

UNLOCKING GREEN FINANCE IN TURKEY

Turkey Green Growth Analytical and Advisory Program
Thematic Paper 1



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ANALYTICAL AND ADVISORY PROGRAM**

THEMATIC PAPER 1

**UNLOCKING GREEN FINANCE
IN TURKEY**

**WORLD BANK EUROPE AND CENTRAL ASIA REGION
WORLD BANK TURKEY**

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¹ Environment, Natural Resources and Blue Economy (ENB); Climate Change Group (CCG); Finance, Competitiveness and Innovation (FCI); Energy and Extractives (EEX); Macroeconomics, Trade and Investment (MTI).

ABBREVIATIONS AND ACRONYMS

AFD	French Development Agency	IPCC	Intergovernmental Panel on Climate Change
AUD\$	Australian Dollar	IsDB	Islamic Development Bank
BAT	Bank Association of Turkey	KfW	German Development Bank
BRSA	Banking Regulation and Supervision Agency (of Turkey)	LTV	Loan-to-Value (ratio)
CBRT	Central Bank of The Republic of Turkey	MDB	Multilateral Development Bank
CCG	Climate Change Group (unit of the WB)	MENR	Ministry of Energy and Natural Resources (of Turkey)
CDP	Carbon Disclosure Project	MoAF	Ministry of Agriculture and Forests (of Turkey)
CEFC	Clean Energy Finance Corporation (Australia)	MoEU	Ministry of Environment Urbanization and Climate Change (of Turkey)
CICERO	Center for International Climate and Environmental Research Oslo	MoTF	Ministry of Treasury and Finance (of Turkey)
CIF	Climate Investment Funds	MoTI	Ministry of Transport and Infrastructure (of Turkey)
CLO	Collateralized Loan Obligation	MRV	Monitoring, Reporting and Verification
CMB	Capital Markets Board (of Turkey)	MSME	Micro, Small and Medium Enterprises
CO/CO ₂	Carbon Oxide/Carbon Dioxide	MTI	Macroeconomics, Trade and Investment (unit of the WB)
COP	Conference of Parties (to the UNFCCC)	NEEAP	National Energy Efficiency Action Plan (of Turkey)
COVID-19	Coronavirus disease 2019	NGFS	Network for Greening the Financial System
CTF	Clean Technology Fund (of the CIF)	NMVOC	Non-Methane Volatile Organic Compounds
DFI	Development Finance Institution	NREAP	National Renewable Energy Action Plan (of Turkey)
DRM	Disaster Risk Management	NO ₂	Nitrogen Dioxide
EBRD	European Bank for Reconstruction and Development	OECD	Organization for Economic Co-operation and Development
EE	Energy Efficiency	O ₃	Ozone
EEX	Energy and Extractives (unit of the WB)	PAH	Polycyclic Aromatic Hydrocarbon
EIB	European Investment Bank	PM ₁₀ /PM _{2.5}	Particulate Matter
ENB	Environment, Natural Resources, and Blue Economy (unit of the WB)	PMR	Partnership for Market Readiness
ESG	Environmental, Social, and Governance	PPP	Public-Private Partnership
ETS	Emissions Trading Scheme	SBN	Sustainable Banking Network
EU	European Union	SDG	Sustainable Development Goal
€	Euro	SIF	Sustainable Insurance Forum
E&S	Environmental and Social (risks)	SME	Small and Medium Enterprises
FCI	Finance, Competitiveness, and Innovation (unit of the WB)	SO _x /SO ₂	Sulfur Oxide/ Sulfur Dioxide
FSB	Financial Stability Board	TCFD	Task Force on Climate-related Financial Disclosures
G20	Group of 20 governments and central bank governors from 19 countries and the EU	TKYB	Turkish Development and Investment Bank
GCA	Global Commission on Adaptation	TL	Turkish Lira
GCF	Green Climate Fund	TSKB	Turkish Industrial and Development Bank
GDP	Gross Domestic Product	UN	United Nations
GEF	Global Environment Facility	UNDP	United Nations Development Programme
GHG	Greenhouse gas	UNEP	United Nations Environment Programme
GIZ	German Agency for International Cooperation	UNFCCC	United Nations Framework Convention on Climate Change
ICMA	International Capital Market Association	US\$	United States Dollar
IFC	International Finance Corporation (of the World Bank Group)	WB	World Bank
INDC	Intended Nationally Determined Contribution	WBG	World Bank Group
IOSCO	International Organization of Securities Commissions	WHO	World Health Organization
		WTO	World Trade Organization

EXECUTIVE SUMMARY

Turkey has achieved rapid economic and social development since 2000, although a series of adverse shocks and climate change are putting those gains at risk. Led by a series of major economic reforms in the early 2000s, Turkey achieved high rates of economic growth, rapidly progressed to upper middle-income status, and reduced the share of people in poverty² from 37% in 2003 to 10.2% in 2019. However, substantial exchange rate depreciation, recession in 2018-2019, and the shock of COVID-19 have led to lower growth in recent years and increasing rates of poverty.³ Turkey has also taken measures to address several environmental priorities, notably improving waste management and tackling air quality, and has rapidly increased renewable energy generation.

Despite Turkey's progress in reducing its carbon intensity, room for improvement remains. In terms of decarbonization efforts, gains achieved through the deployment of renewable energy sources at an increasing pace have been offset by the share of coal in the energy mix.⁴ In addition, Turkey's efforts to use more domestic energy resources to meet its consumption needs might interfere with efforts to decarbonize the energy sector,⁵ particularly as it relates to the government's policy of using more domestic lignite in power generation.⁶ Moreover, the country is already dealing with the adverse impacts of climate change (e.g. severe floods of 2019), which are anticipated to increase.

As a strongly export-oriented economy, it is in Turkey's interest to align with ongoing global developments in addressing climate change and pursuing sustainability and green growth, notably in line with the European Green Deal. Ongoing and upcoming alignment of regulations with international initiatives will bring progressive guidance and standards, changing consumer preferences and investor sentiment towards a more circular economy, and reducing market acceptance of products and services originating from carbon-intense economies such as Turkey. Turkey is aware of the need to address these developments.

Recognizing the challenges, Turkey has prioritized areas for green growth, while seeking additional information to assess the short, medium, and long-term impacts of climate change. The 11th National Development Plan (2019-2023) sets the objective to protect the environment and natural resources, improve its quality, ensure effective, integrated and sustainable management, implement environmental and climate-friendly practices in all areas, and increase the environmental awareness and sensitivity of all segments of society. Announced on March 12, 2021, the economic reform program calls for policies and an action plan in support of green transition. Several line ministries of the Government of Turkey have indicated priority areas and opportunities for green growth that include climate mitigation and adaptation activities across sectors. Interest in seeking financing for adaptation projects has been steadily on the rise, given the increasing frequency of extreme weather events. *Adaptation actions are demonstratively*

² Poverty is measured as the proportion of people with per capita consumption of below US\$5.5 a day 2011 PPP.

³ World Bank, [Turkey Economic Monitor: Navigating the Waves: 2021](#).

⁴ OECD, [OECD Economic Surveys: Turkey 2021](#), 2021.

⁵ IEA, [Turkey 2021 Energy Policy Review](#), 2021.

⁶ According to the recent electricity market development report published by the Turkish energy Market Regulatory Authority (January 2021 report), the share of imported coal and lignite in total licensed power generation is 20.65% and 12.93% respectively, which in total accounts for the 1/3 of total licensed power generation in Turkey.

capable of delivering on several development priorities in Turkey. Yet there is a need for targeted analytical work to address the lack of data and information about the short-, medium-, and long-term effects of physical and transitional impacts of climate change and proposed policy interventions on Turkey's economy and social systems.

Turkey's financial sector plays a crucial role in delivering on the green agenda and mobilizing capital for climate action, and yet climate change poses risks to financial stability and the soundness of institutions. As the COVID-19 crisis has shown, major disaster events have direct impacts on the financial sector. They heighten levels of uncertainty regarding the medium- to long-term macro-economic outlook and growth, increase public and private sector financing needs, cause structural changes to the economy, and influence the distribution of wealth and income. Climate and environmental crises⁷ can have a similar impact and threaten the stability of financial institutions and systems. Due to its specific geopolitical position, Turkey is also exposed to climate and environment migration more than other countries. *With increasing knowledge and awareness of these risks, more frequent occurrence of extreme weather events and awareness of transition-related risks, Turkey's financial sector must be able and ready to respond to a climatic crisis.*

Turkish financial institutions need to build capacity and integrate climate considerations into all aspects of their operations. Despite overall progress in setting the framework for supporting green and sustainable finance since 2014, several macro-financial, institutional, and structural challenges to green finance remain. While a recent announcement by the Government and follow up actions by the Ministry of Treasury and Finance demonstrate progress in this direction,⁸ *Turkey needs to develop a holistic regulatory framework, guidance, strategies, and instruments to expedite the greening of the financial sector and make it resilient to climate risks.*

Domestic financing for green projects in Turkey relies primarily on the banking sector, and it faces several barriers for green financing. The banking sector in Turkey, which is a major part of its financial sector that has played a crucial role in the development of renewable energy generation in the country and the issuance of green bonds and mortgages, is well developed, and has taken steps towards embracing sustainable finance. However, it is facing barriers in these efforts, which include, among others, challenges regarding the policy environment, and limited information and institutional capacity at the sectoral level, as well as a low level of readiness to support strong green growth. Learning from Turkey's significant success in mobilizing international climate finance in the past, and the well-developed systems for deploying it into mitigation projects, existing barriers can be removed through targeted interventions of the public sector to provide certainty over the course of action, as well as robust and reliable support for managing the risks the private sector is facing when investing in climate action. *The improvement*

⁷ Both physical (sudden, like a cyclone, and slow-onset, like changing weather patterns), and transitional (related to the global transition to low-carbon and sustainable economies that triggers changes in regulations and investor and consumer behavior).

⁸ The economic reform program, announced on March 12, 2021, includes two actions regarding green finance: (i) For the purpose of providing finance for environmentally-sensitive investments, green bond and Sukuk issues will be encouraged by preparing a guideline in line with international standards, and (ii) The ecosystem ensuring the development of green finance will be strengthened and works will be carried out to increase Turkey's share in accessing green finance.

of the policy and regulatory framework to address the barriers to financing enhanced climate change and sustainability, supported by institutional capacity to develop and implement them, are fundamental prerequisites for scaling-up green investments in Turkey. In addition, providing the banking sector with best practice guidance based on international advances in sustainability finance, including risks related to the global and domestic environmental policy, can help drive finance towards greener projects. The authorities, especially financial sector regulators including the Central Bank of The Republic Turkey (CBRT), the Banking Regulation and Supervision Agency (BRSA), and the Capital Markets Board (CMB) could step up their recent efforts to guide financial sector players on environmental sustainability.⁹

In the aftermath of the COVID-19 crisis, Turkey has the potential to grow greener and benefit from embracing green growth. There is rising interest in green growth and climate action in Turkey.¹⁰ Energy efficiency, nature conservation, clean energy options, and a stronger focus on the improvement of sustainability in the transport sector can be win-win areas for stimulus investments in Turkey, if designed well. Restoring degraded forestlands and landscapes could create many jobs over the short term, while also generating net benefits from watershed protection, better crop yields, and forest products, especially regarding potential positive impacts on CO2 emissions of using forest products as structural wood compared to cement. Another area in which to create jobs and support economic recovery concerns investment in the large-scale retrofitting of buildings to make them more energy efficient, more sustainable and healthier, as well as better adapted to higher temperatures in the future. Investments in coastal resilience, climate-smart agriculture, and resilience of infrastructure to flood, drought, and precipitation changes, as well as improvements in water treatment and sanitation, waste management, and air quality, are opportunities for building the foundation of green growth, while addressing country-specific priority areas. *Projects tackling post-COVID-19 economic recovery can help strengthen overall system resilience, and it is important that economic stimulus interventions lay the foundation for green and sustainable growth in the medium- to long-term.¹¹*

International experience can show the way to overcoming the barriers faced by Turkey in unlocking green finance. Turkey can take advantage of its own success with renewable energy, as well as from international experiences that help through risk mitigation and sharing to leverage private investment, particularly in areas of innovative technologies and practices. However, government must step up to support innovation in green projects. *Strengthening capacity and knowledge across government is essential for the development of the needed policy and regulatory framework, and to allay misperceptions or concerns that can serve to constrain investments in green projects. Education of local financial actors about opportunities in the low-carbon and climate-resilient sectors is also necessary to help them assess the financial risks and potential gains of green projects.*

⁹ Turkey's New Economic Reform Package (2021), the Sustainability Finance Framework of MoTF (2021), the CMB's draft Green Bond and Sukuk Guideline (2021), and the BRSA's Sustainable Banking Strategic Plan (2021) aim at diversifying finance for investments that are environmentally sensitive. Especially CMB and BRSA have stepped up efforts to guide financial sector players, build capacity, and develop data and analytics, and innovative products on sustainable and green finance drawing on international best practices. The CMB's guideline is aligned with EU and ICMA standards on green bonds and sukuks. BRSA also aims to take actions based on the European Green Deal and NGFS.

¹⁰Dr. Mehmet Birpınar, Deputy Minister of Environment and Urbanization and Chief Climate Change Envoy, [Turkey's green transformation in energy](#), Daily Sabah, April 2021.

¹¹S. Hammer, S. Hallegatte, F. Banaji, World Bank, ["How countries' climate ambitions can support a sustainable recovery from COVID-19," Development and a Changing Climate](#), May 2020.

As a next step, Turkey would benefit from putting in place a strategic framework for green finance. The 11th National Development Plan foresees action in several strategic areas, including developments of environmental impact assessment, strategic environmental permit, license, monitoring and audit mechanisms and capacities and strengthening of the legislation on these issues, as well as expansion of the environmental labeling system, and many initiatives to address air quality, biodiversity, and nature conservation areas on land and sea. Importantly, it also recognizes the need for improvements in the harmonization of public institutions and organizations with each other and local administrations in their powers and duties, to eliminate conflicts and to strengthen coordination and cooperation with other stakeholders in implementation. Recent announcements¹² indicate ambitious plans to boost climate action in mitigation and adaptation and address several environmental priorities. Turkey ratified the Paris Agreement in October 2021 and renamed the Ministry of Environment, Urbanization and Climate Change affirming its commitment to climate action and long-term greener growth. This will drive increased demand for green finance and a stronger role for the private sector in the future. To support the achievements of these plans and ensure the removal of persistent barriers to green investments, the key “building blocks” and areas where efforts are required include: i) enabling policies and regulatory framework, ii) institutional support and ownership, iii) data and analytics, iv) capacity building, and v) technical innovation and innovative financing approaches. Progress in these areas would support the development of a coherent strategic framework that brings various ongoing efforts together to provide a roadmap that aligns financial sector policies, regulations and incentives with the vision for pursuing green and resilient growth.



¹² Murat Kurum, Minister of Environment and Urbanization, [speech on February 17 2021](#).

1. INTRODUCTION

This thematic paper aims to inform the Government of Turkey on the global developments in green finance and potential options for unlocking investments in the priority areas of climate action in Turkey. It is based on the status of climate action and available information as of October 2021, including international experiences and recent studies on green finance and enabling policies in Turkey and other countries, and discussions with the Government of Turkey and other institutions. In light of the COVID-19 crisis, the report also touches upon the role of green finance in sustainable economic recovery and explores options for mobilizing impactful investments that will contribute to strengthening resilience. In this context, this thematic paper also intends to spur the discussion on maximizing and ensuring the long-term transformative impacts¹³ of green finance, which occur when projects have positive spillover effects beyond the boundaries of the specific activity, producing high-impact, enduring results and fostering subsequent green growth initiatives.

As such, this Note aims to contribute to answering several important questions related to the why, what, and how of unlocking green finance for Turkey:

- Why is it important for Turkey to go greener than it is?
- What are Turkey's priorities and main challenges in climate action, including the barriers to mobilizing financing?
- What actions can Turkey pursue for a green and sustainable post-COVID-19 recovery, learning from international experience?
- How can a green and sustainable growth path strengthen the resilience of Turkey's economy?
- How are other countries overcoming barriers to undertaking climate action, particularly in terms of mobilizing finance?
- How could Turkey leverage the domestic and international financial sector to finance climate adaptation and mitigation?

The paper aims to start the process of identifying barriers for scaling up green investments in the context of Turkey and exploring the ways to remove them. The thematic paper does not aim to provide an in-depth analysis and assessment of the current policy landscape in Turkey and its impacts on barriers. Rather, it highlights the most recent knowledge and international and domestic examples of policy interventions to foster green investments in the priority climate action areas identified by the Government of Turkey and recommends possible areas of action for the follow-up consultations. It puts a special focus on the financial sector because the systemic impact on sustainable growth will stem from the financial sector's capacity to provide solutions for mobilizing investments in green growth and climate mitigation/adaptation. Importantly, in the post-COVID 19 world, much will depend on the ability of the financial sector to bounce back and be innovative in generating resources for climate action, while also spurring jobs and economic

¹³ See World Bank, [Transformative Climate Finance Report](#), Washington, DC: World Bank, 2020.

growth.

