,476 ha in forest lands and 2,350 ha in non-forest lands) and 10,776 ha in Cekerek (including 2,976 ha in forest lands and 7,800 ha in non-forest lands) within the lifetime of the project. Dry matter is assumed to increase from 250 kg/ha to 600-800 kg/ha at a price of US$ 322 per MT. For Bolaman, the model returns an NPV of US$ 5.9 million and an EIRR of 33.6% over 20 years. In Cekerek, with more area rehabilitated, the analysis returns an NPV of US$ 5.6 million and an EIRR of 42%.

7. **Flood and landslide repair reductions.** The analysis is conducted at the basin level to capture the benefits of improved flood and landslide control and drought risk mitigation after the availability of irrigation (in Cekerek). Due to the difficulty in obtaining historical data on flood damages, an assumption is made using the Global Facility for Disaster Risk Reduction's (GFDRR) estimation of the expected impact on GDP per year by province in Turkey as a proxy for flood damages. While the GFDRR analysis uses a range between 0.5-4.5% of GDP per year, the figure used for the two basins is 3%. GDP and population figures for both provinces from the State Institute of Statistics are cross-checked with the projected beneficiary numbers by the project. Historical data from Google Earth maps were used to further build flood hazard models that support the assumptions of the frequency of extreme weather events. In Bolaman, there is a clear increase of 30% in seasonal precipitation over the past 40 years, with peaks every 2-3 years over the past 10 years. In Cekerek, increasing evapotranspiration and more erratic rainfall can be witnessed over the same period, which may be linked to the increasing challenges to water supply. The World Resource Institute also predicts that flood damages in Turkey will increase by 25% from 2010 to 2030 and double by 2050, strongly indicating further increases in flood risks. In this respect, the modeling remains within conservative boundaries for estimating the impacts and expected benefits from flood protection interventions. On average, incremental benefits average between US$ 1-7 million per basin per year, when fully realized, over the 20-year discount period, based on an estimated decline of expected damages by 60-80% as compared between the without-project and with-project scenarios. For Bolaman, an estimated total area of 96,487 ha is impacted by floods and landslides; in Cekerek, the total impacted area is approximately 22,500 ha. For Bolaman, these assumptions return an NPV of US$58.2 million and an EIRR of 131.3% over 20 years, while for Cekerek, the calculation returns an NPV of US$ 8.5 million and an EIRR of 24.5%, at a 6% discount rate. The returns are in line with other similar watershed management projects involving flood protection in Turkey.

8. **Fuelwood use reduction.** The economic model is based on fuelwood savings and associated health benefits, using the targeted number of households benefiting from this investment in the result framework. In total, 3,572 households benefit from fuelwood saving investments in both basins (1,118 in Bolaman and 2,454 in Cekerek). Fuelwood consumption is based on 10 m^3 per household per year and an estimated fuelwood saving of 30% per year. In the health benefits model, the exposure rates are reduced by the same factor, using household indoor air pollution health estimates from the Global Health Data Exchange and assuming a mortality rate of 600 per 100,000 population in the without-project scenario. Using the average value of statistical life from OECD estimates and reduced mortality rates, the loss in lifetime earnings capacity is estimated. The combination of both fuelwood savings and health benefits returns an NPV of US$ 13.6 million for Bolaman and an NPV of US$ 28.3 million for Cekerek. The calculation does not produce an IRR figure due to the constant positive return.

9. **Agricultural productivity and diversification.** More resilient livelihoods and income diversification are important aspects of the project, given agriculture's dominant role within the rural setting, and will remain an important economic sector to channel assistance to poor rural households going forward. The modeling for agriculture calculates improvements in productivity per hectare, using several key activities planned under the project, including income diversification efforts in kiwi and persimmon cultivation, beekeeping, and dairy farming. The modelling for agriculture calculates improvements in productivity per hectare. In Cekerek, the productivity per hectare for wheat, sugar beet, chickpea, fodder crops, vegetable production, maize, barley, and potato were calculated. Further analysis at the farm budget level shows strong returns for both Bolaman and Cekerek. In Bolaman, demonstrative climate-smart agricultural activities over 195 ha will help participating farmers better understand new farm management practices, overcome information barriers, and act as examples for other farmers to follow. In Cekerek, where the focus is mainly on climate-smart agriculture in rainfed areas, old seed stocks are exchanged for climate-smart, drought-tolerant varieties for cereals, fodder crops, and pulses. Initial demonstrative activities by participating farmers in both basins help other farmers understand new practices and diversified activities and the associated risks before making their own investments along with the project. The proximity of demonstrative activities to beneficiary villages help overcome information barriers, and the provision of matching grants for project interventions help incentivize farmers' participation. Additional matching grants supporting income-generating activities provide incentives for farmers to replicate and diversify into lesser-known but profitable livelihood activities; such diversification shifts away from intensive consumption of forest sources and towards sustainable land management (SLM) practices. Public good investments in SLM, combined with private profit motives, allow farmers to be good stewards of the local landscapes. In Cekerek, where the agriculture model generates an NPV of US$ 29.8 million, the EIRR does not return a figure due to constant positive returns throughout the analysis. In Bolaman, the positive returns at the crop and farm model levels are difficult to replicate once the project costs are added to the agriculture model. This is partly due to the public-good nature of the demonstrative activities, which are primed for replications once the project overcomes barriers to information. When factoring in these extended benefits to indirect beneficiaries, total outreach by the project likely extends the cost of agricultural investments.

10. Income diversification efforts encompass a wide range of agricultural, non-farm, and off-farm activities, including medicinal aromatic plants, rosehip production, strawberry/mushroom/truffle production, village bakeries, greenhouses, backyard poultry, geese production, vineyards, and bulgur production, among others. While the analysis attempts to address this issue by using more common activities to aggregate as representative models of economic activity at the cropping activity level, not all benefits are captured for the individual and diverse activities listed above. However, efforts were made to capture downstream activities by using examples of service providers utilizing increased mechanization and to capture indirect benefits associated with further uptake of such technologies, with the likely prospect of offering youths less manual and more skilled jobs opportunities.

11. **Irrigation.** Irrigation investments were analyzed against potential improvements in crop productivity for the 2,652 hectares of irrigated wheat, sugar beet, and vegetable production (onion) targeted under the project and to be implemented by DSI. The split of the irrigated area among the crops is 18% for irrigated wheat, 51% for sugar beet, and 31% for vegetable production, to reflect an expected increase in the uptake of sugar beet. These areas are expected to experience improvements in irrigation efficiency through improved conveyancing and field application. When the investment costs of US$ 12 million are added to the analysis, the returns for irrigation are positive, with an NPV of US$7.0 million and an EIRR of 13.4%.