Green finance in this paper refers to financing for investments that provide environmental benefits and contribute to climate action by financing projects that lead to reducing greenhouse gas (GHG) emissions (mitigation) and support adaptation to changing climate. *BOX 1* lists several criteria used by international development organizations to define green projects.

BOX 1: What kind of projects or investments are considered "green?"

Often, agencies promoting "green projects" define the eligibility criteria for activities and use of resources based on their own policies and overarching principles. [The Green Bond Principles](#) of the International Capital Market Association and the [Green Loan Principles](#) of the Loan Market Association both outline indicative lists of eligible Green Project categories.

The European Union's [Taxonomy: Final report of the Technical Expert Group on Sustainable Finance](#) published in March 2020 is the most comprehensive initiative at the moment in relation to identifying and labeling green/sustainable activities, and may form the basis for broad green labeling standards in the near future. Developing this initiative further, in April 2021 the European Commission adopted a [package of measures](#) that includes directives on EU Taxonomy, corporate sustainability reporting, sustainability preferences and fiduciary duties.

The Green Finance Committee under the China Society for Finance & Banking developed a Project Catalogue with comprehensive guidelines on what constitutes green projects in the Chinese green bond market. MDBs such as the World Bank and EBRD also have their criteria for green projects. Broadly, categories of eligible green projects are defined by the problems they aim to tackle, including climate change (both adaptation and mitigation), natural resources depletion, loss of biodiversity, and air, water, or soil pollution.

Examples of [World Bank Green Bond Projects](#) include:

Eligible mitigation projects that meet specific criteria for low-carbon development:

- Solar and wind installations;
- Funding for innovative technologies that allow significant reductions in greenhouse gas (GHG) emissions;
- Greater efficiency in transportation, including fuel switching and mass transport;
- Waste management (methane emissions) and construction of energy-efficient buildings;
- Carbon reduction through reforestation and avoided deforestation.
- Protection against flooding (including reforestation and watershed management);
- Food security improvement and implementing stress-resilient agricultural systems (which slow down deforestation);
- Sustainable forest management and avoided deforestation;
- Transitioning Organized Industrial Zones to eco-industrial parks (Green OIZs).

Areas of [EBRD Green Portfolio Projects](#) include:

- Renewable energy projects, such as photovoltaic installations, and production of photovoltaic cells/modules, installation of wind turbines, construction of mini-hydro cascades, geothermal and biomass facilities;
- Rehabilitation of power and heating plants and transmission/distribution facilities to reduce total greenhouse gas emissions;
- Modernization of industrial installations to reduce total GHG emissions;
- Innovative technologies that result in significant reductions in total GHG emissions, e.g. smart distribution networks
- Fuel-switching from carbon-intensive (coal, heating oil, oil shale) to less carbon-intensive fuels such as natural gas;
- Greater efficiency in mass transportation, such as investment in fuel-efficiency (fleet replacement), or more energy-efficient infrastructure;
- Methane capture on waste landfills and wastewater treatment plants;
- Rehabilitation of municipal water/wastewater infrastructure to reduce water consumption and wastewater discharges;
- Improvements to solid waste management (minimization, collection, recycling, storage, and disposal);
- Energy efficiency investments in existing buildings (insulation, lighting, heating/cooling systems);

BOX 1 (Continued)

- *Investments to improve efficiency of industrial water use;*
- *Sustainable and stress-resilient agriculture, including investments in water efficient irrigation;*
- *Sustainable forest management, reforestation, watershed management, and the prevention of deforestation and soil erosion.*

World Bank Green Bond Projects do not include hydropower projects due to their large impacts on the environment, livelihoods, and ecosystems, and EBRD green portfolio projects only include the construction of mini-hydro cascades. Hydropower rehabilitation projects are considered green if they increase energy efficiency and dam safety.



2. WHY TURKEY WANTS TO GROW GREENER?

Realizing that the impressive growth since 2000 has put pressure on natural resources and the environment, Turkey has made efforts to decouple its growth from air emissions, waste generation and energy and water consumption. Production-based CO₂ over GDP decreased from 0.2kg/USD in 2005 to 0.18kg/USD in 2015. Emissions of all pollutants from road transport have declined, except for SO_x. Emissions of carbon monoxide and PM₁₀ from power stations and industrial combustion have also decreased. Progress has also been made in the expansion of waste treatment infrastructure, including sorting, recycling and medical waste treatment, and annual per capita municipal waste generation has declined by 8% over 2005 and 2016. The flagship example is the Zero Waste initiative, briefly presented in BOX 2. Water supply and sanitation service have also improved with the increasing share of the population with access to municipal drinking water (2%) and sewage system (16%) over 2001 and 2014.¹⁴ The share of protected areas has also increased in 2020 amounting to 10% of the country's surface area in 2020 in an important step towards achieving OECD standards (17%). This is in line with the 11th Development

BOX 2: Turkey's Successful Zero Waste Initiative

The Zero Waste policy went into effect at various government ministries over the course of 2017, later spreading to the municipalities and a number of private companies and specific public institutions, including schools and hospitals. The First Lady of Turkey has spearheaded efforts to reduce waste to a minimum, and, two years after its inception, Turkey has saved tons of plastic and made its steas cleaner, with thousands of buildings, residencies and companies having implemented recycling into their waste disposal policies.

The "zero waste management system" in Turkey aims to protect the environment and human health by establishing and developing management processes in line with the principles of sustainable development with effective management of raw materials and natural resources. The Zero Waste Regulation, prepared on the basis of Environmental Law No. 2872 and published in the Official Gazette dated July 12, 2019, regulates the principles and procedures of the zero waste management system to be established in many enterprises and industrial plants, as well as local administrations and public institutions.

Zero Waste Blue, the project's maritime wing, also proved effective in mobilizing the public to keep the country's four seas and other bodies of water clean. More than 163,000 cubic meters of waste have been removed from the seas since the Zero Waste Blue was launched early in 2019. More than 30,000 people have been educated and trained on how to prevent and handle maritime pollution, while 760 companies have declared their commitment not to dispose of waste in the seas. Associations of divers are also contributing to the Zero Waste Blue program, holding public events to collect waste from the seas.

Aside from the environmental benefits, the project looks to save the country around US\$300 million annually and create jobs for 150,000 people by 2023, according to projections. The country seeks to increase its recycling rate from 13% to 35%. Education is a key element to achieving this aim, and so, since its inception, the Zero Waste program has boosted media recognition of the issue and promoted awareness at schools in order to combat the culture of haphazard use of disposable materials and food waste. Today, containers separating paper, metal and glass waste are a common sight in Turkey.

The Ministry of Environment and Urbanization has implemented a zero-waste project at its premises, whereby waste is collected separately, food leftovers are sent to animal shelters, and compost units are installed to produce manure. Thanks to this project, waste from the ministry's premises is no longer sent to landfills. The Government is organizing nationwide awareness campaigns and aims to expand the zero-waste project to all public institutions and public spaces by 2023.

¹⁴ OECD, [OECD Environmental Performance Reviews: Turkey 2019](#).

Plan addressing the need to increase and effectively manage protected areas across the country, while ecosystems and ecosystem services are protected and maintained, as well as the Strategic Plan of the Ministry of Agriculture and Forestry (MoAF) (2019-2023) priorities. Since the opening of the environmental chapter for EU Accession in 2009, Turkey has adopted laws and developed several strategies in water, energy and energy efficiency, climate change, biodiversity, and waste. The National Biodiversity Strategy and Action Plan (NBSAP) was prepared for 2007-2017. It was updated with an addendum to the National Biodiversity Action Plan covering 2018-2028 in line with the requirements of the Convention on Biological Diversity and Aichi targets. The SDG principles have also been integrated into the 11th National Development Plan.

Turkey has strengthened its institutional framework necessary to address environmental problems over the past decade, and is increasingly putting efforts into the monitoring of polluting activities and the actual enforcement of environmental regulations. While the country is facing many environmental challenges, and there are still steps that need to be taken for the transition towards greener growth, Turkey has substantially upgraded its environmental regulations, bringing them closer to EU requirements over past years. In accordance with the Zero Waste Project initiated in 2017, Law No. 7153 amending the Environment Law, published in the Official Gazette dated December 10, 2018, No. 30621 and articles regarding the implementation of recovery contribution share, compulsory deposit-refund system and charging of plastic bags have been added into Environment Law No. 2872. With the “By-Law on Control of Packaging Waste (published in the Official Gazette dated December 27, 2017, No. 30283” and Ministerial Approval on “Procedures and Principles Regarding the Charging Of Plastic Bags” dated December 25, 2018, No. 245766, the application of charging for plastic bags started on January 1, 2019 with the aim of reducing plastic bag usage per capita in Turkey. In Annex Article 11, which is added to the Environment Law, the Recovery Contribution Share is defined in compliance with the EPR principle. Those products within the scope of the recovery contribution share and the fees to be applied per unit are set in list no. (1) attached to the same Law. Accordingly, various products such as plastic bags, packaging, tires, batteries, oil, medicine and electronic goods are included within the scope of the recovery contribution share. Besides the reduction itself, it aims to provide financing for development of the waste management infrastructure. Thanks to both the charging implementation and great favor of the Turkish citizens, unnecessary plastic bag consumption had been significantly reduced from 440 to 90’s per capita by end 2019. During 2019-2020, the consumption rate reduction is recorded as 75%, resulting in the prevention of 290,000 tons of plastic waste generation. In other words, the financial size of these savings can be expressed as approximately 2 Billion Turkish Liras (TL).

Turkey has also established the “Turkish Environment Agency” with “The Law on The Establishment of the Environmental Agency of Turkey and the Amendments to Certain Laws” published in the Official Gazette dated December 20, 2020, No. 7261. The agency will operate on a

circular economy and zero-waste approach in line with resource efficiency, and carry out necessary procedures to establish a national scale deposit refund system. The agency will be responsible for the establishment of the deposit management system and the inclusion of all relevant parties and determination of their obligations, as well as for the operation of the system. The revenue source of the agency is comprised in part of 25% of the total amount of the recycling contribution share. The main responsibilities of the Agency will be: (i) contributing to the establishment and implementation of the zero waste management system; (ii) contributing to the activities of bringing recyclable products to the country's economy after their use and the management of recyclable wastes; (iii) preparing and publishing visual, audio and written publications, and cooperating with the press and media to carry out activities such as campaigns, competitions and promotions in order to raise public awareness; (iv) organizing training and certification programs, conducting scientific studies, establishing documentation, research and application centers, laboratories and museums; and (v) cooperating on and developing joint projects and carrying out activities with local governments, national or international institutions or organizations, universities, non-governmental organizations and real or legal persons at home or abroad; as well as providing financial and technical support to municipalities, special provincial administrations, educational institutions and other institutions and organizations if deemed appropriate.

According to the revision to the Turkish Environmental Law (Additional Article-No.12), the MoEU obliges the deposit application for packaging and products to be determined as of January 1, 2022. Accordingly, sales points that sell products covered by the deposit are obliged to participate in the deposit collection system. The deposit application will actually provide an economic and environmental return for Turkey, let alone not create a financial burden. A total contribution of 5.8 billion Euros will be made to the national economy, thanks to the savings and emission reduction resulting from the use of recycled materials instead of raw materials and the emission reduction achieved by not disposing of packaging wastes in landfills, and the reduction in waste disposal costs of local governments. Meanwhile, this system will create employment for 3,500 to 6,000 people nationwide and allow the emergence of previously determined business. The deposit application's environmental return for Turkey is aimed at supporting the economy and reducing imports, which has economic repercussions. In addition, as the scrap price of packaging to be collected will be indexed to international market prices, there will be a gain in secondary raw material exports. Deposit application will also result in benefits in terms of protecting the environment, preventing waste of raw materials, reducing carbon emissions, and increasing energy efficiency in production and logistics, contributing directly to six of the seventeen United Nations Sustainable Development Goals, and will provide evidence in support of Turkey's accession to global sustainable development action status. In order to reduce "the usage of plastic-containing bags or packaging and single use materials" market-based mechanisms such as the cost of pollution and obtaining guarantees to prevent pollution, as well as economic tools and incentives, are regulated via revised Turkish Environmental Law.

Additionally, administrative fines, which create the backbone of environmental enforcement in Turkey, have increased by 23.73% for individuals and companies violating environmental laws in 2019. Based on a risk-based approach, the Ministry of Environment and Urbanization with its Provincial Directorates conducted around 50,000 planned and spot-check inspections per annum in 2016, 2017 and 2018, increasing frequency up to 55,000 in 2019.¹⁵ On average, 7-8% noncompliant cases led to an administrative fine or the cessation of operations. According to 2019 data on the administrative sanctions amount, the highest fines are related to waste management (41%) and water management (18%). In May 2017, a 2-year project was launched to create a system compatible with the European Pollutant Release and Transfer Register (E-PRTR). Large industrial facilities were mandated to set up Continuous Emission Monitoring Systems and Continuous Wastewater Monitoring Systems, which are inspected by the Ministry.¹⁶ Such large industrial facilities including waste incineration facilities, iron-steel smelting and lime plants that are identified on a case-by-case basis are subject to online monitoring of air emission parameters. The Ministry also reserves the right to select and oblige facilities other than those identified by the regulation to continuously monitor their emissions. Turkey also monitors air pollution concentration levels (including SO₂, PM₁₀, PM_{2.5}, CO₂, NO₂ and O₃) through 355 monitoring stations installed nationwide. The Ministry plans to extend the capacity of monitoring stations to include the monitoring of PM_{2.5} and other pollutants such as NO₂, O₃, NMVOC, PAH, benzene, etc., while a few stations have already started to measure PM_{2.5}, aerosols and O₃. Further efforts to address air quality in a holistic manner include strategic regional air quality maps prepared jointly with the regions to prioritize Clean Air Action Plans for selected provinces. Under the Continuous Wastewater Monitoring Systems regarding the activities of waste water treatment plants of large capacities, there have been recent amendments to the continuous wastewater monitoring regulation in 2019, such as increasing the number of monitoring parameters (pH, conductivity, dissolved oxygen, flow and temperature, chemical oxygen demand and total suspended solids), and a reduction of the wastewater treatment plants that have to be monitored online, reducing capacity to 5,000 m³/day from 10,000 m³/day at wastewater treatment plants, pre-treatment plants and facilities using cooling water and deep-sea discharges. The Ministry of Environment and Urbanization also collects and discloses various environmental statistics including, but not limited to Environmental Impact Assessment and Environmental Permits and Licenses (e.g. EIA decisions, permits and licenses for facilities, inspections and fines, etc.), waste management (e.g. solid, hazardous, medical wastes, etc.) and air quality.

New strategic plans of the Government of Turkey put an even sharper focus on climate action and green growth. As announced in February 2021,¹⁷ the National Climate Change Research Center will be established and finalization of the Report on Combatting Climate Change is on the way, which will set the basis for the upcoming Climate Law, as well as the implementation of the 2050 Climate Change Strategy and Action Plan. Regional Climate Change Action Plans will be developed for the seven regions in Turkey, smart cities and zero waste applications will

¹⁵ Ministry of Environment and Urbanization of Turkey, 2020.

¹⁶ OECD: *OECD Economic Surveys: Turkey*, 2018.

¹⁷ Murat Kurul, Minister of Environment and Urbanization, [speech on 17 February, 2021](#).

be expanded, energy efficient and climate sensitive settlements will be established, and spatial strategic plans will be developed to efficiently manage investments in the fields of agriculture, livestock, tourism, renewable energy and industry. Regarding targets, under the Zero Waste Project, the recycling rate will be increased to 60% in 2035 and no new landfills will be created beyond 2050. The current rate of wastewater recycling (2.5%) will be increased to 5% (in 2023) and to 15% (in 2030), electricity production from renewable resources will be increased to 10 GW for solar and 16 GW for wind energy by 2030, and by 2023 the use of fossil fuels in buildings will be decreased by 25%. The need to create and increase incentives for the public and private sector to conduct green investments and enabling access to international financing sources is recognized. Climate Change Law is being developed and the piloting of an ETS is envisaged.