12. **Erosion control.** The model uses the market value of the soil loss method to determine the economic value of soil erosion, using local fertilizer prices as proxies for soil nutrient replacement costs and the value of produce on land saved. Since soil loss is tracked at the basin level, the model assumes a 10% reduction in soil losses per hectare per year following the targets set in the results framework. In Bolaman, the baseline figures for soil loss are 2.87 MT/ha/year, and in Cekerek, the figure is 3.94 MT/ha/year. The total area used for the analysis in Bolaman is 158,886 ha and in Cekerek is 875,778 ha. In Bolaman, an estimated total of 182,965 metric tonnes of soil is saved per year for 20 years, while in Cekerek the figure is estimated at 1,381,606 metric tonnes per year for 20 years. Total soil saved over 20 years for Bolaman and Cekerek basins is 2.9 and 22.1 million metric tonnes over 20 years, respectively. The causes of soil vary by basin. In Bolaman, it is mainly due to soil runoff and sedimentation, while in Cekerek, the wind is the main factor. Savings are calculated linearly, using a nutrient content replacement ratio of 0.4% and the value of production from project interventions over seven years, discounted over 20 years. Using incremental benefits, the NPV and EIRR figures for both basins are positive. Bolaman returns an NPV of US$ 0.1 MN and an EIRR of 10.8%. In Cekerek, the NPV returns a figure of US$ 1.9 MN and an EIRR of 23.9%; –this is explained by the larger basin area. It is difficult to attribute erosion control interventions to this specific benefit stream, since investments in flood protection and improved agricultural practices will also contribute to preventing soil erosion. For this reason, some of the costs for flooding and soil erosion control are split across the two interventions to avoid double counting.

13. **Improved rural connectivity.** The proposed rehabilitation of 45 km of rural roads in the Bolaman area will reduce average journey times, vehicle operating costs, and road maintenance and increase connectivity to public services and nearby commercial markets for villagers. The World Bank analyzed two (road) sub-projects to determine the economic benefits of the proposed road rehabilitations. The analysis returned an NPV of US$ 9.9 million and an EIRR of 29.9% over 20 years. Reduced carbon emissions were also included in the overall project GHG calculations. It is estimated that carbon emissions are reduced by 209 tCO2 per year over the 20-year discount period. The base scenario for road investments was evaluated against other discount rates, by increasing the discount rate to 10% and decreasing to 3%. Benefits associated with decreased vehicle operating costs (VOC) account for around 31% of the project benefits, benefits related to reduced travel time for 67.8%, and CO2 emission reductions for 1.2%.

14. **Increased water storage capacity.** The proposed drinking water sub-projects (i.e., construction of Aybastı and Çatalpınar Drinking Water Reservoirs) will benefit connected beneficiaries through increased surface water storage capacity and groundwater availability (from reduced extraction), increased delivery quantity, and improved sanitary standards. Assuming a discount rate of 6% over a period of 20 years, the estimated economic NPV of drinking water investments is positive, at US$ 3 million, and the EIRR is 7.3%. Specifically, the estimated EIRR for Aybasti and Catalpinar are 7.8% and 6.6%, respectively, while NPVs are US$ 2.3 million and US$ 0.6 million for health and resource cost savings.

15. **GHG accounting**. The World Bank Water Global Practice (GP) Excel model, the Highway Development and Management Model (HDM-4), and the FAO's Ex-Ante Carbon Balance Tool (EX-ACT) were used to estimate the total gross and net GHG emissions resulting from investments for the water, road, agriculture and irrigation sectors of the project. The

2017 World Bank Guidance Note on the Shadow Price of Carbon (SPC) was applied to determine the shadow price of carbon, which ranges from US$ 41 in 2021 to US$ 63 in 2040., Two separate EX-ACT calculations were developed to capture the different climatic and agroecological zones of the two basins. For Bolaman, the selected climate type was cool temperate moist, while for Cekerek, the climate setting was the cool temperate dry. These climate types were chosen after a review and comparison of the evapotranspiration and precipitation data for the relevant provinces. The GHG results are summarized in the table below.

Table 1: Total tCO2 over project lifetime and per year, by sector, and for the entire project

Drinking water sector - Total tCO2 sequestration over 35 years	6,337 tCO2
Road sector - Total tCO2 sequestration over 20 years	4,187 tCO2
Agriculture sector - Total tCO2 sequestration over 20 years (EX-ACT)	2,244,321 tCO2
Project total tCO2 sequestration over 20 years	2,254,845 tCO2
Drinking water sector - Total tCO2 sequestration per year, over 20 years (WB Water GP Excel)	181 tCO2
Road sector - Total tCO2 sequestration per year, over 20 years (HDM-4)	209 tCO2
Agriculture sector - Total tCO2 sequestration per year (EX-ACT)	112,742 tCO2
Project total tCO2 sequestration per year	113,133 tCO2

16. The baseline emissions for the water sector are equivalent to 32,687 tCO2, and the project's gross emissions are projected to be 26,350 tCO2. Thus, the net emissions of the water investments are equivalent to -6,337 tCO2. The baseline emissions for the road sector are equivalent to 203,328 tCO2, and the project's gross emissions are estimated at 199,142 tCO2. The project's net emissions are thus equivalent to -4,187 tCO2. For the agriculture and forestry sector, the baseline emissions are 527,525 tCO2, and the project's gross emission are projected to be approximately -1,716,795 tCO2. Hence, the net emissions of the project's agricultural and forestry investments are estimated at -2,244,320 tCO2. The total estimated emissions sequestrated by the entire project over its lifetime will amount to -2,254,845 tCO2.

17. The overall economic results, summarized in the table below, are driven by cost savings from reduced flood-related repairs, followed by increased ecosystem services and alternative fuelwood benefits in the case of Bolaman. In Cekerek, the results are more evenly spread and driven mainly by improved agricultural productivity, cost savings from reduced flood-related repairs, and increased ecosystem services. These results suggest a well-balanced distribution of benefits that contribute to making the project a robust and resilient model. Using the SPC, the EIRR increases from 12.8% to between 19.4, 24.3 and 32.9% for the market, low, and high SPC values. As a percentage of total project benefits, the share of carbon benefits changes from 63.1%, 70.3%, and 76.1%, respectively.