Maximizing exploitation of domestic primary energy resources and securing reliable and affordable energy for a growing economy in an environmentally sustainable manner have been, and remain, Turkey's core energy policy priorities. Turkey's energy system relies on a large share of fossil fuels, which accounted for 83% of the total primary energy supply in 2019 and 73% of total final consumption in 2018. The remainder consists of various renewable sources, mostly geothermal and hydroelectric power generation.¹⁸ The country has a high dependency on imported energy, particularly oil and natural gas. As the total primary energy supply has increased by 76% since 2005 to meet the fast-growing energy demand, the country's GHG emissions have increased the most among all OECD members over the past decade.¹⁹ The Electricity Sector Security of Supply Strategy (2009) and the National Renewable Energy Action Plan (2014) identified a target of increasing the share of electricity generated from renewable energy to 30% of the total 100 GW installed power generation by 2023 (including wind, hydro, solar, and geothermal). However, the 11th National Development Plan (2019-2023) modified energy sector targets; the electricity generation from renewables as 38.38%, electricity demand as 375.8 TWh and installed capacity as 109,474 MW for 2023. Turkey already generates more electricity than before from renewables - 42% in 2020. The 2005 Renewable Energy Law, a major milestone, established the feed-in-tariff mechanism, as well as the purchase guarantee and local component support for electricity produced from renewable energy sources. Moreover, with the new renewable energy support mechanism YEKA, MENR declares Renewable Energy Resource Zones (YEKA) where renewable energy capacities are to be tendered. In addition, a "Green Tariff" (YETA) was developed for those citizens preferring to use electricity generated from renewable energy sources. The newly introduced Regulation on the Renewable Energy Resource Guarantee Certificate (YEK-G) includes provisions regarding participation in the renewable energy resource guarantee system that will certify the electricity to be supplied to consumers by supply companies from renewable energy resources. The Government has also facilitated access to renewable energy financing provided by international financial institutions such as the World Bank Group and the European Bank for Reconstruction and Development, and bilateral institutions. The country has increased its installed renewable energy capacity by 245% over the past 16 years, today ranking sixth in Europe by installed wind and solar power capacity.

¹⁸ IEA, *Turkey 2021 Energy Policy Review*, 2021.

¹⁹ OECD, *OECD Environmental Performance Reviews: Turkey 2019*, 2019.

Energy efficiency is articulated as one of the priorities under the 11th National Development Plan (2019-2023). Turkey's energy efficiency policy is guided by the Energy Efficiency Law (2007), Energy Efficiency Regulation (2011), Energy Efficiency Strategy (2012), Buildings Energy Performance Regulation (2017), and the Green Buildings Regulation (2017). Additionally, the National Energy Efficiency Action Plan was adopted in 2017. It envisages 55 actions under 6 categories – buildings and services, energy, transport, industry and technologies, agriculture, and cross-cutting areas – which aim at achieving a 14% decrease in energy consumption by investing US\$10.9 billion by 2023 into energy efficiency measures.

Nevertheless, Turkey remains a resource-intensive economy, and rapid economic development and urbanization continue to exert heavy pressure on the country's natural resources and environment. As of 2018 Turkey was still one of the lowest per capita emitters of CO₂ in the OECD, but emissions are rising rapidly as the country grows. Material productivity is below the OECD average and started growing only in recent years, further pressuring natural resources. Big cities in Turkey suffer from low air quality levels, and exposure of the population to fine particulate pollution exceeds the World effective way to achieve the desired results. Health Organization guidelines²⁰. Growing agricultural production puts upward pressure on water demand, while water quality is severely deteriorated due to the discharge of untreated industrial and domestic effluents and diffuse pollution from agricultural runoff. By international standards,

BOX 3: Strengthening Climate Resilience

***Climate Change Adaptation** is the process of adjustment of human systems and societies to the impacts or expected impacts of climate change. **Resilience** is the capacity of a system to cope with, or recover from, those impacts, while retaining the essential components of the original system. Strengthening the resilience of a system to withstand climate-related shocks or stressors (defined as **Climate Resilience**) is where adaptation and resilience intersect.*

Climate resilience constitutes an important and growing subset of building system-level resilience to multiple shocks. The awareness of the importance of resilient societies is rapidly increasing as the COVID-19 pandemic is impacting the World and governments are searching for solutions to safeguard their national economies. Climate change is likely to cause broad and deep impacts on countries and societies of a comparable magnitude. As per [The Global Risk Report 2021](#) environmental and climate-related risks are accounting for four of the top-five risks by likelihood and three by impact, and governments will have to link national long-term climate change adaptation plans with public investments planning and processes in order to effectively strengthen resilience to shocks and achieve the necessary multi-faceted resilience.

Central to the concept of climate change adaptation is the notion of temporality, which includes adapting to short-term weather fluctuations, interannual variability, and longer-term changes over decades. Therefore, adaptation and resilience can be incremental or transformational depending on the scale of change required, as the long-term implications of climate change will sometimes require deep societal transformation. Incremental adaptation interventions refer often to minor changes in behavior or practices that increase resilience or reduce vulnerability, like adjusting the planting dates of crops. However, as climate change trends set in and variability becomes more pronounced and erratic, minor changes may no longer suffice and communities will seek long-term adjustments. In terms of agricultural practice, such adjustments of practices may include changing crop types and livestock systems, or else moving to a new location more suited to the original crop, or even shifting to alternative revenue-generating activities. These adjustments are examples of transformative adaptation — deep transformation of societies required to strengthen resilience towards the long-term implications of climate change.

²⁰ Mortality (approximately 360 per million inhabitants) and welfare costs (almost 8% of GDP) of premature death from exposure to outdoor PM2.5 and ozone (2016) have increased since 2005.

Turkey is currently considered a water-stressed country and, with rapid population growth, is predicted to be water-scarce by 2030. Recognizing this threat, the Turkish government has taken a step to enhance irrigation systems to prevent water wastage, and the Regulation on Irrigation Systems within Rural Development Supports (communique no. 2021/7) published in February 2021 provides various incentives to new irrigation systems.²¹ Soil erosion and desertification, and the degradation of forests and forest ecosystems are also prominent problems. To maintain its success in economic growth, wellbeing and poverty reduction, Turkey sees the necessity for a stronger focus on more sustainable and greener growth. *Turkey has been diversifying its energy portfolio by continuously increasing the share of renewable and environment-friendly sources. In its 11th National Development Plan, Turkey commits to add 10,000 MW solar and 10,000 MW wind power to its energy generation capacity.*

Turkey is also particularly vulnerable to the impacts of climate change, which have already manifested in an increase in annual mean temperature, changes in the precipitation regime, and increasing numbers of climate-related hazards such as floods and droughts. Climate change is projected to negatively impact surface water availability, increase the frequency and severity of flooding incidences, and prolong arid seasons and drought episodes, which will affect agricultural yield and threaten food security. Climate-induced hazards and extreme weather events will continue to affect the safety and welfare of hundreds of thousands of people, and will also likely alter demand patterns and cause substantial damages to energy, waste, and transport infrastructure. According to some estimations, the amount of average annual property damage caused by floods has reached 300 million Turkish Liras (more than US\$40 million) and the real figures may be significantly higher. Without accelerated actions, environmental and natural resources degradation, together with the impacts of climate change, will increasingly affect societal wellbeing and act as severe constraints on economic growth.²² As *BOX 3* explains, adaptation to changing climate is critical in strengthening the overall resilience of national economies and social systems.

As the world switches towards low-carbon growth, Turkey can benefit from growing public and private investment flows into low-carbon, clean energy initiatives. Between 2013 and 2016, global private sector foreign direct investment in renewable energy was about US\$17 billion per year.²³ This was matched by an almost equivalent amount of international public climate finance. The climate finance portion of the total operations of Multilateral Development Banks (MDB) has increased from 18% in 2013 to 31% in 2019.²⁴ As *BOX 4* shows, Turkey was very successful in mobilizing and deploying finance, primarily for mitigation climate action, and was among the best examples globally for developing renewable energy generation. Turkey ranks sixth in Europe and thirteenth in the world regarding the installed power capacity of renewable energy. Approximately

²¹ [The Regulation on Irrigation Systems within Rural Development Supports \(communique no 2021/7\).](#)

²² OECD, *OECD Environmental Performance Reviews: Turkey, 2019*.

²³ Climate Policy Initiative, *Global Landscape of Climate Finance 2019*, 2019.

²⁴ *Joint Report on Multilateral Development Banks' Climate Finance*, 2019.

70% of the total installed power commissioned over the past 5 years consists of domestic and renewable resources. Given that, Turkey's vast potential to further develop untapped renewable energy resources, and the clear need for investing in climate change adaptation in several sectors, enhanced climate action represents a significant development opportunity, as well as a necessity. Turkey's exports in climate change mitigation technologies²⁵ have grown at 18% per annum over the past 12 years, significantly faster than overall growth in exports. As well as attracting more investment into Turkey, being part of the global low-carbon transition can open new export markets for the country.

While pursuing greater climate action would provide new investments and export opportunities, the scale of climate action may have implications on Turkey's relationships with key trading partners. The European Green Deal and the accompanying regulations on sustainable finance,²⁶ which support and accelerate the EU's transition to a sustainable industrial model of

BOX 4: Historical Success of Climate Finance in Turkey

Turkey has been a recipient of significant international finance for climate action over the years, including concessional funds. The largest providers of concessional finance were the Global Environment Facility (GEF) and the Climate Investment Funds (CIFs). While concessional finance played an important role in removing the market barriers for investments in climate action, it has accounted for only about 4 percent of total flows.

Some examples of Green Loans, Green Bonds, Green Sukuks and Green Mortgages: Şekerbank developed a leading product in Turkey called EKO kredi (EKO loan), which is an umbrella product in financing energy efficiency projects (waste management, insulation, modern irrigation, etc.) by SMEs, individuals, and industrial and agricultural enterprises under favorable conditions. Through EKO kredi, the Bank has introduced over 100 thousand people to energy savings thus far.

The first green/sustainable bond in Turkey was issued by the Industrial Development Bank of Turkey (TSKB) in 2016 at US\$300 million. The proceeds are used for private sector investments in renewable energy, energy efficiency, and other activities that reduce greenhouse gas emissions. In 2017, TSKB issued the world's first subordinated sustainable bond. In December 2019, Turkish bank Garanti BBVA issued a five-year US\$50 million green bond to support renewable energy and climate-friendly projects. Garanti also issued a US\$50 million green bond in 2020, and provides financing for renewables in Turkey. Yapı Kredi issued its first Green Bond, five-year US\$50 million instrument, in January 2020. İşbank issued its debut 10-year US\$50 million green bond (also the first 100% green bond in Turkey) in August 2019, followed by a new five-year US\$13 million green bond in February 2021. Akbank also issued its first Green Bond, a four-year US\$50 million instrument, during the COVID-19 pandemic. TSKB further issued a new sustainable bond worth US\$350 million at the beginning of 2021.

TSKB also issued Turkey's first sustainable (also green) lease certificate after having completed Turkey's first lease certificate (Sukuk) issuances in the gas distribution and food sectors. The first issuance worth TL 50 million was completed under the sustainable Sukuk Issuance Program on behalf of Zorlu Energy, which amounts to a total of TL 450 million.

In 2017, Garanti BBVA signed an agreement with the International Finance Corporation (IFC) to issue US\$150 million in mortgage-backed securities over a period of five years, which primarily finances environmentally friendly projects, mostly focusing on energy-efficient building, under the category of "Green Mortgages". In addition, a Green Mortgage for €75 million (TL 313 million) was agreed with the EBRD in August 2017.

²⁵ Technologies related to wind, solar thermal energy, and green transportation, etc.

²⁶ Regulation of the European Parliament and of the Council on the establishment of a framework to facilitate sustainable investment, April 2020.

BOX 4 (Continued)

Arçelik, the global leading consumer durables and electronics manufacturer, announced the issuance of its Green Bond in May 2021, the first of its kind in the international markets from a Turkish industrial Company. This green bond has a nominal value of 350 million Euros, with a five-year maturity and a coupon rate of 3%. Fitch has assigned a rating of 'BB+', above the Turkish country ceiling, to Arçelik's green bond. State-owned VakıfBank also issued a US\$750 million Eurobond with a five-year tenure —the first-ever "sustainable" transaction issued by a deposit bank. In February 2021, another state bank—Ziraat Bank—also issued the first Sustainability Bond with a five-year tenure for US\$600 million. Both issuances aim to finance projects and loaneligible under their Environmental, Social, and Governance (ESG) frameworks. Yapı Kredi's first sustainability-linked syndicated loan facility was secured in May 2021. The proceeds in the amount of US\$962 million at 367 days maturity and with a roll-over ratio of 103% will be used for trade financing purposes. The sustainability performance criteria include improvements of the Bank's electric power supply to include renewable energy sources and of the ESG Risk Management Score.

Climate Investment Fund (CIF): CIF is comprised of the Clean Technology Fund (CTF) and Strategic Climate Fund (SCF). CIF's US\$390 million multi-phased CTF investment plan in Turkey is supporting wind power expansion, smart grid upgrades, and complementary programs with local banks and leasing companies to tackle market barriers and scale up investment in renewable energy and energy efficiency. The first phase investment of US\$172 million through the end of 2012 leveraged US\$1.8 billion through 430 sub-projects via local financial intermediaries. Estimated savings have amounted to 902,000 tons of CO₂ equivalent and US\$568 million in avoided oil imports per year.

EBRD: As of 2020, the EBRD had invested €11,959 million in 302 projects in Turkey and this portfolio is growing. About half of these investments support the "green" economy and promote the sustainable use of energy and resources in the country. These investments have financed 3 GW of installed renewable capacity in wind, solar, and geothermal projects (about 7% of Turkey's total installed renewable capacity) and helped prevent approximately 11.3 million tons of CO₂ equivalent. Other types of projects include lower-carbon and sustainable transport solutions, water efficiency, and material efficiency improvement across sectors aimed at reducing the country's resource intensity. The EBRD's Turkey Country Strategy 2019 and 2024 will continue focusing on accelerating the country's shift to the green economy and supporting regional energy connectivity.

SOURCE: For more recent data on EBRD investments please see [Where we are - Turkey](#)

inclusive growth, recognize the need to mobilize global response to address the challenge of climate change and environmental degradation, and to promote and implement ambitious environment, climate and energy policies across the world. To facilitate a global response, the European Green Deal relies on cross-country international cooperation through established international fora such as the United Nations, G20, WTO, etc. The EU is the biggest trade partner of Turkey and the Green Deal has the potential to open new opportunities for Turkey to expand sustainable and job-intensive economic activities. The European Green Deal outlines the possibility of Europe adopting border carbon adjustments which would change the prices of goods entering or leaving the EU to reflect their carbon content. A border carbon adjustment operates like a carbon tax applied to imported goods.²⁷ Such adjustment at the EU border – Turkey's key trading partner accounting for 34% of imports and 42% of exports – is a strategic and economic risk. On the other hand, by pursuing green and climate-smart growth, and supporting low-emission technologies, sustainable products and services, Turkey can maintain and strengthen its position in global markets and accelerate the domestic shift from linear to circular economy. Also, by considering the objectives

²⁷ According to an assessment done under the Turkey Partnership for Market Readiness 1 Project (PMR1), a tariff of 20% on the price of all exports could reduce Turkey's GDP in 2030 by 1.3%. This is approximately five times the GDP cost of an Emissions Trading Scheme (ETS) that requires sectors under Monitoring Reporting and Verification (MRV) to reduce their emissions by 21% by 2030. Even tariffs greater than approximately 5% of price would have a more significant impact on the Turkish economy than an ETS aimed at reducing emissions from MRV sectors of the Turkish economy by 21%. Those with more market power and a stronger competitive position in international markets are better able to withstand the tariff. Refined oil, iron and steel industries face the largest reductions at 17% and 8% of exports respectively. For the majority of sectors, tariffs of 5% or above on price per unit generate worse impacts than the ETS. Active participation in global efforts to reduce emissions would be the only way for Turkey to avoid such impacts.

of the EU's Taxonomy²⁸ in its own regulatory framework Turkey can further benefit from its position to attract EU investments – it might offer a somewhat higher return due to the rise in the country risk compared to the European market, and, in addition, there is a rich experience and well-established modalities of cooperation between Europe and Turkey on markets and technologies.

Based on international evidence, the benefits of green growth provide a compelling reason for Turkey to grow greener. According to the New Climate Economy Report (2018), bold climate action could bring about a direct economic gain of US\$26 trillion through 2030 compared with business-as-usual and generate over 65 million new low carbon jobs in 2030, as well as avoid over 700,000 premature deaths from air pollution. The estimated scale of low-carbon employment will more than offset employment reduction in some declining sectors, resulting in a net employment gain of 37 million jobs globally by 2030. All green growth areas, including renewable energy and energy efficiency, electric vehicles and low carbon transport, plastic recycling, sustainable food production, and land-use, and restoration and conservation, can generate significant employment opportunities. In the United States, wind and solar generation constitute less than 10% of the power mix, but provide half (476,000) of the total jobs (1,038,000) in fossil fuel power generation and extraction combined. For every US\$1 million invested in energy efficiency, an average of 14 job years of net employment is generated, up to three times the number of jobs for the same investment in fossil fuel. A global shift to electric vehicles could also create approximately 11 million jobs by 2040. The global plastic recycling market can generate a significant number of jobs, with estimates for Europe alone at about 15,400 jobs. Sustainable food production can provide over 70 million jobs globally by 2030, while investments in restoration can boost smallholder farmers' incomes (mostly in developing countries) by US\$35–40 billion per year within 15 years. In the United States, restoration and conservation activities provide 126,000 jobs per year.

Given the growing awareness of climate risks to the financial sector, Turkey needs to foster action to strengthen its resilience. The financial sector's readiness to react to climate shocks, disasters, and other crises is a core priority for all countries.²⁹ Turkey is highly susceptible to climate-related financial risks, especially in relation to water scarcity, natural hazards, and the high share of fossil fuel in its energy consumption. As discussed above, climate- and environment-related risks are already significant and will continue to increase over the coming decades, fueling economic and financial risks. Water stress is expected to lead to increases in credit risk in the agricultural sector. On the transition side, decreasing renewable energy costs, investor sentiment and other sudden changes in (international) policy, technology, or consumer preferences increase credit and market risk for Turkish carbon intensive industries, including the coal sector and electricity production.

²⁸ EU, *Taxonomy: Final Report of the Technical Expert Group on Sustainable Finance*, 2020.

²⁹ Annex 3 elaborates on disaster risk financing in more detail.

The financial sector also plays the central role in fostering greener growth. Climate change presents opportunities for Turkey's financial sector as shifting to a low-carbon and climate-resilient economy requires a significant amount of mobilized funding across sectors. Along with the public sector, the financial sector needs to be ready to play a central role in making financial flows more consistent with the transition towards a climate-resilient and low-carbon economy. As for most countries, much of the finance for greener growth and climate action in Turkey will need to come from domestic sources and, with the right domestic enabling conditions, international private investment.

The post-COVID 19 economic recovery phase offers Turkey an opportunity to position its economy on a greener growth path. Across the world, governments are responding to the crisis triggered by COVID-19. While the priority today is to support overwhelmed health systems and the millions of workers and business owners who are being hit hard, a longer-term economic recovery offers a significant opportunity and responsibility to use lessons from the COVID-19 crisis and build a more resilient and sustainable future. The current pandemic crisis delivers important lessons for countries and shows that investments in strengthening resilience to anticipated disastrous events can substantially reduce the damage sustained and decrease the costs of recovery. In Turkey, recovery plans could strengthen economic, social and ecological resilience to better cope with future disasters³⁰ and support clean energy transition.³¹

2.1. CLIMATE-RELATED RISKS TO TURKEY'S FINANCIAL SECTOR

Climate change and environmental issues are increasingly recognized as important sources of risks and opportunities for the financial sector. A growing number of central banks and regulators across the globe have issued warnings on the impact of climate and environmental risks on the stability of their financial institutions and systems. These risks can materialize through two channels: physical and transition risks. Physical risks stem from both gradual and abrupt impacts of climate change – including natural disasters relevant to Turkey such as droughts, floods, and landslides – which affect economic performance and the value of real or financial assets. Transition risks derive from efforts to transition to a resilient low-carbon economy and improve local environmental conditions, which can create significant economic adjustment costs in a broad range of sectors. Turkey's carbon-intensive industries in particular may face changes in their asset values. Importantly, climate and environmental migration is a very relevant risk for Turkey.³² These sets of risks have direct economic impacts, including on economic growth, as well as heightened levels of uncertainty regarding the medium to long-term macro-economic outlook, increased public and private sector financing needs, structural changes to the economy, and the distribution of wealth and income. At the same time, there is global recognition of the emerging role of financial sectors in mobilizing capital for green objectives, including for those laid out in national climate action plans and strategies.

³⁰ Climate change related disaster could be sudden shocks (similar to COVID-19) through extreme weather events like a cyclone, or slow-onset events like changing weather patterns such as droughts.

³¹ Annex 1 elaborates on this topic in more detail in the context of Turkey.

³² World Bank, *Groundswell: Preparing for Internal Climate Migration*, Washington, DC: World Bank, 2018.

Turkey's Banking sector is the economy's main engine to allocate resources for their most productive use and to distribute risks efficiently in light of a sizeable climate finance gap and public finance constraints. Climate-related financial risks may weaken financial sector balance sheets and induce or amplify macro-financial risks, particularly in case of shocks. The resulting financial sector losses and volatility in financial and commodity markets can adversely impact funding, liquidity, and lending conditions and weaken financial sector balance sheets, giving rise to negative feedback loops with macro-fiscal implications. Macro-financial risks translate into weakened resilience to physical climate risks and constrained capacity for climate adaptation and mitigation efforts. As an emerging market, Turkey may be particularly affected, given that its financial market may be less resilient to such shocks.³³

In response, governments and regulators have started to strengthen the regulation, supervision, and capacity of the financial sector to improve firms' resilience to climate risks and to mobilize capital for green development. The global Central Banks' and Supervisors' Network for Greening the Financial System (NGFS), which is made up of 65 member-organizations, urges regulators and policy makers to take steps to manage and mitigate these climate-related financial risks.³⁴ Prior to the creation of NGFS, this topic was brought to the global agenda by the G20 Sustainable Finance Study Group and the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). At the national level, numerous governments have started to implement green and sustainable finance strategies to align their financial sectors with climate and environmental objectives and achieve green growth objectives.³⁵

The CBRT, BRSA and CMB could play a major role in ensuring that the financial sector adequately considers the financial risks posed by climate change. Financial institutions need to account for both the short-term financial losses and the strategic consideration of the implications for their longer-term business model viability. Supervisors or regulators can be instrumental in enhancing awareness by carrying out an initial assessment of Turkey's financial (banking) sector's exposure to key sectors most exposed to climate risk (e.g. fossil fuels, power, agriculture, automotive and steel).

2.2. PRIORITY AREAS FOR CLIMATE ACTION IN TURKEY

Turkey's climate change action directions are set in the National Climate Change Action Plan³⁶ and in the National Climate Change Adaptation Strategy and Action Plan.³⁷ The comprehensive National Climate Change Adaptation Strategy and Action Plan³⁸ foresees adaptation measures to address water resources management (to ensure robust, climate resilient systems), agriculture and food security (climate resilience, protection of soil and agricultural biodiversity, and water management in agriculture), ecosystem services, biodiversity and forestry, natural disaster risk

³³ Erik H.B. Feyen, Robert Johann Utz, Huertas Zuccardi, Igor Esteban, Olena Bogdan, Jisung Moon, World Bank, *Macro-financial Aspects of Climate Change*, Washington, DC: World Bank, 2020.

³⁴ To promote green finance, The Bank for International Settlements (BIS) has launched a euro-denominated, open-ended fund for green bond investments by central banks and official institutions. The launch follows the introduction of a first BIS green bond fund denominated in US dollars in September 2019. The initiative was in line with the NGFS.

³⁵ Annex 2 provides the list of international initiatives to support Green Finance and their focus.

³⁶ *National Climate Change Action Plan 2011-2023*, 2012.

³⁷ *National Climate Change Adaptation Strategy and Action Plan*, 2011.

³⁸ The Adaptation strategy is being updated in collaboration with UNDP and in line with the EU Adaptation Strategy; the new strategy is expected in 2021.

management, public health, air quality management and cross cutting issues. There is a focus on strengthening response mechanisms for natural disasters caused by climate change, including identification of existing and future effects and risks of climate change on public health, and building capacity to address these risks. Recent extreme weather events (flooding in coastal areas, forest fires in northern regions where they have not been recorded in the past) and the findings of the IPCC report³⁹ have emphasized the need for strengthening climate resilience in Turkey. The 11th National Development Plan (2019-2023) recognizes that Turkey is pursuing a policy aimed at promoting green growth and limiting the rising trend of emissions, while efforts for adaptation to climate change remain important.

In 2014, Turkey adopted its landmark regulation for Monitoring, Reporting and Verification (MRV) of installation-level GHG emissions based on the MRV system of the EU ETS. Turkey's MRV system, up and running since 2015, covers installation-level GHG emissions from the energy (combustion of fuels with output of 20 MW thermal or more) and industry sectors (coke production, metals, cement, glass, ceramic products, insulations materials, paper and pulp, chemicals over specified threshold sizes/production levels). The MRV regulation and system provide a solid foundation and the verified data necessary for a carbon pricing mechanism.

The demand from various ministries and other stakeholders concerning the priority activities for possible enhanced climate action is clear. In discussions with the World Bank, line ministries of the Government of Turkey have indicated the need to strengthen climate resilience in all sectors and the potential to foster mitigation in many of them, listing the following priority mitigation and adaptation activities in key sectors:

The activities identified by ministries are a mix of those amenable to investment project financing (including with private sector financing) and technical assistance for capacity building, planning, assessments, etc. While mitigation has been a focus of climate action in Turkey over many years, there has recently been a strong emergence of adaptation priority actions. The extreme weather events of the recent past have led to adaptation and disaster risk management gaining in importance, and a separate department for climate adaptation and DRM has been created at the Ministry of Environment and Urbanization. In a couple of sectors, the proposed activities would deliver on both mitigation and adaptation.

³⁹ The Intergovernmental Panel on Climate Change (IPCC). *Special Report: 1.5C Warming*. 2018.

SECTOR	MITIGATION	ADAPTATION
Energy	• Renewable energy generation (Solar, Wind, Geothermal); • Street lighting; • Energy efficiency in Buildings; • Industrial energy efficiency; • Energy storage (battery, hydro-pump); Carbon Capture and Storage; • Transmission infrastructure for renewable energy (including submarine cables) • Renewable energy generation (Solar, Wind, Geothermal); • Street lighting; • Energy efficiency in Buildings; • Industrial energy efficiency; • Energy storage (battery, hydro-pump); Carbon Capture and Storage; • Transmission infrastructure for renewable energy (including submarine cables)	• Infrastructure and supply systems resilience; • Climate risks / vulnerabilities / disaster assessment and reduction
Industry	• Energy and Resource Efficiency in Manufacturing Industry; • Low-Carbon Pathway for energy-intensive industrial sectors; • Green Organized Industrial Zones enhancing Clean Production Capacity of SMEs	• Improvement of total factor productivity in industry; • Enhancing the integration of Turkish SMEs into global supply chains; • Supporting digitalization investments of SMEs; • Supporting the high-tech production of SMEs
Research, Technology, and Innovation	• Planning and prioritization of technologies for mitigation; • Development of Low-Carbon Technologies; • Carbon Capture and Storage Technologies	• Planning and prioritization of technologies for adaptation; • Scaling up and accelerating climate technology implementation; • Supporting scientific research and studies
Transport	• Modal shift from road to rail; • Railway infrastructure enhancements (last-mile connectivity, extensions) • Urban public transport with Intelligent transportation systems; • e-vehicles (fiscal support); • Renewable energy in transport infrastructure (e.g. lighting)	• Resilient transport infrastructure (roads, railways, ports, and airports); • Climate risks / vulnerabilities / disaster assessment and reduction (impacts assessments, early warning systems, flood maps, etc.)
Agriculture, Irrigation and LULUCF	• Energy systems (Biogas energy production); • Using renewable energy for irrigation; • Improving energy efficiency in agriculture and aquaculture); • Forestry; • Climate friendly farming	• Land-Water nexus (water management in agriculture Sustainable land management, irrigation/drought management); • Ecosystem-based adaptation; • Rural community-based adaptation; • Capacity building at the national level (GHG accounting, adaptation in agriculture, rolling out climate friendly agricultural activities, etc.); • Support at preparing national climate change strategy in agriculture; • Climate risks / vulnerabilities / disaster assessment, reduction and public awareness raising (impacts assessments, early warning systems, flood maps, etc.)
Environment and Urbanization	• Municipal Climate Action; • Urban transformation; • Air Quality Management measures (district heating and low emission zones) • Industrial Resource Efficiency (emissions, material, water); • Green Organized Industrial Zones; • Coastal urban areas resilience (Black Sea); • Water resource management efficiency; • Reduction in community impacts; • Zero Waste initiative; • GHG accounting; • Climate risks / vulnerabilities / disaster assessment, reduction and public awareness raising (impacts assessments, early warning systems, flood maps, etc.)	

Activities identified for financing in the private sector largely focus on the energy and water sectors. In addition to activities identified by the line ministries, the Development and Investment Bank of Turkey (TKYB), which is one of the major public agents supporting the private sector, highlighted the potential for enhanced climate action in the following areas:

Energy:

- improvements in energy efficiency and use of renewable energy in district heating systems (geothermal energy);
- (floating) solar panels and offshore wind energy production;
- loss reduction in electricity distribution and in natural gas distribution systems;
- extension of natural gas distribution networks;
- smart grid distributed system installations for energy efficiency and resource efficiency purposes;

Water:

- loss reduction in water supply systems;
- improvement of wastewater treatment and recycling in industry and communities.

Given the historical focus of green financing on mitigation action in Turkey, adaptation has now been identified as a priority for climate action. Since 2021 Turkey has been working together with the World Bank on identifying options for innovative approaches to mobilize private investments in climate change adaptation for several priority areas. Further prioritization of areas to direct green finance will need to consider climate actions, where (i) both mitigation and adaptation (in waste, transport, agriculture, forestry and land use, and urban development) is feasible; (ii) a contribution to addressing country-specific environmental challenges is present; and (iii) a sharper focus is put on urgent requirements for strengthening climate resilience in Turkey (e.g. resilient coastal cities). While the demand exists, efforts to increase the flow of finance towards green projects need to be focused on two fronts: (i) how to mobilize resources and attract public and private capital for green investments, and (ii) how to deploy resources in the most effective way to achieve the desired results.



3. SCALING UP GREEN FINANCE IN TURKEY

Global climate finance flows reached a record level of US\$546 billion in 2018, but action still falls far short of what is needed under a 1.5 °C warming scenario. Estimates of the investment required to achieve the low-carbon transition range from US\$1.6 trillion to US\$3.8 trillion annually between 2016 and 2050, for supply-side energy system investments alone (IPCC 2018), while the Global Commission on Adaptation (GCA 2019) estimates adaptation costs of US\$180 billion annually from 2020 to 2030. In addition to scaling up climate finance, it is also necessary to drastically reduce new fossil fuel investments. Investments that lock in high-carbon emission pathways and lead to potentially stranded assets, such as fossil fuel power generation and supply infrastructure, must be phased out. Finance also needs to better factor in climate risks and avoid aggravating ecosystems' vulnerability to climate change.⁴⁰

While the public sector in many countries is implementing measures to deal with environmental challenges through taxes, subsidies and regulations, the mobilization of private capital for green growth and necessary climate action remains insufficient. The mechanisms for leveraging public sources to mobilize private investments in mitigation (primarily investments in renewable energy and energy efficiency) are generally well developed, but financing adaptation action is still mostly done by the public sector. As the World is heading into the emissions development path that leads to 3°C global warming, adaptation is inevitable. Given the increases in climate related disasters and rising awareness of climate risks, the public sector finance for adaptation will also increase over the coming years. However, it will not prove sufficient. According to the Global Landscape of Climate Finance 2019⁴¹ adaptation costs globally are likely to be between US\$280 billion and US\$500 billion per year by 2050, with even greater costs possible under higher emissions scenarios. Therefore, mobilizing private sector finance will be critical for meeting global adaptation investment needs. As a significant part of the barriers to scaling up green finance concerns misaligned or missing policies and capacities, governments play an important role in addressing them.

3.1. EVOLUTION OF GREEN FINANCE IN TURKEY

For Turkey's banking-dominated financial sector, green finance is still an evolving area. Initial green finance initiatives have been mostly focused on renewable energy investments, and chiefly financed by bank loans. To put it in numbers, as of December 2020, the loans extended by the banking sector to the energy sector amounted to US\$30 billion, and approximately 40% of this amount was used for financing renewable energy projects. Although most of the banks provide finance to climate-related and renewable energy issues, there is no requirement in Turkey's financial system to tag the loans or bonds as green. TSKB (a private development bank) and Garanti BBVA, Yapı Kredi, Isbank, and Akbank (large commercial banks), are the only financial institutions that have issued green products. Unfortunately, those green finance amounts when compared to the total security and loan portfolios of the Turkish financial system are rather negligible.

⁴⁰ Climate Policy Initiative. [Global Landscape of Climate Finance 2019](#)

⁴¹ Climate Policy Initiative. [Global Landscape of Climate Finance 2019](#)

In Turkey, green finance is understood by the financial sector as part of the broader sustainable finance agenda. The Turkish banks' market-led course to sustainable banking is aligned with national goals as well as international principles and good practices. This understanding takes place in a broad perspective within the framework of the UN Sustainable Development Goals, from agriculture to women's employment, from health to education, and from industry and infrastructure to energy production and efficiency projects. The loans received by the banking sector from abroad and the private debt instruments issued for sustainable development have also increased. Any categorization of green finance is under the umbrella of sustainable finance.