Table 2: Economic incremental project returns, by basin, and for the entire project

	Avoided Flood damage	Forestland rehabilitation	Pasture rehabilitation	Fuelwood reduction	Agriculture	Irrigation	Erosion control	Roads	Drinking Water	All benefits (without SPC)
	96,487 ha	6,316 ha	5,826 ha	1,118 hh	195 ha		182,965 MT	45 km	2 sub-projects	
Bolaman NPV, US$ EIRR (%) BCR	56.8 MN 131.3%	6.1 MN 34%	5.9 MN 33.6%	13.6 MN -	-0.3 MN 2.8%	N/A	0.1 MN 10.8%	9.9 MN 29.9%	3.0 MN 7.3%	49.9 MN 17.9% 1.70
	22,500 ha	5,964 ha	10,776 ha	2,454 hh	21,600 ha	2,652 ha	1,381,606 MT	-	-	
Cekerek NPV, US$ EIRR (%) BCR	8.5 MN 24.1%	3.3 MN 14.4%	5.6 MN 42%	28.3 MN -	29.8 MN -	7.0 MN 13.4%	2.0 MN 23.9%	N/A	N/A	24.7 MN 11.0% 1.32
Entire project	**Incremental for the entire project – base case without SPC**					**Base case with SPC**				
	Base case @ 6% SDR (without SPC) NPV: US$ 65.3 MN					Base case @ 6% SDR (with SPC) NPV @ market SPC: US$ 176.8 MN				

	EIRR: 12.8% BCR: 1.42	NPV @ low SPC: US$ 219.6 MN NPV @ high SPC: US$ 272.8 MN EIRR @ market SPC: 19.4% EIRR @ low SPC: 24.3% EIRR @ high SPC: 32.9%

18. **Sensitivity analysis.** The sensitivity analysis demonstrates that the project can absorb substantial negative impacts - including delays in the start of project benefits, increases in costs and decreases in benefits, reduced adoption rates and an increased discount rate of up to 10% - and still generate an EIRR above the discount rate and a positive NPV. Benefits or costs would have to either decrease or increase by 20-30% for the project to reach a negative NPV. The project is expected to reach payback in year 13the of the discount period. Total cost estimates are based on the investment and recurrent costs of project implementation from year one to seven, plus an average annual maintenance cost of US$ 3.2 million (or 6%) from year two to twenty.

Table 3: Sensitivity analysis - summary results

#	Scenarios	EIRR	NPV (US$ '000)
1	base scenario @ 6%	12.8%	65,317
2	costs +10%	10.8%	49,633
3	costs +20%	9.1%	33,948
4	costs +30%	7.6%	18,264
5	benefits +10%	15.0%	87,533
6	benefits +20%	17.1%	109,749
7	benefits +30%	19.1%	131,965
8	benefits -10%	10.6%	43,101
9	benefits -20%	8.3%	20,885
10	benefits -30%	5.9%	-1,331
11	benefits delayed 1 year	10.3%	46,255
12	benefits delayed 2 years	8.3%	26,817
13	Discount rate @ 3%	12.8%	124,549
14	Discount rate @ 10%	12.8%	19,235

19. **Financial analysis at the farm level.** In total, eleven crop budgets were developed to calculate the incremental net benefits at the crop activity level. A combination of eight crop budgets was used to form three farm models (FM) to demonstrate the impacts of project interventions on household incomes. The average farm size was set at 0.3 ha for Bolaman, and 0.4 ha for rainfed farming and 1 ha for irrigated farming in Cekerek. Both Bolaman and Cekerek demonstrated a clear gain in incomes and returns on labor, with net incremental gains of US$ 261 for FM1, US$ 1,606 for FM2, and US$ 2,709 for FM3. FM1 includes pocket terracing to counter declining yields and demonstrate the benefits of diversifying away from hazelnut into alternative new products such as kiwi. FM2 illustrates the benefits of adopting climate-smart, drought-tolerant varieties for cereals, pulses, and fodder crops, while FM3 captures the benefits of improved access to irrigation.

20. The incentives to adopt new practices are initially boosted by support from the project in the form of a 50% grant or 100% in the case of seeds. Farmers are often reluctant to forgo their existing grain stock, so past projects have been known to exchange old seed stocks with new varieties. Once the benefits are experienced firsthand or by a neighbor, old habits may be broken, and others within the farming community may follow early adopters. While the cost of seed may be a small proportion of the overall production costs, the provision of matching grants and free seeds are important incentives of the project to engage farmers. In the case of FM1, the incentives may be revisited during implementation to determine if the 50% matching grant scheme should remain, since the transition to a new tree crop results in negative incremental returns in the first year of adoption.

Table 4: Summary Table of Farm Models

	Net Production Value			Total Outflows			Cash Flow Before Labour			Return per hectare		
	WOP	*WP*	*Incr.*	*WOP*	*WP*	*Incr.*	*WOP*	*WP*	*Incr.*	*WOP*	*WP*	*Incr.*
Model 1: Bolaman - hazelnut and kiwi	4,129	7,326	77%	2,861	4,254	49%	2,948	5,448	85%	9,828	18,160	85%
Model 2: Cekerek (rainfed)	13,021	30,888	137%	18,813	25,584	36%	3,298	16,028	386%	825	4,007	386%
Model 3: Cekerek (irrigated)	12,647	36,096	185%	8,207	12,935	58%	9,566	31,776	232%	9,566	31,776	232%

	Return on labour day			Cash Flow Before Financing			Benefit/cost ratio		NPV @ 6%		IRR @ 6%	
	WOP	*WP*	*Incr.*	*WOP*	*WP*	*Incr.*	*WOP*	*WP*	*Before financing*	After financing	*Before financing*	After financing
Model 1: Bolaman - hazelnut and kiwi	4.35	9.07	109%	1,268	3,072	142%	1.44	1.72	1,888	2,116	38%	77%
Model 2: Cekerek (rainfed)	-15.04	26.24	-274%	-5,792	5,303	-192%	0.69	1.21	13,661	13,848	0%	0%
Model 3: Cekerek (irrigated)	4.74	30.07	535%	4,441	23,161	422%	1.54	2.79	20,399	20,621	0%	0%

21. **Spillover effects.** The anticipated on-site benefits are likely to extend beyond the immediate targeted areas of the basins into adjacent areas. It is realistic to expect additional spillover effects from the investments in green-gray infrastructure for better flood control and ecosystem services, better access to the rural road networks, and improved diets, health, and extended lifetime earning capacity among women and youth both within and outside the forestry and agriculture sectors. Some of these benefits are captured in the analysis, such as improved mobility and carbon sequestration, but not all off-site benefits are included. It is anticipated that after the project is implemented by the IAs, lessons learned from TULIP will be not only transferable but also replicable in other vulnerable rural areas.

22. **Public sector financing.** Public financing is justified, as the project is investing in the rehabilitation and improvement of State-managed landscapes and assets and providing public goods and services essential for local communities. The project will also provide global benefits such as carbon sequestration. To rely only on private sector investments to tackle these issues will lead to under-provision of essential public goods and services and may risk disruptions to business continuity and social cohesion within a changing landscape. Inadequate provision of such goods and services will also likely lead to outmigration of younger and more educated workforces from rural areas and their exit from the agriculture sector. The declining populations in rural areas of Turkey also raises the need for a more skilled workforce to operate machineries, possibly in food processing and off-farm activities, in the absence of manual labor. Enabling this change is important, because workers must upskill and build capacities, as businesses become more competitive. Against this backdrop, the project foresees upstream investments in green infrastructure, sustainable and climate-smart agriculture, and livelihoods diversification, which will provide multiple benefits to the local populations in the targeted basins. Protecting the public from natural disasters is usually a function of the State, even in developed market economies. The project will also include downstream investments by State agencies to build climate-resilient infrastructure systems for flood and landslide control, drinking water supply, and local mobility. In addition, the project will include an institutional strengthening component that will be instrumental for the GoT. This includes the development of an integrated NRM model that can be replicated in other basins with similar problems.

23. **Risk vs return.** While the two basins face varying threats from the risks of floods, landslides, and drought, they share a similar fate of facing increasing impacts from adverse climatic conditions and extreme weather events and increasing costs from their aftermath. The project will help improve the resilience of the local communities in these basins and their capacity to manage those impending risks. Even without the challenges associated with climate change, transitioning from low input, low output practices and into high risk, low output perceptions of risk requires external assistance to shoulder some of the burdens from experimentation with new technologies and management practices among smallholder farmers, producer organizations, and SMEs. For these reasons, the project grant funding can attract co-investments and risk-sharing from private investors. This will allow the project to focus on investments in environmental services and carbon sequestration, and disseminations of new practices and technologies, which are clear public goods that the project is well placed to support.

ANNEX 4: Gender gaps, actions and indicators

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

1. **The project will contribute to addressing the identified project-relevant gender gaps and includes indicators to measure them.** A gender analysis conducted as part of the SESA during project preparation will inform the development of a Gender Action Plan aimed at enhancing gender equality and contributing to closing targeted gender gaps during implementation. Such gaps could potentially limit the effectiveness of the project if not adequately addressed. The SESA assessment is based on desk review, stakeholder meetings, data collection, focus group discussions, and key informant interviews in the project landscape, and provides a comprehensive review of existing gender disparities in targeted areas. It highlights the importance of considering gender implications to strengthen integrated landscape management and increase access to improved livelihood opportunities and resilient infrastructure for rural communities in targeted areas through the operation. The assessment also explores opportunities within the project's scope to incorporate gender-inclusive consultation and planning processes in the design and implementation of project activities. The project design has considered gender roles and their implications for project beneficiaries that will used as inputs in preparing and implementing a Gender Action Plan.

2. **The findings of the SESA Gender assessment highlight several project-relevant gender gaps (proportionate differences between men and women) related to the four pillars of the WBG Gender Strategy (2016-2023).** The strategy seeks to close gender gaps in human endowments, more and better jobs, and ownership and control of assets, and promote women's voice and agency. These constitute its four pillars. The relevant gender gaps identified for the project are listed below:

   a) Poor access to training and capacity building activities. Rural women face difficulties in accessing vocational training and life-long opportunities. To adapt rural women to national and global labor requirements and empower them in socioeconomic life, the provision of opportunities for skill development and knowledge sharing platforms is a must. Women need to adopt up-to-date information and increase their skills to meet labor requirements. Increasing vocational training opportunities is vital to empower women in socioeconomic life. All interviewed women mentioned that they did not participate in skills development or lifelong training in their neighborhoods. Women face difficulties benefiting from agricultural extension services due to their domestic responsibilities, including childcare, and their low education levels. In the project area, the Ordu Provincial Directorate for Forests and Agriculture provided agricultural training to a total of 38,857 people, of which only 8,135 were women.

   b) Limited participation in income generating activities. Turkey has one of the lowest female labor participation rates among countries with similar income levels. According to Turkstat data, women's unregistered employment rate in agriculture sector is 94.3%, in non-agriculture sector is 20.2% and in total is 37.1% as of 2020. Unregistered employment rate for men in agriculture sector is 76.2%, in non-agriculture sector is 18.9% and in total is 27.7% as of 2020.

   c) Employment in the Agriculture sector. Agriculture dominates the Bolaman and Cekerek regions, but productivity and income generating capacity are likely very low. As of 2019, compared to the national average share of agriculture in employment of 18%, agriculture accounted for 46% of all employment in the Bolaman basin and 31% in the Cekerek basin. Close to half of all agricultural employment in both regions is unpaid family work, and the vast majority of the remaining individuals are self-employed (more than 40% of total agricultural employment). Wage labor is limited (4% in Cekerek and 2% in Bolaman), and almost all employment in the sector is informal (around

86% in Cekerek and 96% in Bolaman).[52] Available evidence indicates disproportionately unfavorable outcomes for women, compared to men, in the agricultural sector in the region, emphasizing the need to specifically target women in jobs-related interventions. Women are more likely to be employed in agriculture (62% as compared to 35% for men in the Bolaman region, and 45% as opposed to 25% for men in the Cekerek region). Women in agriculture in Turkey are less educated (over 30% with no education and over 80% with elementary school degrees at most). They are more likely to be informal (95% compared to 79% for men) and earn about half of what men earn in the sector (643 TL/month in 2019 compared to 1189 TL/month for men the same year). In addition, childcare, elderly care, and other responsibilities in the household are more likely to be completed by women**.**

d) Limited participation in entrepreneurial activities. The enterprise baseline survey[53] indicates that the shares of female participation in firms as owners and managers are both low (3.9% for both). In rural areas, women are largely involved in informal agribusinesses, which clearly shows that women will require more support (financial and technical) as they move from informal to formal sectors. Data indicates that Turkey's microenterprises face constraints in access to finance, which are compounded for women entrepreneurs, as certain loans require one of the guarantors to be their husband. Additional barriers include, among others, lack of entrepreneurial and technical skills, startup finance, management skills, information, access to business support, and self-confidence, along with gender discrimination. The number of women entrepreneurs is 86 in TR90 Region (including Ordu) and 33 in TR83 Region (including Tokat). The number for men is 33,287 and 244 respectively. The number of women enterprises in the project area is quite low. Based on field interviews with the women entrepreneurs, they have limited knowledge and access to credits, loans, or supports while establishing their own business. Interviewed enterprises are small and medium scale and mainly based on bread making, grocery, and tailoring.

e) Low levels of financial inclusion. Women in Turkey have lower levels of financial inclusion. According to the Global Findex survey, 70% of Turkish men had formal accounts, compared with only 44% women. Women are under-represented in entrepreneurship and business ownership, as well as in management due to significant sociocultural and economic barriers. [54]

f) Difficulty in accessing infrastructure (water, sanitation, and roads). Infrastructure services mainly for clean water, sanitation, and road services are the main problems that hinder women's participation in socioeconomic life. Limited access to water increases the work burden of rural women community members. Women complained about stream pollution in their neighborhoods. Rural roads, rather than highways, are not stabilized and limit women's access to district centers, education, and health services.