The banking associations and financial sector's top players have undertaken voluntary industry-led initiatives. Turkish financial institutions have been incorporating environmental and social issues with a blend of risk management (screening and managing environmental & social (E&S) risks as part of banks' decision-making processes) and loan origination (supporting businesses and industries with a positive impact on the environment and society). However, as social issues encounter environmental issues and can have impacts on the financial sector, the Turkish banking system has focused more on sustainability. In 2014, the Banks Association of Turkey (BAT) issued Turkey's voluntary Sustainability Guidelines for the Banking Sector. The Guidelines were prepared by a BAT working group on the Role of the Financial Sector in Sustainable Growth, with the participation of 18 banks. They refer to the management of both environmental and social risks. Corporate governance is also mentioned, pointing to further integration to form a combined concept of environmental, social, and governance (ESG) performance of businesses (BOX 5 touches on the principles of ESG investments). The guidelines were revised in March

BOX 5: ESG Investments — Sustainable and Socially Responsi-

The [Principles of Responsible Investments](#) define responsible investment as a strategy and practice to incorporate environmental, social and governance (ESG) factors in investment decisions and active ownership. This means that financial institutions (FIs) such as banks, will have to adopt the principles of sustainable finance – offering any form of financial service integrating ESG risk management criteria into the investment decision.

ESG risk management for FIs involves integrating ESG risks into financing considerations to avoid or mitigate financial losses, reputational risk or harm to the environment and people caused by the projects financed by FIs. The integration of sustainability into management systems and practices brings tangible benefits, including new lines of businesses such as green finance, new clients, greater access to financing, greater shareholder value, and improved reputation and goodwill. By implementing sound ESG risk management policies, FIs can reduce the level and frequency of their clients sustaining negative ESG impacts, while also reducing their overall risk exposure.

Responsible Financing is also strengthening resilience. With the increasingly real impact of environmental and social pressures, including climate change on economies, it is acknowledged globally that integrating E&S factors into a financial institution's strategies and transaction processes is essential for strengthening the resilience of the financial system. Policy work conducted by the [G20 Sustainable Finance Study Group](#) and reporting guidelines developed by the Financial Stability Board's (FSB) [Task force on Climate-related Financial Disclosures](#) (TCFD) attest to this.

Many financial institutions, including IFIs, members of the United Nations Environment Program Finance Initiative (UNEP FI), and the Equator Banks, have ESG goals associated with their investments – as do the major companies in which they invest. If changing climate impacts are not taken into account, rates of non-compliance with environmental and social standards may increase. Using only historical data in environmental and social impact assessments is likely to disregard material changes that occur during a project's lifecycle, and investments designed on the basis of such data may not be able to cope with new climate conditions. All of these strengthen the business case for responsible investments and the integration of climate change risks into them.

2021. Currently, seven leading Turkish banks⁴² have signed the UN's Principles for Responsible Banking⁴³ to implement sustainability. Global Compact Network Turkey facilitated the "Global Compact Türkiye Declaration of Sustainable Finance" in 2017, which has so far been signed by eight Turkish banks. By signing the declaration, the banks commit to making environmental and social risk assessment a part of the loan assessment process and include it in relevant policies.⁴⁴ Additionally, several financial and non-financial corporates have committed themselves to issuing sustainability reports to raise investor awareness and resilience to shocks. The current macro-financial outlook and COVID-19 will provide a testing environment for those companies.

With increasing awareness of sustainability and climate change, the private sector has been exploring financing options such as public-private partnerships (PPP), domestic green loans, green bonds and other tools. Multilateral development banks are also active in Turkey to leverage financing for climate objectives. Turkey has successfully used public-private partnership financial models for infrastructure, including airports, highways, energy, healthcare, water, and rail projects. If structured appropriately, with sufficient revenue streams, public-private partnerships have proved successful in attracting both domestic and international investors to green and climate-related projects in Turkey.⁴⁵

Domestic banks have been the main driver behind the climate finance provided for clean energy projects in Turkey to date. Commercial banks have been very active in financing energy sector and renewable energy investments, and the share of energy sector loans in the total loan portfolio is 6.8% as of December 2020. Domestic development banks, the Industrial Development Bank of Turkey (TSKB) and the Turkish Development and Investment Bank (TKYB), have also been relevant financiers. They use loans from the international financing institutions to fund mainly renewable energy and energy efficiency projects. Turkey has seen several issuances of thematic bonds, with the TSKB paving the way in many respects. TSKB issued Turkey's first green/sustainable bond in the international debt capital markets in 2016.⁴⁶ The first sustainable Islamic bond (Sukuk) of Turkey was issued in June 2020 by Zorlu Enerji assisted by TSKB.⁴⁷ Şekerbank developed a leading product in Turkey called EKOkredi (a green loan) which is an umbrella product in financing energy efficiency projects of SMEs, individuals, and industrial and agricultural enterprises under favorable conditions. In 2017, Garanti BBVA signed an agreement with the IFC to issue US\$150 million in mortgage-backed securities over a period of five years, which primarily finances environmentally friendly projects, mostly focusing on energy-efficient building, under the category of "Green Mortgages."⁴⁸ In December 2019, Garanti BBVA issued a five-year US\$50 million green bond to support renewable energy and climate-friendly projects. State-owned VakıfBank also completed a first-ever "sustainable" Eurobond transaction issued by a deposit bank,⁴⁹ in December 2020. *BOX 6* elaborates on the example of İlbank supporting urban adaptation.

⁴² Akbank, Garanti BBVA, İşbank, Sekerbank, TKYB, TSKB, and Yapı Kredi. Also, Anadolu Hayat Emeklilik, a private pension fund, signed the UN's Principles for Sustainable Insurance.

⁴³ <https://www.unepfi.org/banking/bankingprinciples/>.

⁴⁴ Akbank, Garanti BBVA, ING Türkiye, İşbank, Sekerbank, TKYB, TSKB, and Yapı Kredi.

⁴⁵ Presidency of the Republic of Turkey, Investment Office, *Investing in Infrastructure and PPPs in Turkey*, 2019.

⁴⁶ The issue size of the bond was \$300 million with proceeds to be used for private sector investments in renewable energy, energy efficiency, and other areas that reduce greenhouse gas emissions. Source: <https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=17311>.

⁴⁷ <https://www.tskb.com.tr/web/307-4589-1-1/tskb-site-en/en-hakkimizda/tskdbden-haberler-en/turkeyes-first-sustainable-lease-certificate-issued-by-tskb>. The issue size was TL450 million.

⁴⁸ Garanti BBVA issued its first social bond in conjunction with IFC, a bond designed to support women entrepreneurs and the first of its kind to be issued by a private bank in an emerging market. In 2018, the bank signed two Green Loan agreements that stipulate interest or commission rates that are dependent on sustainability performance (a first of its kind in Turkey). The bank also launched the world's first "Gender Loan," which is used to promote and retain women in the workforce.

⁴⁹ The issue size was \$750 million with a five-year tenure and the cost was 6.625%. The proceeds will be used for Eco-friendly and socially-themed loans.

Several recent initiatives have the potential to significantly support the development of green finance in Turkey. As per Turkey's recently announced landmark New Economic Reform Package, the government aims at diversifying finance for investments that are environmentally sensitive. Moreover, the issuance of green bonds and Sukuk will be encouraged to finance green investments. Another step to boost investments, including green ones, is the formation of the Bonds Guarantee Fund to encourage companies in the real sector to issue bonds at a lower cost. These concrete steps will help Turkey achieve its green transformation, especially in the energy sector. Moreover, the Istanbul Finance Center Project, expected to be completed by 2022, is set to serve as a global hub. Participation (Islamic) finance, which is regarded as a significant tool for sustainable finance, will be one of the two pillars of the Project, along with FinTech. The government has started preparing the Participation Finance Strategy Document covering the 2021-2025 period to help the participation finance industry to be a globally competitive player and double its size over the next five years. One of the goals of the Strategy Document is to create an enabling environment to make the participation finance industry a global innovator and hub for Shari'ah-compliant green products in realizing UN SDGs. The Strategy Document is expected to include rubrics for ESGs, disclosure requirements and incentives for green finance. Stemming from the close ties between participation finance and SMEs in Turkey, developments in the former may also assist the green transformation of the latter. Integration of the topics of sustainability and going green to financial literacy initiatives may also be helpful in developing robust awareness among business and public institutions. In this regard, the Participation Finance Strategy Document will also include concrete steps towards embedding sustainability into the participation finance literacy development roadmap, since there is already a strong and inherent link between participation finance and sustainability.

3.2. IS TURKEY'S FINANCIAL SYSTEM FIT FOR PURPOSE?

As one of the largest economies in the world, and one of the key players in global supply chains, Turkey has experienced several boom-and-bust cycles over past decades. For several years the

BOX 6: Ilbank and Sustainable Cities Program - Supporting Urban Adaptation

Ilbank is an incorporated, non-deposit taking, development and investment bank established in 1933. It is a Municipalities' Bank with the purpose of providing financial resources to the municipalities, and is considered a financial intermediary (FI). Ilbank has two core functions: (a) to support infrastructure development at the subnational level through technical assistance, grants, and loans; and b) to transfer central tax revenues to the local authorities. Ilbank's vision is to 'contribute toward sustainable urbanization to meet the urban needs of local governments.' As such, the bank is best placed to drive substantial changes for cities towards resilient and green infrastructure. Recognizing the growing impacts of climate-related shocks and stresses, Ilbank recently established its own Climate Change Directorate, which has been tasked with realizing resilient infrastructure development in Turkey, with a focus on achieving climate co-benefits through each of the investments – both individually and collectively at a portfolio level.

Four themes are included in the Ilbank Strategy Plan 2019-2023, one of which is "Sustainable Cities". Under this theme, Ilbank seeks 'planned urbanization, environmentally friendly cities and smart city development'. Targets and strategies defined specifically regarding climate change adaptation include:

BOX 6 (Continued)

- Establishing a general sustainability framework based on national documents such as an “Integrated Urban Development Strategy and Action Plan (KENTGES),” “Climate Change National Action Plan,” and the “11th Development Plan” in accordance with national and international standards and practices for local governments.
- Funding within the framework of the Establishment Law in order to encourage and support **cycling roads** to reduce the effects of air pollution caused by traffic.
- Supporting the **Renewable Energy and Energy Efficiency Practices** of Healthy and Habitable Cities Within the Scope of Adaptation to Climate Change.
- Supporting infrastructure facilities (sewage, drinking water, storm water and treatment facilities) needs and investments in sustainable **solid waste management areas** in line with the targets in national legislation.
- Supporting **wastewater treatment plant projects** in cooperation with relevant institutions within the basin action plans.
- **Integration** of drinking water, wastewater, treatment and solid waste facilities with renewable energy projects.
- Conducting studies to **reduce the high seepage loss and leakage rates** of municipalities under the values set in the regulations.
- Developing Projects to **Reuse Wastewater**.
- Supporting Renewable Energy and Energy Efficiency Practices of Healthy and Habitable Cities Within the Scope of **Adaptation to Climate Change**.
- Planning activities in municipalities primarily on **efficiency** and secondly on raising awareness on **renewable energy sources**, within the framework of the “National Energy Efficiency Action Plan.”
- Investigation of restoration possibilities in existing **service buildings**, in accordance with “Passive Design” principles.
- Investigation of **renewable energy** sources and **energy storage** methods and the use of **hybrid district heating** systems in municipalities.
- Supporting metropolitan municipalities in the preparation of **sustainable planning tools**, including plans or integrated urban water management, capital investment, sustainable urban mobility, sustainable energy, and climate action.

The Sustainable Cities Program (SCP) aims to support improvements to the environmental, economic, financial and social sustainability of Turkish cities by improving access to priority municipal services. The SCP was designed as a series of projects (SOP). The SOP finances demand-driven municipal and utility infrastructure investments, with eligible sectors including, but not limited to, public transport, water and sanitation, solid waste management, and energy. The two SOPs approved from 2016 to 2019 include lending of around EUR 500 million, accompanied by two grants from the Global Facility for Disaster Reduction and Recovery (GFDRR) of US\$ 500K each.

Turkish economy struggled with low savings rates and a current account deficit, contributing to a persistent reliance on external finance. Hence, the economy remains sensitive to changes in external financing conditions. Turkey’s corporate sector and financial sector have remained dependent on external finance in providing long-term loans for sustainable investments. External investor demand and IFI’s sustainability concerns have encouraged Turkey’s largest companies and banks to consider sustainability concepts, as demonstrated by a voluntary expansion of disclosures. And in 2014, Borsa Istanbul launched its sustainability index project.⁵⁰

To improve ESG awareness and sustainability reporting of the listed companies, in October 2020 the CMB amended the Corporate Governance Communiqué to ensure that public companies take concrete steps to comply with ESG principles. The CMB has also published the “Sustainability Principles Compliance Framework”⁵¹ which contains the environmental principles

⁵⁰ Borsa Istanbul Sustainability Index (2014) is for high performing companies on matters of sustainability (currently composed of 58 companies). The index serves as a benchmark for companies and an engagement tool for institutional investors.

⁵¹ <https://www.borsaitstanbul.com/en/duyuru/3177/cmb-has-announced-the-sustainability-principles-compliance-framework>.

that public companies should follow. Although the set of principles is currently voluntary, companies are required to explain their reasons for non-compliance. The Framework encourages companies to follow relevant international reporting standards such as GRI, TCFD, IIRC and SASB. This arrangement is expected to provide significant motivation for a development of the understanding and learning process for sustainability reporting and culture, even for companies that cannot issue statements in accordance with the Sustainability Principles Compliance Framework at the initial stage. However, the need to align with the European Green Deal, which aims to facilitate public and private investments required for the transition to a climate-neutral, green, competitive and inclusive economy, deepens the need to integrate these principles into sustainable finance taxonomy and regulation.

The growing interest in sustainability and corporate responsibility themes among Turkish businesses does not, however, yet appear to be reflected either on the demand or supply side. There are several structural barriers to domestic long-term finance and capital markets development. These include: (i) a challenging macroeconomic environment that affects confidence of both foreign investors and domestic investors (who prefer financial products of lower risk and shorter tenor); (ii) a low national savings rate, limited institutional investor base, and high dollarization of deposits; (iii) the downgrade of the sovereign credit rating and its knock-on effect on corporate credit ratings; (iv) the crowding-out of private capital by government financing due to high local currency government bond yields across the yield curve; and (v) limited financial and capital market literacy. The COVID-19 pandemic further amplifies these challenges.

The banking-dominated financial sector has a limited ability to provide affordable longer-term green finance for green investments due to its short-term funding structure. Banks account for around 90% of total assets in the financial sector, and non-bank financial institutions and institutional investors, e.g., insurance and pension funds, are small by peer emerging market standards, which explains the financial system's limited capacity to mobilize resources for green investments. Increased volatility and uncertainty in the domestic and global markets post-COVID-19 and signs of monetary tightening in advanced economies are expected to further curtail the availability of long-term funding for Turkish banks, and thus reduce Turkish firms' access to longer maturity loans to finance their green investments.

Recent changes in capital market legislation may open the door to further growth in green finance. Combined with the efforts at capital market deepening, the Turkish authorities have introduced several legislative changes to enlarge the institutional investor base, such as domestic pension funds and Turkey's Wealth Fund, as well as the merging of state-owned insurance companies under an umbrella institution in scaling up sustainable finance in Turkey. Additionally, the Capital Market's Board (CMB) has introduced several legislative changes to encourage both the demand for and supply of capital market instruments⁵² which can help to deepen the capital market in terms of providing necessary and long-term funding for sustainable investments with demonstrative climate mitigation/adaptation projects and green issuances. Moreover, there has been increasing interest in the issuance of green-labelled sovereign debt. Green issuances could

⁵² These include introducing a "Bondholders' Committee" to Turkish law, as well as a Security Agent and Security Management Agreement, Project Bonds and Project Finance Funds, and easing the securitization of banks' loan portfolios.

serve to broaden the investor base and help develop green bond standards and incentives for issuers and investors, as well as the design of other innovative green financing instruments, including green mortgage loans, sustainability linked loans, and green funds. Following the Economy Reform Package and its action plans announced in March 2021, the CMB prepared a green bond and green Sukuk guidelines in cooperation with the Presidency's Finance Office and Borsa Istanbul.⁵³

BOX 7: Responsible Banking in Turkey

In 2013, the WBG's International Finance Corporation – IFC, established a Sustainable Banking Network (SBN). SBN is a unique, voluntary community of financial sector regulatory agencies and banking associations from emerging markets committed to advancing sustainable finance in line with international good practice.