g) Limited participation in voice and agency in decision-making processes. In 2017, Ordu Province ranked 37th in Gender Inequality Index in Turkey. The rate was 42 in 2015. Although many efforts were conducted to eradicate gender inequality, data about women's involvement in the decision-making process should be improved.

h) Gender-Based Violence (GBV). Violence against women maintains its importance in gender issues. Violence against women can be of the physical, emotional, psychological, or sexual form. Rural women have additional vulnerability against violence. It reduces their well-being and their ability for work and involvement in socio-economic life. Rural women face various risks such as fetching wood for fuel from distant locations or walking in the

[52] National labor force indicators are from the Household Labor Force Survey microdata by the Turkish Statistical Institute and are reported for broader zones (NUTS2 level). Sector shares of employment for Bolaman are from the zone covering Trabzon, Ordu, Giresun, Rize, Artvin, Gümüşhane (TR90).
[53] Enterprise Surveys *www.enterprisesurveys.org*, The World Bank.
[54] Demirgüç-Kunt, A., et al., 2018. The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution. Washington, DC: World Bank; Brock, J. M. and De Haas, R., 2019. Gender discrimination in small business lending. Evidence from a lab-in-the-field experiment in Turkey. EBRD Working Paper No. 232, European Bank for Reconstruction and Development.

dark. Empowering rural women economically would reduce their vulnerability to abuse. Provision of access to land, credit, and other resources and including rural women in decision-making bodies would enable their empowerment. Potential conflict factors related to proposed subprojects under TULIP will be assessed during implementation.

3. **Design of Potential Interventions.** The gender analysis identified relevant gender gaps concerning a variety of factors typically related to constraints on women's employment decisions and choices, including gaps in education and skills, occupational sex segregation, mobility constraints, and care and domestic responsibilities, amongst others. Gender and social norms tend to influence the way that these constraints manifest. The project will design actions to narrow several gender gaps (i.e., access to infrastructures such as drinking water and irrigation or women's voice and agency in rural committees). However, greater attention will be paid to reduce the gender gap in women's access to agricultural investments.

4. The project will offer specific interventions targeting women's integration into the labor market in the two basins by supporting their productive inclusion, entrepreneurial activities, and wage employment (assuming through the jobs offered in the processing facilities to be built under Component 1.1.b by TRGM and the availability of wage employment through other parts of the project). OGM and TRGM will implement several activities that will support the livelihood of rural households through the inclusion of women. For example, small grants by OGM for greenhouses and other household-based agricultural production in Bolaman are planned to support women's productive activities. The project will also support the establishment of local bakeries, where women will work to sell home-baked products, and agricultural value chain facilities, where women will be employed. Finally, the project will support women's entrepreneurship and women-led enterprises in agriculture through the provision of small grants and other support.

5. The project will increase women's participation in and access to income-earning opportunities and enable the ownership and control of productive assets by financing enterprises that are women-owned or led. Women entrepreneurs will be given extra attention to ensure their enterprises have proper financial and technical support (i.e., vocational training, capacity building activities, and help with business licenses etc.). The project will implement specific activities to support women's entrepreneurship and adopt a number of measures and mechanisms to support their active participation more broadly. These include the selection of service providers with proven capacity in working with women, separate consultation sessions with women to ascertain their opinions and needs, access to child care during training hours, and preferential access for women to appropriate activities on a demand-driven basis, etc.

6. **Monitoring and Evaluation.** The M&E of jobs-related outcomes, control of ownership and assets, and increasing women's voice and agency will be built in within the PCU capacity to ensure best-practice in methodology and quality of M&E. A preliminary, long-list of potential result indicators, to be further narrowed following discussions with the Client, includes:
    - Number of female owned businesses or associations supported (financially) by the Project (Number)"
    - Farmers adopting improved agricultural technology - Female (CRI, Number)
    - Farmers reached with agricultural assets or services - Female (CRI, Number)
    - People trained on integrated landscape management (Number), of which are female (Percentage)

    In addition, gender-disaggregation will be applied in Project M&E and knowledge management systems whenever possible.

ANNEX 5: Nature-Based Solutions under TULIP

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

1. **Nature-based Solutions (NBS).** Worldwide interventions for disaster risk management and water security have mostly focused on human-built 'gray' infrastructure, including built structures and mechanical equipment, such as reservoirs, embankments, pipes, pumps, canals, and water treatment plants. However, gray infrastructure is not always sufficient, cost-effective, or sustainable. Therefore, a new generation of infrastructure is needed to simultaneously achieve multiple environmental and societal development goals, including water security, climate resilience, disaster risk management, biodiversity protection, and poverty alleviation. NBS and Green Infrastructure (also sometimes called natural infrastructure, or engineering with nature) have a critical role in meeting these multiple objectives. By complementing gray infrastructure with green systems such as forests and wetlands, infrastructure services can be provided at lower costs while delivering more and greater benefits by simultaneously meeting multiple environmental and societal development goals[55].

Figure 1. Definitions of green and gray infrastructure and Nature-based solutions

Figure 2. Nature-based Solutions hierarchy

2. Effective use of NBS in river basin management requires a systems perspective and integrated approach. NBS cannot be seen as isolated measures, but instead, as an integral part of the hydrological, landscape-ecological, and economic systems. This means that NBS are most effective when aligned with grey infrastructure and non-structural (i.e., planning or policy) measures and when integrated across the natural and built environment, from the upper to the lower catchment of the river basin. Nature-based solutions can be approached through principles of the 'mitigation hierarchy'. The mitigation hierarchy is a tool designed to help users limit, as far as possible, the negative impacts of development projects on biodiversity and ecosystem services. It involves a sequence of four key actions -'*avoid*', '*minimize*', '*restore*' and '*offset*'- and provides a best-practice approach to aid the sustainable management of living and natural resources by establishing a mechanism to balance conservation needs with development priorities.[56] For NBS, these can be reflected as: i) protection and sustainable management of priority existing ecosystem services and/or elements of

[55] World Bank and World Resources Institute. 2019. Integrating Green and Gray: Creating Next Generation Infrastructure. Washington, D.C.: World Bank.
[56] CSBI (2015). A cross-sector guide for implementing the mitigation hierarchy. Prepared by the Biodiversity Consultancy on behalf of IPIECA, ICMM and the Equator Principles Association: Cambridge UK.

natural systems; ii) enhancement, restoration, and rehabilitation of priority degraded ecosystem services and/or elements of natural systems; and iii) construction of new NBS within the system (Figure 2).

3. **NBS approach under TULIP.** Turkey is affected by numerous environmental problems, including soil erosion, forest degradation, and deterioration of water quality and quantity, and is highly vulnerable to the impacts of climate change and climate-induced and geophysical hazards such as earthquakes, floods, and landslides. Increasing pressure on natural resources and ecosystems in Turkey's river basins and unsustainable use of agricultural lands and pastures contribute to the severe environmental challenges, posing risks to jobs and livelihood security for rural populations. TULIP aims to introduce an approach for integrating NBS in river basin management in Turkey by promoting the use of natural systems for their ability to deliver or contribute to core infrastructure services following the NBS hierarchy. Under TULIP, NBS are considered to solve various challenges simultaneously, including flood, erosion, and landslide risk reduction, agricultural irrigation and drainage, water supply, water quality and hydropower, and drought management. NBS can also creating multiple benefits, including the recreational use of natural resources, carbon sequestration, biodiversity protection, and enhanced climate resilience of the local communities and ecosystems.

4. As part of the TULIP project, NBS will be considered in integrated green and gray investments in the forestry, agriculture, water, and transport sectors. This includes the financing of upstream measures by OGM to reduce flooding, erosion, sedimentation, and landslides, enhance irrigation and improve water quality, and reduce droughts in the basin. Solutions include (but are not limited to) the protection, rehabilitation, and sustainable management of forests and pastures, afforestation, and the implementation of water retention and erosion-control works to extend vegetation cover, increase infiltration capacities, retain storm water, and reduce run-off speed. These are expected to result in reduced flood and erosion risk and or magnitude. Additionally, sustainable and climate-smart agricultural practices implemented by TGRM can include NBS such as rainwater harvesting, terracing, and measures to reduce irrigation demands by improving soil water retention capacities. NBS upstream in the river basin can complement investments implemented by DSI, including dams and multipurpose reservoirs and flood and sedimentation control structures. Effective NBS upstream, such as natural floodplains and water retention measures, can support gray flood control structures and embankments downstream. Conservation of watersheds surrounding water sources will also naturally filter pollutants, trap sediment in rivers, and reduce erosion and flow of sediments into reservoirs and drinking water supply systems. These benefits will minimize negative impacts and enhance the performance of the water supply systems in the basin.

5. The project has identified broad types of NBS that can help address the types of typical challenges in Turkey's river basins. The table below provides an overview of the identified NBS for these challenges. Figure 3 shows examples of NBS for flood risk management that can be implemented in the Bolaman Basin. Specific locations will be determined through integrated system analyses and site-specific assessments during project implementation. As green infrastructure interventions operate at a landscape level, they involve multiple stakeholder groups, with cross-cutting responsibilities and stakes amongst different implementing agencies. The ILMPs that will be developed for each basin will serve as an important instrument to help the different institutions to be aligned on the integration of NBS throughout the project cycle, from design to implementation and maintenance.

Challenge	Gray infrastructure	Nature-based Solutions
River flooding, landslides, erosion	*Subcomponent 1.1 (OGM):* **(Gray) small-scale erosion, landslide and flood control works**, to retain and drain runoff, trap sediment, stabilize slopes and	*Subcomponent 1.1 (OGM):* • **(Nature-based) small-scale erosion, landslide and flood control works,** to retain runoff, decrease flow velocities, trap sediment, stabilize slopes, and minimize erosion and

	minimize erosion and flooding, including diversion ditches, drainage channels, transverse instream structures, mortar levees, steel debris barriers, and check dams in streams and gullies, wire mesh fences galvanized trellis walls, culverts under road systems, and retaining walls.	flooding, including (re)vegetation and improvement of vegetation cover, such as terracing and planting of grass and local species, and streambed rehabilitation. • **Forest rehabilitation and sustainable management:** Upstream forests afforestation and rehabilitation, including implementation of young forests and restoration of forest and vegetation in degraded areas, for intercepting and slowing floodwater • **Forest pasture rehabilitation and sustainable management:** to create and maintain healthy pasturelands to help minimize soil erosion, improve water retention upstream, and reduce runoff downstream
	Subcomponent 1.2 (DSI): **Flood and sedimentation control structures**, such as levees, retaining walls, embankments, impoundment, culverts, bridges, concrete channels, grouted riprap, and stream bed rehabilitation	*Subcomponent 1.1 (TRGM):* • **Sustainable and climate-smart agricultural practices:** Pocket terracing for hazelnut gardens on sloping land and rainwater harvesting for irrigation can intercept and slow floodwater
Irrigation and drainage	*Subcomponent 1.2 (DSI):* • **Dams and multipurpose reservoirs** • **Irrigation works:** Barrages/dams, irrigation ponds and supply systems, transmission lines, irrigation and drainage canals • Irrigation ponds and irrigation supply systems to provide water and support agricultural activities efficiently and cost-effectively in targeted basins with drought problems	*Subcomponent 1.1 (TRGM):* **Sustainable and climate-smart agricultural practices:** Rainwater harvesting for irrigation
Water supply and quality	*Subcomponent 1.2 (DSI):* • **Dams and multipurpose reservoirs**	*Subcomponent 1.1 (OGM):* • **Forest rehabilitation and sustainable management:** Upstream forests protection, rehabilitation, and afforestation, including management of young forests in the upper watersheds, to improve source water quality and thereby reduce treatment requirements • **Forest pasture rehabilitation and sustainable management:** Construction of ecosystem ponds to provide drinking water for livestock and water for other purposes such as forest fire response and recreational use.