In 2014, the Banks Association of Turkey (BAT) developed the [Sustainability Guidelines for the Banking Sector](#). It is developed as an informational guide and reference concerning sustainability good practices in the banking and finance sector. The Guidelines encourage banks to meet international standards of E&S policy design and make many references to good practice in areas such as target setting, risk management, and reporting. They encourage banks to go beyond regulatory norms for high E&S risk projects; to be transparent in their external communication; and to publish externally verified E&S policies and results. The guideline structure was revised by the BAT Sustainability Working Group in March 2021 now contains 10 main principles:

- Principle 1: Assessment and Management of the Environmental and Social Risks Arising from Banking Activities*
- Principle 2: Contribution to Sustainable Development Goals*
- Principle 3: Tackling Climate Change and Adapting to Climate Change*
- Principle 4: Financial Health and Inclusion*
- Principle 5: Human Rights and Employee Rights*
- Principle 6: Inclusion and Equal Opportunity*
- Principle 7: Stakeholder Engagement and Communication*
- Principle 8: Corporate Governance*
- Principle 9: Corporate Capacity Improvement*
- Principle 10: Monitoring and Reporting*

Following the establishment of the country's banking sector sustainability guidelines, 21 banks out of 53, and which account for 86% of total assets in the Turkish banking sector, have developed a sustainability policy, or environmental and social policy document, as of 2018. Fourteen banks (80% of the sector) have sustainability reporting practices in different forms, such as a sustainability report, integrated report, or Carbon Disclosure Project (CDP). Fifteen banks (62% of the sector) have reportedly put in place environmental and social risk management systems at various levels of sophistication and scope. In addition, many banks and leasing companies are developing dedicated green financial products. The BRSA raised the loan-to-value (LTV) ratio in housing loans for housing with good energy performance in 2019. In the revised version the banking sector guidelines are also linked to the country's climate change strategy and Intended National Determined Contribution (INDC).

SMEs can be the key players in unlocking green growth considering their role in the economy, but are also among the first and most affected frontiers of a financing cycle. SMEs account for 73% of total employment, 62% of total revenue, 58.3% of total investment, and 55.4% of total exports, and represent 99% of all firms in Turkey as of 2018. Therefore, their impact on the economy and the environment is greater than that of the large companies, meaning that green growth to a great extent depends on the capacity of SMEs to integrate green and sustainable practices into their activities. Green SMEs can lead the green transformation in Turkey by creating new business models and providing examples of successful sustainable business practices.⁵⁴ SMEs can also contribute to green growth through eco-innovation, eco-adoption, and eco-entrepreneurship.⁵⁵ Green standards also increasingly oversee global and EU level value chains. Leading firms in

⁵³ The CMB's guideline is aligned with EU and ICMA standards on green bonds and sukuk.

⁵⁴ [Enabling Environments for Green SMEs: Recommendations for Action](#).

⁵⁵ OECD, SMEs: [Key Drivers of Green and Inclusive Growth](#), 2018.

countries that are subject to stricter regulations require their suppliers to comply with labor and environmental criteria if they wish to be in their value chain. These standards also bring adaptation costs and financing requirement for SMEs, which are already facing constraints in accessing finance. For example, banks lack data on SMEs' green financing needs and usually do not factor in environmental performance due to a lack of necessary knowledge and skills when assessing SME lending risks.⁵⁶

Banks in Turkey have been expressing the need for legal and regulatory incentives as well as awareness-raising to support the expansion of green investment programs. Turkey produced its first National Renewable Energy Action Plan in 2014. Since then many of the country's top 15 banks have been participating in sustainable energy financing facilities. It is known that the authorities have been developing a template for banks to report their sustainability activities. In 2018, the BRSA conducted a survey on sustainable finance practices in the Turkish banking sector, and it plans to consistently monitor and assess progress achieved through such surveys going forward. Besides increasing awareness and encouraging best practices, surveys are also expected to provide the BRSA with valuable insights, information and experience for future efforts including regulation and reporting activities. The guidelines are an initial step that partly responds to the recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures. To that end, the guidelines may encourage the reporting of sustainability measures and plans, but do not yet put enough emphasis on disclosing risks related to global and domestic environmental policy, and climate change impacts. Recently the BRSA announced that it was closely following EU Green taxonomy⁵⁷ developments, and was in close contact with the FSB, the Basel Banking Audit Committee, the IMF, the World Bank and the OECD. The BRSA became a member of the TFCR in 2020 and NGFS in 2021, commencing an active participation. Unfortunately, harmonized green banking regulations do not yet exist. *BOX 7* gives an overview of the aspects of responsible banking in Turkey.



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⁵⁶ World Bank Group. [Financing for SMEs in Sustainable Global Value Chains](#). 2017.

⁵⁷ https://ec.europa.eu/info/law/sustainable-finance-taxonomy-regulation-eu-2020-852_en.

4. ADDRESSING BARRIERS TO FINANCING ENHANCED CLIMATE ACTION

Green projects encounter a range of barriers, from policy and regulatory frameworks to high upfront capital costs and uncertain future returns on investments. Although the government has been iteratively taking necessary measures (e.g. feed-in tariffs for renewable energy), the challenges to financing green investments persist and can be overcome by further mobilizing finances from both the public and private sectors, as well as targeted interventions and support for managing and sharing risk. Doing so can not only unlock significant finances for investment in critical infrastructure, but also spur innovation, create new markets, and generate quality jobs. Based on international experience, the barriers to scaling up finance and possible ways to address them are summarized below.

4.1. HIGH UPFRONT FINANCING COSTS AND PERCEIVED RISKINESS OF GREEN PROJECTS

Renewable energy, energy efficiency, low-carbon and resilient infrastructure investments often require a significant upfront capital investment and have long maturity profiles. This may mean challenges to accessing sufficient levels of capital, deterring private investors from stepping into the market space. The significant real or perceived riskiness of green and clean energy projects can also cause lenders to offer capital only at a high cost, preventing projects from moving forward on an economic basis. New technologies are often associated with counterparties with a limited track record or credit history.

Financing approaches to address this barrier can include guarantees, insurance, first loss capital and loan loss reserves to help “de-risk” the investments. Guarantees are flexible instruments, which can be tailored to different circumstances and types of risk. Loan loss reserves can be structured in different ways to have a similar crowding-in effect, for example by providing first or second loss provisions to increase private sector risk-sharing. To alleviate the upfront capital requirement, public finance entities can co-invest alongside private investors, potentially taking a subordinated position in the capital stock to provide further risk mitigation. Some such de-risking instruments have been developed and successfully used by Turkey in the past, with the support of the EBRD and IFC, and backed by the Climate Investments Funds (CIF). These experiences would be useful in de-risking and mobilizing green finance in the future.

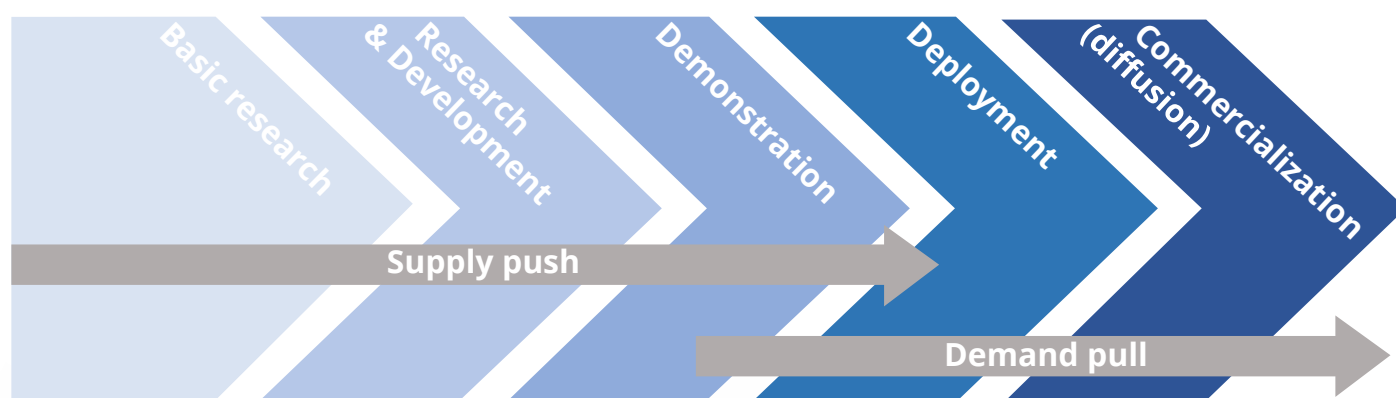
4.2. MARKET FAILURES RELATED TO KNOWLEDGE SPILLOVERS

Innovation and the adoption of new technologies play a crucial role given that addressing climate change and many environmental concerns involve shifting to less harmful technologies and practices. It is well-established that, due to a number of market failures related primarily to

“spillover” effects, the private sector underinvests in the research, development and deployment activities essential to fostering innovation and technological diffusion.⁵⁸ When a private firm invests in R&D they create knowledge that is shared by (or “spilled over” to) others. Patents, for example, can help firms keep some, but not all knowledge created, and some products do not lend themselves to patent protection. In this way, private companies that invest in R&D shoulder the costs, but are unable to capture all the benefits, leading to underinvestment.

Given the important role of innovation, the Government is required to support new practices and technologies needed to produce goods in a more environmentally and socially sustainable way, which is also foreseen by the 11th National Development plan. While the costs of many clean energy technologies are being driven down by programs in other countries, there may be some strategically important industries that governments choose to support. Notably, Turkey has recently established R&D centers dedicated to solar and wind technologies in Ankara and Izmir, while the economic reform program has plans to support R&D activities to develop and diffuse technologies necessary for green production, as a priority for the green transformation of industry. Support at the early research and development stages (see figure 1 on the Innovation Chain) focuses on preparing technologies for testing and demonstration – so called “supply push” policies. As technologies start to be proven economically, support for commercialization and diffusion can be implemented through incentives to drive deployment and uptake, or “demand-pull” policies. Examples of demand-pull policies include green certificate schemes or feed-in-tariffs. Supply-push policies are more reliant on public funds as demand-pull policies can often be designed to be supported either by government or the consumer. *BOX 8* explains the rationale for pursuing innovation in clean energy.

Figure 1: Innovation Chain



⁵⁸ R. Garnaut, “Low-emissions technology and the innovation challenge,” Update Paper Seven, *Garnaut Climate Change Review*, 2011.

BOX 8: Promoting clean energy innovation while enhancing competitiveness and productivity

Innovation in technology, business models and related financial mechanisms holds great potential to address climate change in fields such as renewable energy, water and agriculture. Innovation for climate-smart agriculture has already registered a great impact in developing economies, and all climate-related sectors have seen a surge of innovation - from the clean energy sector with advances in solar power and battery storage to the water sector with new point-of-use water purification systems, and more. The clean economy also offers more opportunities and better pay for SMEs and low- and middle-skilled workers than the national economy. Moreover, innovation has an important multiplier effect, as investing small amounts upfront leads to much larger environmental, social and economic impacts downstream.

The need to discover innovative solutions for climate change tops almost every developing country's policy agenda. Many countries have invested in renewable energy and begun to develop more sustainably driven policies. However, some countries have yet to realize the greater industrial competitiveness and economic growth that can accompany investment in climate innovation. An essential part of this potential growth involves the promotion of climate entrepreneurship, which can lead to greater economic development in emerging markets.

Improving the overall climate innovation ecosystem will require investments in several key areas, such as policy, financing, markets, and culture. Without the required financing, business support, knowledge and associated networks, climate businesses often fail to take off. Another challenge to deploying green innovation on a large scale - particularly in developing countries - is the capacity of local innovation ecosystems to adapt these solutions for local markets and provide sustainable delivery models for them to reach end-users.

By investing in innovation, the public sector plays a key role in reducing the risk for private sector participation. This makes the path to commercial success faster and less costly for new market entrants. A coherent and pro-active national entrepreneurship policy would set the tone for dynamism throughout the sector. Furthermore, this would help lay the official foundation for entrepreneurship, while ideally easing the risk perception overhang in the securing of funding for the earliest stages of activity. Executing a well-crafted policy is often a lengthy and complicated political process. However, the benefits of achieving this would have a lasting effect across all entrepreneurial sectors, especially concerning green entrepreneurship.

The authorities may address the main challenges to promoting clean energy innovation. To start with, a policy support should be provided to facilitate entrepreneurship. Network linkages among different ecosystems (climate and non-climate) should be established to support entrepreneurs. Access to working capital and investment finance for green SMEs and entrepreneurs should be enhanced. Following these, expanding market information is essential to scale up the market size and ensure investor interest.

Potential growth stemming from green energy innovation is large. Policy initiatives, technological advances, and falling prices lead to high expected growth rates for climate-related sectors. This is particularly true for emerging economies and developing countries, which must make large infrastructure investments on the adaptation side, and where climate change will also force investments in sectors such as clean water supply and climate smart agriculture. Increasing interest from the private sector, notably from large multinationals which continue to make climate change a centerpiece of their investment strategies, brings more financial sources for climate action.

Innovation requirements for developing countries differ from those of developed countries due to local market, social, and natural circumstances. Greater participation by developing country firms to innovate relevant technologies and related business models can develop solutions appropriate for local markets. Firms are innovating rather than relying on the, often imperfect, technology-transfer model. While some components of green products have been commercialized, most require knowledge of local market conditions. This gives local firms a distinct advantage vis-à-vis competition from foreign firms. The World Bank's Climate Technology Program (CTP) has been working to address this challenge. Its network of seven Climate Innovation Centers supports local tech firms that develop climate solutions for local markets. The World Bank also hosts INNOVATE4CLIMATE, an annual global conference on climate finance, climate investment and climate markets, which attracts leaders focused on transformative and innovative action on climate change, and links climate innovation with investment opportunities - transforming dialogue into action.

4.3. LACK OF INFORMATION AND SPLIT INCENTIVES

Information about the energy efficiency or carbon content of products is often not readily available, rendering it difficult to make an informed decision. Further, consumers may not undertake the detailed calculations needed, or else may exhibit systemic cognitive or behavioral biases, thus adversely affecting demand for the products. This can result in underinvestment in energy or emissions-efficient technologies. Underinvestment can also occur where agents do not reap the benefits of their investments in energy efficiency. For example, there is limited incentive for a landlord to install energy efficient appliances if it is the tenant, and not the landlord, who pays the electricity bill.

Information programs, such as labelling products with data on energy efficiency and cost savings, can support informed decision making and the uptake of efficient goods and services. Standards mandate a minimum level of performance and have proved very successful at improving the quality and efficiency of products. They not only address information deficits and behavioral biases, but also provide manufacturers with a clear understanding of future requirements. Important examples of standards include building codes and appliance standards.

Turkey has made efforts in this area in the past, also following international experiences and practices. Specifically, the 11th National Development Plan reinforces the direction, explicitly mentioning the expansion of the environmental labeling system along with the strengthening of environmental assessment, permit, license, monitoring and audit mechanisms and capacities, as well as strengthening the legislation on these issues. This trend has been re-confirmed by the Turkish Eco-labeling System, and by intentions to place further importance on environmentally sensitive criteria applicable to investments.

4.4. ENVIRONMENTAL COSTS ARE NOT FULLY INTERNALIZED

Many investments in green projects do not progress because their economics do not add up and the projects do not generate an adequate return on investment. Despite an elaborated set of environmental regulations and standards, in most countries, including Turkey, cleaner projects can still suffer an economic disadvantage compared to more polluting projects. There can be several reasons for this. A primary one is that the savings achieved from reducing pollution and/or GHG emissions are not adequately captured in the investment analyses. This is because environmental regulations and incentives could be insufficient to reduce local pollution to safe levels (as often happens with multiple, small emitting sources in a saturated airshed, or watershed) or GHG emissions, while pricing signals, like coal sector subsidies or higher taxes for new vehicles, may create counter-incentives.

Investments also tend not to capture a range of important “co-benefits” of green projects. For example, a project that reduces GHG emissions can also lead to improved health outcomes from lower air pollution and/or fewer traffic accidents, higher energy security and, in some cases, higher employment. Some of these co-benefits can be quantified by the firm (such as savings from reduced fuel use) while it is harder for others (such as better health, or the preservation of biodiversity). There are also important second-order impacts associated with promoting green investments, including the freeing of public resources for alternative uses from reduced subsidies, and positive macroeconomic impacts (such as growth and higher employment). The co-benefits of green investments can thus be substantial⁵⁹ at an economy-wide level, but, without a nuanced set of policy and financing instruments to capture those at the firm level, are commonly not factored into decision making for private investment.

Addressing this barrier requires a combination of regulatory, fiscal and financial instruments to factor the costs of “externalities” into the costs of production.⁶⁰ Removing subsidies that artificially reduce the price of polluting products, such as fossil fuel subsidies, and considering a wider use of green taxes that factor in environmental damages, would incentivize firms to invest in cleaner alternatives. Pricing instruments have the advantage of incentivizing businesses to exploit all available opportunities to reduce emissions arising from their operations and seek to minimize the costs associated with their pollution by investing in the most cost-effective emissions reduction solutions. However, pricing instruments establish a uniform price on pollution, regardless of sector, source or location, which works well when externalities per unit of emissions are also uniform (as in the case of GHG emissions), but does not lead to optimal solutions when environmental damages significantly vary by source and location (as in most cases of local pollution). Thus, the role of pricing is to complement and enhance more nuanced and targeted tools like environmental (ambient and emissions) standards, regulations, support programs and (green) financing schemes. Turkey’s GHG MRV system and Air Emission Management Portal with recent air quality measures form a good basis for further action.