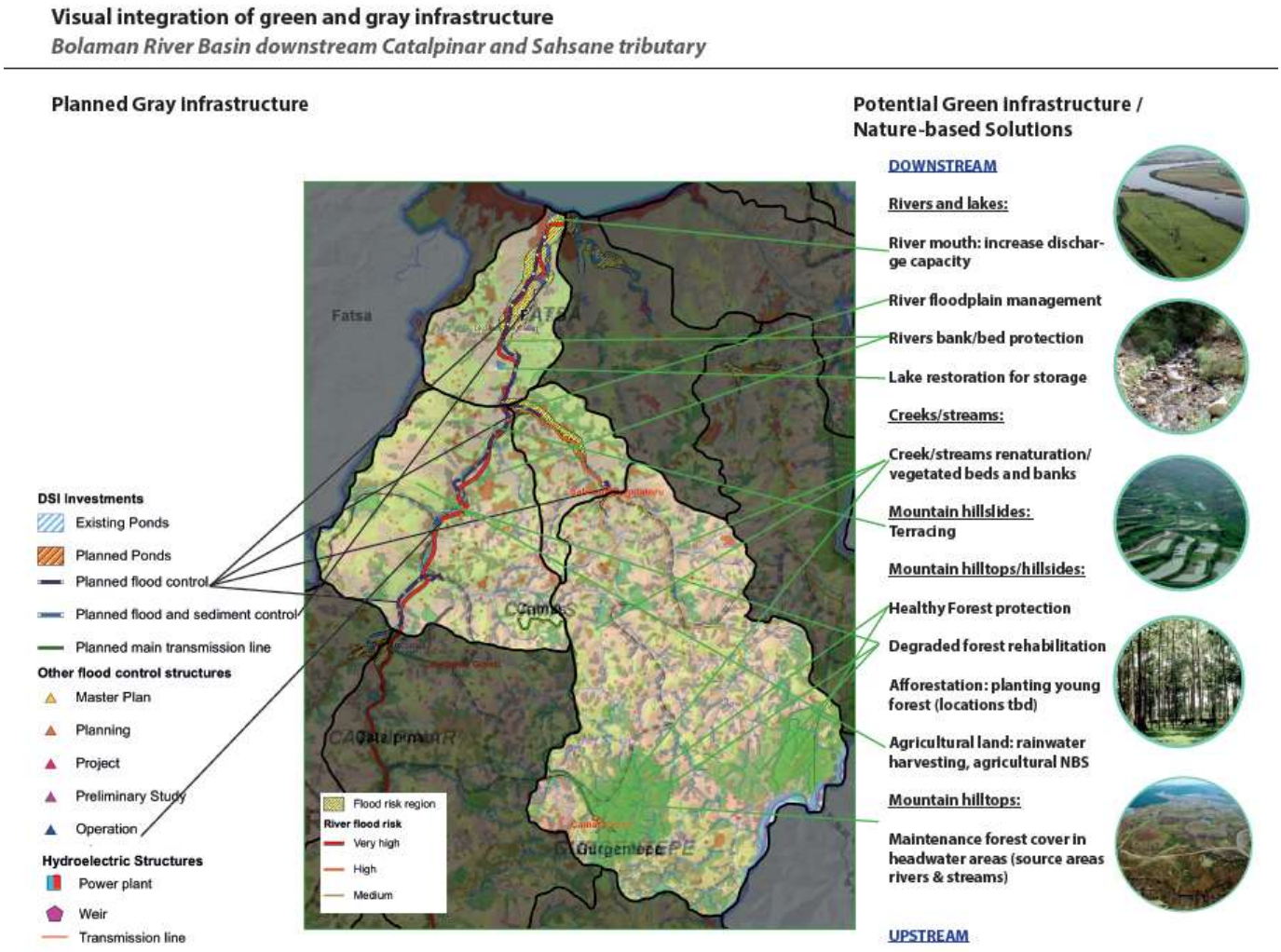
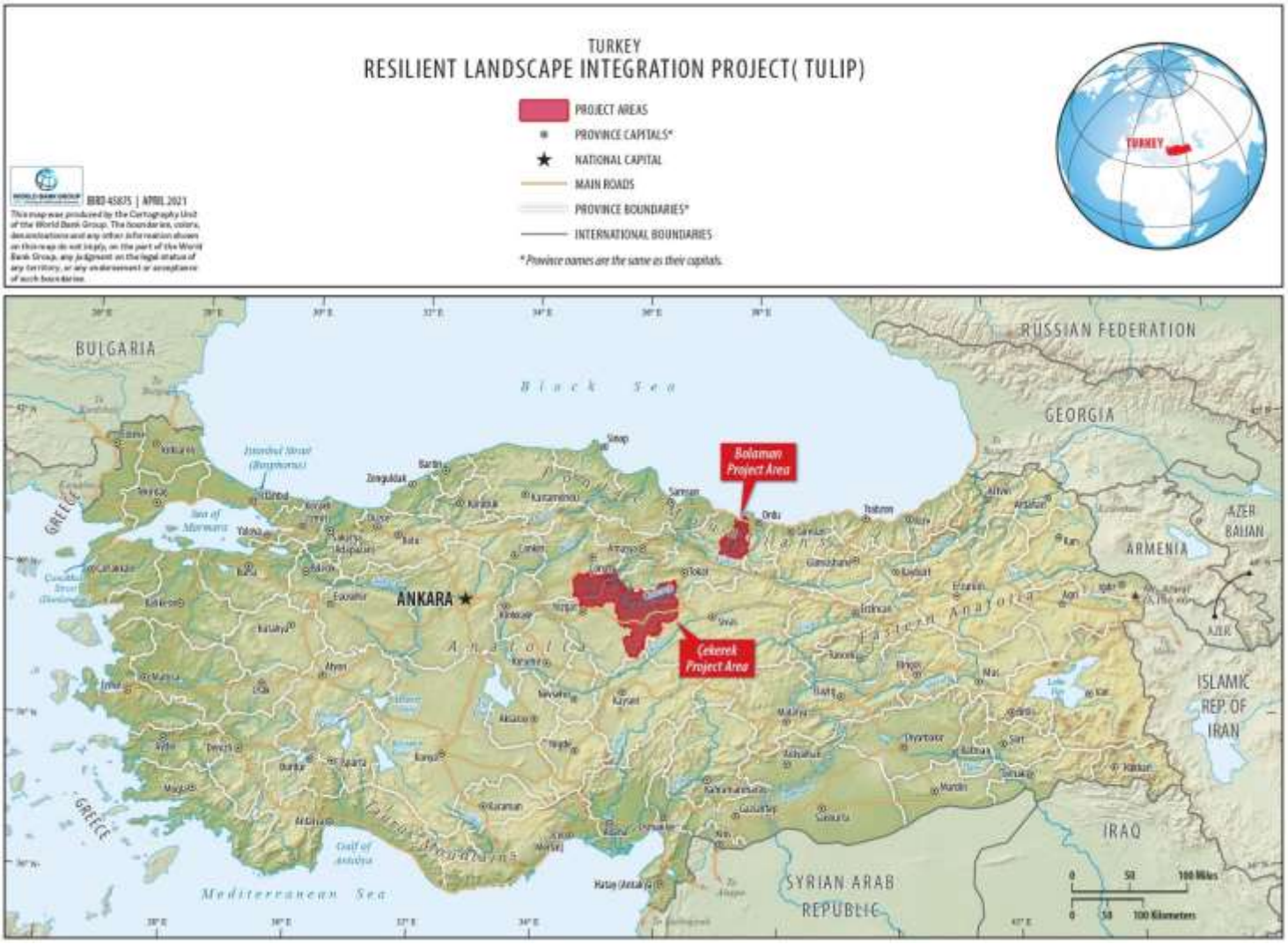


Figure 3: Example of Flood Risk NBS in the Bolaman Basin

ANNEX 6: Map of the Project Areas

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)



ANNEX 7: Country Program Adjustments in Response to the COVID-19 Pandemic

COUNTRY: Turkey
Turkey Resilient Landscape Integration Project (TULIP)

1. **The World Bank Group's engagement in Turkey is guided by the Performance and Learning Review (PLR, March 2020) which re-affirmed the priority areas of the World Bank Group's FY17-21 Country Partnership Framework (CPF) and extended the program to include FY22-23.** The CPF is built on three pillars: (i) Growth; (ii) Inclusion; and (iii) Sustainability. The PLR maintained the flexible programming approach adopted in the CPF and emphasized the importance of supporting Turkey's progress towards IBRD graduation with a continued focus on strengthening governance and institutional issues in sectors where the WBG is most active. Continued IBRD support was confirmed due to Turkey's challenging economic context that is resulting in a decreasing rather than increasing income per capita in dollar terms.

Impact of* the *COVID-19 pandemic on the country and government response

2. **Turkey has been severely impacted by COVID-19, both in terms of the health impact and economic losses.** Turkey has experienced high rates of the epidemic with more than 5 million cases by May 7, 2021. The Government re-imposed more severe lockdown restrictions in late April 2021 in response to the increase in cases. Turkey's Health Ministry data show that only a little over 10 million people have received both shots of the COVID-19 vaccine since mid-January when the country started vaccinations, while a little over 14 million people have received one shot.
3. **Despite the challenges in the first half of 2020 with the onset of the crisis, economic performance in 2020 turned out to be strong compared to other countries, but poverty spread, and unemployment became more prevalent.** Turkey responded to COVID-19 with a large economic stimulus program, focused on credit channels. In fiscal terms, Turkey's COVID-19 stimulus package amounted to nearly 12 percent of GDP when including tax deferrals and contingent liabilities. This is larger than the average for emerging markets and G20 countries and is similar in size to the stimulus packages of the United States, Australia and Canada. While the program utilized a broad range of fiscal tools, uniquely amongst G20 countries, Turkey's support was overwhelmingly provided through the banking sector, and was not realized as direct fiscal costs on the budget, but as contingent liabilities to the government in future. Turkey's GDP grew by 1.8 percent in 2020, which was the fastest amongst G20 countries in 2020 aside from China. This was on the back of one of the strongest economic rebounds in the second half of 2020.

4. **Despite measures to support jobs and households, labor market and poverty outcomes nevertheless deteriorated. Poverty rose significantly in 2020.** In conjunction with job losses affecting the poorer more, the proportion of people in poverty is estimated to have risen from 10.2 percent in 2019 to 12.2 percent in 2020 – following a significant uptick in 2019 – and presents a growing challenge. Were it not for the fiscal measures to support workers and households, the increase in poverty would have been far worse.

WBG* support *for responding to the crisis

5. **The WBG program in Turkey for FY20 and FY21 has been adjusted to allow for an effective COVID-19 response.** In line with the framework of the WBG Approach Paper "Saving Lives, Scaling-up Impact and Getting Back on Track", the WBG COVID-19 response spans the Relief, Restructuring, and Resilient Recovery continuum. While the pillars of the Turkey CPF continue to be highly relevant during the COVID-19 response, the lending and ASA programs initially envisaged in the PLR have been complemented with new lending and ASAs, structured around the four pillars of the WBG's global approach:

a) *To save lives* – in FY20 Q4, the Bank added to the CPF/PLR program a US$100 million Turkey Emergency COVID-19 Health Project (P173988) from the Fast Track Facility as the key component of the relief phase of COVID response. In parallel, it restructured a US$134 million ongoing Health System Strengthening & Support (P152799) to provide additional support for urgent health response.
b) To *protect the poor and vulnerable* – also in FY20 Q4, the Bank added a $160 million Safer Schooling and Distance Education project (P173997) to the program which supports equitable access to distance learning and protects human capital. The Digital Education platform that will be strengthened and scaled up under the project will contribute to a restructured and more resilient digital education system for post-COVID19 blended (face-to-face and on-line) teaching and learning.
c) To *save livelihoods, preserve jobs, and ensure more sustainable business growth and job creation* – As part of the resilient recovery phase, the Bank is adding two new operations to the program in FY21. The first is the Emergency Firm Support Project ($500 million, P174112), and the second is the recently-approved Rapid Support for Micro and Small Enterprises during COVID-19 Project ($300 million, P174144) implemented by the SME support agency of the Ministry of Industry and Technology and targeted at smaller MSMEs. These new operations aim to preserve jobs and the support will target female-inclusive firms and firms operating in lagging regions. A further operation– the Long Term Export Finance Guarantee Project ($300 million, P156252, approved in Q4-FY20) – that was envisaged in the CPF/PLR and was under preparation before COVID, has been adapted to enhance the ability of Turkey Eximbank to raise funds on capital markets to support viable exporting firms affected by the COVID-induced trade slowdown. Finally, the implementation of the ongoing Inclusive Access to Finance has been accelerated to leverage its focus on women-inclusive firms and firms operating in lagging regions in the COVID-19 context.
d) To *strengthen policies, institutions and investments for resilient, inclusive, and sustainable growth* - The portfolio of core and extended core ASAs envisaged in the PLR will focus on strengthening policies, institutions and investments for resilient and sustainable recovery. Special attention is being paid to timely preparation of the Pandemic Preparedness ASA. Moreover, when preparing the operations that had been envisaged in the PLR's pre-COVID pipeline for FY21, a strong emphasis will be put on strengthening sectoral policies and institutions to support a building back better approach. These operations include the Geothermal Development Project Additional Finance (P172827), Resilient Landscape Integration Project (P172562), Organized Industrial Zones Project (P171645), and Urban Resilience Project (P173025).

Selectivity,* Complementarity*, Partnerships

6. The Bank and Government have agreed to delay the preparation of this Green OIZ project that had been initially planned for delivery in early FY21 in the CPF/PLR. This allowed teams on both sides to prioritize the preparation of the more urgent COVID-19 operations that have been added to the program. The preparation of a DPF in FY21 as initially envisaged in the CPF/PLR has been postponed to give time for a clearer focus on long-term structural reforms. Beyond the immediate term, the CPF program will continue to ensure a long-term development focus on (1) Global Public Goods (such as support to refugees, environmental sustainability and climate change); (2) Human capital and inclusion; and (3) Institutional strengthening for sustained growth, IBRD graduation and transition to high income status.

7. The WBG has had consultations with key stakeholders such as the EU, WHO, United Nations agencies, French Development Agency (AFD), the German Development Bank (KfW) and other international financial institutions (e.g. AIIB) and a promising coordinated approach and potential joint initiatives have emerged from these consultations, not least the nearly $400 million pipeline of EU-funded projects that will enter the World Bank portfolio in FY21 to support the refugee agenda and therefore help mitigate the impact of COVID-19 on refugees and their host-communities across Turkey. As part of the implementation of the Cascade and MFD approach, WBG's support to the COVID-19 crisis is coordinated closely with, and complements, IFC financing of the enterprise sector through private banks and leasing companies.