While Turkey has among the highest ratios of environmentally related tax revenues to GDP in the OECD,⁶¹ there is space to increase benefits through a better alignment of taxation and pollution damages. The environmental taxes include energy taxes, pollution (solid waste) taxes, and transportation and motor vehicle taxes. The taxes largely apply to the transport sector (fuels and vehicles) and electricity consumption, with relatively low levels of taxation on other energy products, such as coal. These taxes could better reflect the environmental damage associated with their use, and therefore better incentivize cost-effective mitigation actions.⁶²

Pollution pricing can be a relatively easy and efficient way to raise revenue. Carbon pricing, for example, can be simply implemented through adjusting the existing excise system, or through placing the tax on the few entry points of fuel into the economy. It is also a particularly effective

⁵⁹ J. Bollen, “The Value of Air Pollution Co-Benefits of Climate Policies: Analysis with a Global Sector-Trade CGE Model Called WorldScan,” *Technological Forecasting and Social Change* 90, Part A (January): 178–91. doi:10.1016/j.techfore.2014.10.008, 2015.

⁶⁰ IMF, *Getting Energy Prices Right: From Principles to Practice*, Washington, DC: IMF, 2014.

⁶¹ OECD, *OECD Economic Surveys: Turkey*, 2018.

⁶² Turkey has the highest taxes on motor fuel in the OECD, but the tax per liter on petrol is 30% higher than on diesel, even though diesel produces more pollution per liter. The taxation of different sources of fossil fuel pollution could be harmonized.

means of mobilizing resources as it can be placed on a few large upstream chokepoints and cover the informal sector, whereas direct taxes need to be collected from a vast number of individuals and struggle in covering the informal sector of economies. Importantly, the revenue raised can be used to assist the poor with any increase in energy prices, while assisting businesses with the transition.

In the current context of COVID-19, as economies open and stabilize, the scope for broad-based fiscal stimulus will increase, requiring fiscal structures to support and sustain the recovery. Stimulus packages will need to be sustainably funded to re-assure capital markets, and carbon pricing can help with this by establishing a robust stream of new revenues for the short-to medium-term. In contrast, raising funds through higher labor taxes would be at odds with job-creation programs.⁶³

Turkey has been undertaking readiness activities for informed policy decision making regarding carbon pricing. These activities have included investigating policy options for cost-effective mitigation of GHG emissions in line with the country's development priorities and national circumstances. A number of analytical studies on the design and operational aspects of carbon pricing, as well as fiscal and economic impact analyses were conducted, also in cooperation with international development partners and organizations. As of 2020, a possible path towards an emissions trading system (ETS) in Turkey is being prepared, including necessary legislation (drafts of climate change and an ETS regulation).

4.5. REGULATORY RISK

Regulatory risk is one of the key barriers to investment in sustainable infrastructure and green projects.⁶⁴ It is well known that in addition to traditional infrastructure challenges, green infrastructure projects must address specific barriers that limit the engagement of the investment community. This includes a weak or partial environmental policy backdrop that fails to sufficiently price pollution, renders clean infrastructure projects less competitive than polluting ones, introduces regulatory risk, and raises uncertainty among private investors (e.g. sudden, or retroactive change to support systems, this along with a lack of certainty on climate policies).⁶⁵ For investments to occur, particularly large investments in long-lived assets, a credible and durable policy environment is essential. Uncertainty regarding the regulatory framework, including how long regulations will remain in place, dampens investment as it makes it difficult to project long-term net cash flows. A credible “whole-of-government” climate policy framework involving meaningful mitigation and adaptation policies is a vital element in terms of attracting green investment to the country.

There are examples of successful regulatory frameworks in Turkey. The regulatory framework for renewable energy has been developed over the past 15 years.⁶⁶ As a result, Turkey's renewable energy market has grown considerably, reaching a 42% share of total electricity generation in

⁶³ International Monetary Fund, *Fiscal Monitor* – April 2020, 2020.

⁶⁴ McKinsey & Co. *Financing change: How to mobilize private sector financing for sustainable infrastructure*, 2016.

⁶⁵ OECD, *Financing Climate Change Action*, 2014.

⁶⁶ In 2005, Turkey adopted the legal framework for the support of RE (Law on the Utilization of Renewable Energy in Electricity Generation No. 5346), amended in 2010, by technology (i.e. hydro, wind, solar, geothermal, biomass, biogas, and wave/tidal). Through the Electricity Energy Market Law (No. 6446) and the 2009 Electricity Market and Security of Supply Strategy, the government highlighted the role of RE in reducing import dependence, diversifying the electricity mix and meeting rising energy demand, and included a goal of reaching 30% of RE sources in electricity generation by 2023. National targets are also reinforced through a series of action plans—the National Renewable Energy Action Plan (NREAP) proposes a capacity target of 61 gigawatts (GW) of RE by 2023 as well as under the Climate Change Action Plan 2011–23, the Energy Efficiency Strategy (2012–23), the MENR Strategic Plans (2015–19) and Turkey's INDC (through 2030). The government also scaled-up RE capacities through a series of competitive auctions (grid-connected wind auctions in 2017 and 2019, solar PV auctions in 2017 and 2019, and an offshore wind auction in 2018).

2020. More recently, the legal framework on waste management is satisfactorily advancing, with Turkey having adopted a strategy promoting a zero-waste management approach, efficient use of natural resources, landfilling reduction, and increased recycling and reuse. However, Turkey has yet to introduce decommissioning plans for power generation units, and lacks waste management legislation for solar, wind, geothermal, and fossil fueled power plants. Legislation introducing a ban on the free distribution of lightweight plastic bags came into force in January 2019 and attracted substantial public interest. Work has continued to raise the standards of waste treatment facilities. The capacity for sorting, recycling and medical waste treatment has increased, and economic instruments to promote recycling and the prevention of waste generation continue to improve.

More can be done to build on those examples. The current regulatory framework for energy efficiency in Turkey provides neither sufficient incentives for pursuing the targets specified in the Energy Efficiency Action Plan, nor any significant consequences for not meeting them. Other domains, such as municipal PPPs lack the institutional clarity necessary to attract long term investment. The success of the regulatory framework in mobilizing finance for renewable energy in Turkey provides useful lessons and models that can be applied in other areas of green growth.

Durable and credible policy to address climate change and sustainability is a fundamental prerequisite for scaling green investments. The type of policy responses outlined in this report are examples of the public sector policies that would create the enabling environment. This would be further strengthened through collaboration and ownership of the green agenda across ministries to ensure complementarity of sectoral strategies and plans, and enable synergies.

Strong climate action capacity across ministries is necessary. The lack of capacity can hamper (i) the development of a more systemic approach for addressing climate change (e.g. in the energy sector); (ii) the preparation of action plans that can help with lowering emissions and strengthening resilience (e.g. for action at the municipal level); (iii) the development of sectoral emission reduction measures (e.g. in the aviation sector); (iv) the assessment of climate risks and adaptation planning, and more. In Turkey, this challenge has been well recognized, and the 11th National Development Plan addresses it, as well as the need for harmonizing climate efforts and improving coordination among public institutions.

Turkey needs to develop a holistic approach, regulatory framework, supervision, guidance, strategies, and innovative instruments to expedite the greening of the financial sector and make it resilient to climate risks. Moreover, the financial regulator and supervisory authority could take more actions to support the development of the green finance market and awareness of climate risk. Strong regulatory and supervisory frameworks which incorporate the long-term aspects of climate risk, have the potential to provide financial institutions with the right frameworks and incentives to adequately assess the risks and opportunities of climate-related projects.

4.6. PERCEIVED RISKS OF ADVERSE IMPACTS

Opposition to green investment can come from several sources and can serve to constrain investment and the development of the regulatory environment such investment needs. Such opposition typically comes from three sources:

- I. While the transition to low-carbon and greener economies can drive innovation, investment and substantial growth in some sectors, firms in others may be less able – or willing – to adapt, and in turn suffer falls in market share and potentially stranded assets. Where losses are particularly concentrated, support for affected workers and regions may be needed.
- II. The transition is likely to involve higher prices, at least in the short-term, for some products and services, such as energy. Higher energy prices can impact poor households depending on their consumption patterns. However, utilizing only a small portion of the revenue from pricing emissions can more than compensate poor households for the price increases.⁶⁷
- III. There are concerns that some firms may lose market share to international competitors that do not face the same level of environmental regulation. Were this to occur, it would amount to a lose-lose situation – a loss of economic activity without an environmental gain. To date however, there is little evidence to suggest that environmental regulation has resulted in the relocation of the production of goods and services or investment in these products to other countries.⁶⁸ There may be several reasons for this, including that many existing programs include protection for at-risk sectors, and importantly that other factors (such as labor availability, exchange rates, and infrastructure) are more significant to investment decisions regarding location of production than environmental regulations. Nonetheless, this continues to be a source of opposition to green investment. This concern can be addressed through policy design by tightly targeting assistance to lower cost impacts, while preserving the incentive to reduce emissions. This is commonly done through carbon pricing systems, such as by allocating free allowances based on emissions efficiency under an emission trading system or efficiency-based rebates under a carbon tax. Although less targeted, assistance can also be provided through grants or concessional financing for low-carbon technologies.

4.7. SMALL TICKET SIZE AND DISAGGREGATED PROJECTS

Small and geographically dispersed projects like residential or small business energy efficiency are often not cost-effective for private lenders to underwrite. High transaction costs often limit interest from financial institutions, creating barriers to smaller-scale projects accessing (debt or equity) finance.

⁶⁷ World Bank Group, High-Level Commission on Carbon Prices, Report of the High-Level Commission on Carbon Prices, Washington, DC: World Bank Group, 2017.

⁶⁸ World Bank Group, Report of the High-Level Commission on Carbon Pricing and Competitiveness, Washington, DC: World Bank Group, 2019.

BOX 9: Australia's Clean Energy Finance Corporation

The Clean Energy Finance Corporation (CEFC) was established in 2012 to overcome capital market barriers that hinder the financing, commercialization, and deployment of renewable energy, energy efficiency and low emissions technologies. It invests in projects or firms on a commercial basis, seeking to catalyze private sector financing not previously available to clean energy technologies and thereby contribute to the growth of the clean energy industry. In doing so it shares risks with traditional financiers and builds their capacity to understand and price the risks of new investments.

The CEFC was seeded with AUD\$10 billion and is commercially oriented and intended to yield a positive return on its investments. Given its focus on deployment and commercialization, the CEFC assists with the "demand-pull" component of the innovation chain (see figure 1). To date, the CEFC has committed AUD\$5.5 billion and leveraged AUD\$26 billion in private capital.

Source: [Clean Energy Finance Corporation](#) Annual Report and website

Small and dissimilar loans or projects that are not cost-effective to underwrite on their own can be aggregated into larger portfolios. Pooling these loans diversifies risk and achieves scale, making them more attractive to investors. In addition, the warehoused loans can be securitized, and the portfolio sold to private investors (either through a private placement or public securitization).

4.8. LIMITED EXPERTISE IN THE MARKET AND LACK OF ABILITY TO IDENTIFY AND CLASSIFY PROJECTS

Investors, lenders or project developers are often unfamiliar with emerging low-carbon technologies, and therefore unable to adequately identify projects or develop a sound understanding of the associated risk profiles. Wholesale actors may be unaware of the opportunities in the green finance market, which leads to a disconnect between capital supply and demand, and underinvestment in viable technologies or sectors. Hence, to help financiers and other actors get comfortable with new technologies and sectors, public finance entities can use demonstration investments. These investments are intended to build a track record, educate investors, and enhance confidence in the clean energy market.

Education of local actors about opportunities in the low-carbon and clean energy sectors to help them assess the financial risks of new technologies can play an important role. For example, energy efficiency investments such as deep energy retrofits are generally regarded as expensive and disruptive, without an understanding of the substantial energy and monetary savings they create over the lifetime of the investment. *BOX 9* gives an example of the approach used in Australia.

4.9. LACK OF COORDINATED GUIDANCE FOR THE BANKING SECTOR

While the banking sector in Turkey is very well developed, regulators could provide better guidance to financial sector players on environmental practices. Harmonized green banking regulations often do not exist, and a champion public sector agency coordinating all banking stakeholders on sustainable infrastructure financing is missing. The banking sector in Turkey is very well developed, but more clarity and strong leadership in this area are also required. The BRSA's recently published Sustainable Banking Strategic Plan is an encouraging step.

The authorities could provide technical assistance and guidance for SMEs, lenders and financial institutions with the help of DFIs. Along with the basic social and environmental guidelines for SMEs, they could also provide technical assistance to help lenders assess standards. Creating platforms for peer-to-peer learning between banks on environmental and social management systems could be helpful. Development finance institutions could help banks exchange information about designing systems for managing the environmental impacts of lending. Businesses could be encouraged to track their suppliers' sustainability standards and offer better terms and larger orders in exchange for improved performance. SMEs can join sustainable global value chains by establishing policies, by accessing affordable financing through development finance institutions and commercial banks.⁶⁹ In that respect, the Credit Guarantee Fund (KGF) can play a role in providing guarantees for green projects, in parallel to its primary mission of providing strategic support for Turkey's growth and development by facilitating the access of all enterprises, especially SMEs, to finance.

4.10. BARRIERS SPECIFIC TO INVESTMENT IN ADAPTATION AND CLIMATE RESILIENT INFRASTRUCTURE

Despite the intensifying effects of climate change and demonstrated benefits of climate resilient development, many countries, including Turkey, lack access to adaptation finance. Adaptation actions can bring multiple benefits, both financial and non-financial. This has been called the triple dividend by the Global Commission on Adaptation.⁷⁰ The first dividend is avoided losses, i.e. the ability of adaptation investments to reduce future losses; the second is positive economic benefits through reducing risk, increasing productivity, and driving innovation through the need for adaptation; and the third is the social and environmental benefits derived from adaptation investments. While the case for adaptation action in Turkey is clear, adaptation finance remains far short of ensuring mitigation, either in terms of volumes or in enabling environments.

⁶⁹ Global Partnership for Financial Inclusion (GPFI), German Federal Ministry for Economic Cooperation and Development (BMZ), World Bank Group, [Financing for SMEs in Sustainable Global Value Chains, 2017](#).

⁷⁰ See e.g. [Global Commission on Adaptation](#), 2019.

There are several barriers which are specific to the challenge of scaling up finance for adaptation investments and climate-resilient infrastructure. The public good characteristics of many climate change adaptation actions mean that we are currently not achieving socially optimal levels of financing –slowing, or altogether preventing investment at the scale required. A fundamental issue is that most decisions do not internalize a consideration of how climate change potentially impacts planning and investments, and therefore puts expected outcomes at risk. Other challenges include the perception that adaptation actions are complex and expensive, and the disconnect between the beneficiaries of action and the parties that bear the cost.

Domestic infrastructure development plans incorporating short, medium, and long-term climate change considerations are often inadequate or non-existent. This leads to a lack of identified financing needs that include climate considerations and consider resilience over various timescales. Governments, households and companies often have short term planning horizons, which leads to under-allocation of resources towards long-term climate-resilient investments.

A lack of access to localized climate data and information about the impacts of climate change prevents relevant actors from developing an understanding of what needs to be done. This is compounded by the fact that there is often a lack of technical specifications and standards for best practice adaptation and resilience integration in project design, and sometimes also being a consequence of missing knowledge on climate change impacts.

Adaptation and resilience benefits are often invisible and materialize over the longer term. Benefits consist mostly of avoided losses, which are hard to measure and are only reaped in the future. The finance that is available for resilience and adaptation projects is often inadequate or prohibitively expensive. This is particularly challenging for highly vulnerable areas that confront rising physical climate risks and therefore may end up in a vicious circle of increasing costs and losses.

Policymakers and regulators in Turkey have the potential to play a pivotal role in integrating adaptation considerations in decision making. Making new infrastructure such as power, roads or ports climate-resilient can yield significant economic gains.⁷¹ Turkey's authorities can ensure that adaptation considerations are integrated into decision making processes and build awareness of the financial and non-financial benefits of scaling up adaptation efforts. Entire systems can be made more resilient by making prudent choices about where and what to build and which existing assets to upgrade, and by prioritizing green infrastructure wherever possible. This will require policymakers to develop blended public-private approaches that share the costs and benefits of investing in resilient infrastructure.

⁷¹ The Global Commission on Adaptation has estimated that as a global average, the benefits of making infrastructure resilient outweigh the costs by a 4:1 ratio.

Nature-based Solutions, including Green Infrastructure, can promote innovative, cost-effective, and sustainable solutions to a variety of environmental, social, and economic challenges. In many cases, combining green with traditional gray infrastructure can create next generation solutions that can better protect communities by tackling immediately pressing climate adaptation problems, while restoring the long-term regulatory functions of ecosystems that can enhance the performance, life cycle, and cost-effectiveness of gray infrastructure. The Turkey Resilient Landscape Integration Project (TULIP), currently under preparation with World Bank financing, promotes an integrated approach to the deployment of green and gray infrastructure solutions as both short-term and long-term responses to mitigate the risks of landslides, floods, droughts, and natural resource degradation, while enhancing the climate resilience of local populations and ecosystems in selected watersheds across Turkey.

Innovative approaches are needed to unlock finance for adaptation and resilience projects and attract private capital. This will include a combination of long-term adaptation planning, the development of national adaptation investment plans, pipeline screening and market assessment, project preparation support and downstream transaction demonstration. Building institutional capacity across government on climate risk analysis, planning and project preparation will be important to help ensure that infrastructure planning and adaptation strategies are holistic and evidence driven. National and local governments will need to play a key role in reducing economic inefficiencies caused by poor policies, aligning fiscal incentives and building enabling environments for private sector resilience investments. BOX 10 lists a few examples of the innovative financial approaches to have emerged recently.

BOX 10: Role of Financial Innovation in Scaling up Green Finance

There is increasing attention for innovative mechanisms to scale up green finance. Three examples are highlighted below.

Sustainable digital finance and green FinTech

The [2018 Synthesis Report](#) and the publication [Towards a sustainable infrastructure securitization market: the role of CLO's](#) by the G20 Sustainable Finance Study Group indicate a major opportunity to unlock new sources of green finance brought by current advances in digital technologies. Solutions related to big data, Artificial Intelligence (AI) and distributed ledger (blockchain) technologies have the potential to address key challenges preventing the scale-up of green finance, including information asymmetries, high search costs, and lack of data to identify sustainable investment opportunities.

Big data, machine learning and AI make it possible to gather and process large quantities of environmental and social performance data, at high speed and low cost, enabling pricing to be appropriately adjusted. This also allows more efficient and transparent integration of environmental and social considerations into investment decision-making. The work on green taxonomies that is currently underway across jurisdictions has the potential to benefit significantly from developments in AI and machine learning, which could, for example, be deployed for increased accuracy of regulatory reporting on taxonomy-aligned investments.

Due to its diverse applicability, blockchain technology has the potential to offer a wide range of solutions, such as providing clean energy trading platforms or enabling citizens to participate more directly in green investment processes. It can support greater contractual and financial standardization for infrastructure project investment processes to reduce costs and complexity and facilitate the comparability of projects. In addition, global visibility over climate actions can be enhanced by using blockchain to track climate financing flows.

A specific blockchain application worth highlighting is in relation to weather based parametric insurance. This innovation in insurance is coverage that triggers based on an objectively measured risk factor. Blockchain technology can be an effective mechanism in supporting this by recording the terms of the policy between the counterparties and using advanced tools and (satellite) data sources to recognize when an event has taken place (e.g. a certain amount of rainfall in a specific area). Recording this data can trigger an automatic payout. This type of insurance can be particularly relevant for countries highly dependent on agriculture, such as Turkey.

BOX 10 (Continued)

Sustainable securitization: Collateralized Loan Obligations

Collateralized Loan Obligations (CLOs) have the potential to turn sustainable loans into a liquid asset class connected to (global) bond markets. The transfer of sustainable (infrastructure) loans from bank balance sheets into CLOs has the potential to free up bank lending capacity for new projects. With the development of a sustainable CLO market, the quantity of liquidity and its alignment with the goals and profiles of long-term investors provides an opportunity to channel more capital towards sustainable energy, transportation and other sustainable infrastructure projects.

Transition bonds

With the green bond market being well established, a new category of bonds is drawing increasing attention. Transition bonds allow companies, which could currently not offer traditional green bonds, to issue bonds that can support their transition to a greener business model. For example, transition bonds allow industries and companies, which have less evident environmental management records, to address sustainability issues in their supply chains without using the green tag.



5. CONCLUSIONS AND RECOMMENDATIONS

Turkey's commitments to reducing carbon emissions and adapting to climate change are already articulated in the recent 11th National Development Plan. There has also been an increasing awareness and preparedness over the past decade among certain leading Turkish financial institutions, institutional investors, and insurance companies on opportunities to contribute to, and profit from transitioning to a climate-resilient and low-carbon economy. Identified opportunities include those in real estate, transport, renewable energy, resource efficiency, and climate adaptation investments. These institutions have also been adopting better risk management, sustainability practices, risk-sharing facilities, and new capital market instruments. However, there is still room and a need for increasing investments in green projects. Several areas where the public sector can support the development of green finance can be drawn from international experience. Select public sector interventions are listed in *BOX 11*, many of which are highly relevant for Turkey.⁷²

BOX 11: Roles of the Public Sector in Unlocking Green Finance

The public sector can play an instrumental role in supporting the development of green finance markets. The text below provides an overview of key initiatives and policy options which are recognized as important factors in achieving green growth objectives, based on desk research, interviews and a review of insights from international experience. They are selected for this report because of their relevance for Turkey as of 2020.

- I. **Creating an overall strategy on green or sustainable finance.** *This may take the shape of a roadmap that aims to align financial sector policies, regulations and incentives with environmental and climate goals. A roadmap covering both the risks and opportunities of climate change can help prioritize actions and coordinate the activities of different stakeholders involved, including financial and environmental policymakers, regulators and financial institutions at the national and regional level.*
- II. **Developing credible forward-looking climate policies and infrastructure plans to stimulate long-term investment.** *Providing clear and predictable guidance on climate policies and translating this into investment objectives will provide clear signals and assurances to potential investors and contribute to creating an enabling environment for increased green investment. Policies that unlock the barriers to green finance, such as those identified in this report, can help provide the credible and durable policy framework that investments in long-lived assets require. By rethinking planning at all levels of government to align current infrastructure project plans with long-term climate and development objectives, carbon lock-in can be avoided and benefits from increased resilience captured.*
- III. **Aligning fiscal and budgetary measures with green growth objectives.** *Ensuring the right fiscal incentives are in place to align finance flows with climate-resilient development. Diversifying sources of government revenue away from fossil fuels, to reduce the carbon entanglement of government budgets. Phasing out fossil fuel-related subsidies and adequately pricing the externality from emissions and pollution can create stimulus for green investments and significant economic benefits for governments. These benefits can in turn be reinvested to deliver green growth objectives and ensure an inclusive transition.*
- IV. **Reinforcing public institutions' mandates and incentives to deliver transformative climate action, especially national development banks (NDBs).** *Aligning public institutions' goals with climate objectives will be a powerful way of redirecting finance flows. NDBs can play a key role in financing the implementation of national climate action plans and address key market gaps. Using limited public funds, development banks can be highly effective in mobilizing private finance and catalyzing green market development.*

⁷² E.R. Dalhuijsen, M.G.J. Regelink, R.C.K. Mok, F.E. Stewart, H.J. Reinders, [Toolkits for Policymakers to Green the Financial System](#), Washington, D.C.: World Bank Group, 2021.

BOX 11 (Continued)

- V. **Strengthening the supervisory and regulatory response to take account of longer-term climate-related risk.** Regulatory authorities and (prudential and capital markets) supervisors should build internal capacity to enable adequate risk assessment including stress testing and integrate the consideration of climate risk throughout the existing supervisory framework.
- VI. **Fostering transparency by introducing disclosure requirements and considering a green or sustainability-based taxonomy.** Inadequate disclosure of climate-related risks and opportunities can lead to a mispricing of assets and capital, and a misallocation of financial resources. A taxonomy to identify which assets or economic activities can be classified as green or (un)sustainable, can boost public and private investment to finance the transition and contribute to the development of green benchmarks and indices. Capital markets regulators could play an important role in supporting and enforcing disclosure and labelling practices.
- VII. **Expanding catastrophe and weather-related insurance coverage.** The government can encourage increased use of insurance products by adopting a tailored Disaster Risk Financing and Insurance Strategy, to ensure enhanced protection against natural hazards and other climate related events. Specific instruments include catastrophe bonds and/or insurance, catastrophe insurance risk pools, contingent financing, and weather-related parametric insurance.

There is a need for greater coherence in the various efforts regarding green finance in order to leverage the funding required for scaled-up climate action in Turkey. This calls for a strategic approach that covers both the risks and opportunities of climate change, helps coordinate the activities of different stakeholders involved at the national and regional level, supports the prioritization of actions based on robust analytics, and aligns financial sector policies, regulations and incentives with environmental and climate goals.⁷³ Meeting the objectives set in the 11th National Development Plan would benefit from the development of a “strategic framework” for climate action with long-term transformative impacts for green growth. Development of a “strategic framework” requires efforts in various areas that are recommended below largely based on international experience. Pursuing these recommendations is the next step that Turkey could take.

5.1. POLICIES AND REGULATIONS

Policies and regulations that help overcome the barriers to green finance, such as those identified in this report, could help provide a reliable framework for investments in long-lived assets. While some of the policies have been implemented successfully in Turkey, such as those related to creating a favorable environment for renewable energy generation, there is still a need for the development of a holistic and coordinated approach to ensure their consistent implementation. Examples of regulation from international experiences that may be applicable for Turkey are a) information programs, such as labelling products with data on energy efficiency and cost savings, and b) complementing emission standards by fiscal measures to better internalize the cost of pollution (e.g. adjusting the existing taxes) and/or through an emissions trading system. Turkey is working with international partners on developing such systems, but this work requires better coordination and stronger leadership. It would also be important to consider policy

⁷³ For examples, see: the *EU Action Plan: Financing Sustainable Growth*, 2018; *China Guidelines for Establishing the Green Financial System*, 2016; and *UK Green Finance Strategy: Transforming Finance for a Greener Future*, 2019.

alignment of reducing subsidies and tax exemptions for fossil fuels.

Forward-looking policies and regulations can help strengthen Turkey's position as a favorable country for foreign investment in green projects. Defining regulations that would provide comfort to the ESG (Environmental, Social and Governance) investor community would be a way to strategically position Turkey as a destination for green investments by progressive investors. It is observed during the COVID-19 pandemic that ESG stocks have notably outperformed traditional stocks, and hence are seen as less risky investments.

Enabling the financial sector to foster investments for the transition to green and resilient growth should be the main priority for regulators. Green finance includes all lending and investment that contributes to climate mitigation, climate adaptation and resilience, and other environmental objectives – including biodiversity management.⁷⁴ Developing climate resilient financial instruments to support the real economy and green financial systems with regulatory frameworks for supervisors and investors to support sustainable investments are necessary.

One of the options in developing green finance is to develop a finance taxonomy in Turkey, possibly aligned with the EU taxonomy.⁷⁵ This could form the backbone for labeling green finance products, or building benchmarks, in line with global practices. Another option is to further support demonstration transactions for sustainable finance through the capital markets to create a more vibrant market for these instruments and increase funding in support of green growth objectives. These could be issued by an appropriate entity (such as a development bank). Such transactions would create additional value-added if they could lead to a systemic transformation in terms of greening Turkey's financial sector.

In the financial sector, the supervisory and regulatory response needs to be strengthened to take account of the longer-term climate-related risk. Regulatory authorities and (prudential and capital markets) supervisors should build internal capacity to enable adequate risk assessment and integrate the consideration of climate risk throughout the existing supervisory framework. Key steps that financial supervisors can take include: assessment of climate-related risks (including the use of stress tests and scenario analysis), establishing guidelines for regulated firms on the integration of climate risk in risk management, governance, and disclosure practices, as well as integrating climate risks in supervisory scoring models and approaches (including on-site inspections).⁷⁶ As part of this process, supervisors could assess how climate risk could be integrated into existing regulation, including under the various pillars of the Basel III regime.⁷⁷

Mainstreaming climate change consideration into fiscal and budgetary processes would help drive sustainable public spending: On the revenue side, Turkey may consider further aligning taxation and GHG emissions by implementing a carbon tax, reforming fossil fuel subsidies, etc. On the expenditure side, conducting climate-budget tagging, public expenditure and investment reviews, climate-informed public procurement, and investment management are examples of recommended actions.

⁷⁴ For further discussion and country examples, please see [Toolkits for Policymakers to Green the Financial System](#) (2021).

⁷⁵ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en

⁷⁶ World Bank Blogs, [Supervisory guidance on risk management can foster a greener financial sector](#), 2021; World Bank, [Toolkits for Policymakers to Green the Financial System \(2021\) report also covers IFRD initiatives and country examples for stress testing and credit risk implications of green transition](#), 2021.

⁷⁷ See [The Basel Framework](#) Basel Committee on Banking Supervision. The Basel Committee published two new analytical reports on climate-related financial risks on April 14, 2021. They discuss transmission channels of climate-related risks to the banking system, and the measurement methodologies of climate-related financial risks. (<https://www.bis.org/press/p210414.htm>).

5.2. INSTITUTIONAL SUPPORT AND OWNERSHIP

The enabling framework for coordination needs to be strengthened through improved collaboration and ownership of the green agenda across ministries. International experience shows ways to overcome the barriers faced by Turkey in unlocking green finance, but it requires the initiative of a leading local institution. Currently it is somewhat unclear how various sectoral climate targets and action plans link to and synergize with national climate goals in Turkey. For example, the National Climate Change Action Plan, National Climate Change Adaptation Strategy and Action Plan, and INDC, need to be aligned with the national development planning process and other relevant sectoral strategies (e.g. Energy, Transport), so that one is informed by, or informs the other. The existing institutional mechanism in terms of the Climate Change and Air Management Coordination Board is a useful platform, but one whose leadership needs to be expanded beyond sectoral ministries to make it more effective. To this end, the Climate Change and Air Management Coordination Board at the Ministry of Environment, Urbanization and Climate Change, or another body of the Government, could be empowered to coordinate a whole-of-government approach to climate change.

A champion financial sector public institution coordinating all relevant stakeholders could also help overcome the barriers to further development of sustainable and green finance in Turkey. A coordinating institution could tackle green transition not only from finance but also from all angles of climate action. In addition, the authorities, especially financial sector regulators, including the CBRT, BRSA, and CMB, could step up to offer better guidance to financial sector players on environmental sustainability and climate risk management. Their stronger participation in international platforms (such as the NGFS, Sustainable Insurance Forum or IOSCO Sustainable Finance Network)⁷⁸ could also increase awareness and knowledge of best practices.

Establishment of a national regulatory framework for sustainable finance could help to develop additional instruments for green finance. Although several banks in Turkey voluntarily apply sustainable finance guidelines, the provision of a national framework would significantly advance the development of capital market instruments for green finance. It would increase the availability of long-term sources for priority sectors by broadening the investor base and raising awareness. Authorities and regulators could use international guidelines, such as ICMA (International Capital Market Association) principles for green bonds and regional (e.g., EU taxonomy⁷⁹) and peer country experiences (e.g., Malaysia) in creating national regulatory frameworks and incentives to increase the preponderance of green finance instruments. Taking a very important step in this direction, the CMB published the “Sustainability Principles Compliance Framework” in October 2020.⁸⁰ The BRSA’s recent announcement on the participation of international efforts are also encouraging. In its latest financial stability report, the CBRT also issued a box on climate related financial risks and green finance.⁸¹

⁷⁸ See Annex 2 for details.

⁷⁹ The European Commission adopted on 21 April 2021 a comprehensive package of measures, including those aimed to improve sustainable finance as an essential part of the EU Green Deal. The package aims to direct finance towards the European Green Deal. The package includes directives on EU Taxonomy, corporate sustainability reporting, sustainability preferences and fiduciary Duties (https://ec.europa.eu/info/publications/210421-sustainable-finance-communication_en).

⁸⁰ In addition, the Sustainability Platform, a broad initiative for sustainability stakeholders in Turkey led by Borsa Istanbul is also important. CMB Sustainability Framework Principles are developed on this platform in a collaborative manner.

⁸¹ *Financial Stability Report, May 2021, Issue 32*.

5.3. DATA AND ANALYTICS

Better access to climate data and analytics on the impacts of climate change would support relevant actors in assessing potential climate related risks. This is very well illustrated in the case of climate adaptation, where Turkey has yet to comprehensively assess the potential costs of climate change and the benefits of adaptation. In Turkey's context, adaptation actions have a clear case of delivering on three key fronts – avoiding future losses from the climate change impacts that are increasing in intensity; economic benefits through reducing risk, increasing productivity, creating jobs, and driving innovation through the need for adaptation; and the social and environmental benefits derived from adaptation investments. However, there is a need for targeted analytical work on the short, medium, and long-term effects of physical and transitional impacts of climate change on several sectors in Turkey.

5.4. CAPACITY BUILDING AND AWARENESS RAISING

Strengthening capacity and awareness across government and financial institutions is essential for the development of supportive policies and regulations, and to overcome knowledge barriers that constrain investments in green projects. Building climate action capacity across ministries would support the development of the needed policy framework and analysis. Importantly, overall education and awareness rising are also important to address opposition to green investment that can come from several sources and can constrain investment and the development of the regulatory environment the green investments need.

Turkey's financial institutions need to build capacity and integrate climate factors into all aspects of their operations. This includes integrating risks and opportunities relevant to climate change and the energy transition in strategy, risk management procedures and pricing models, governance structures, disclosure practices, and loan origination processes and securitization. Increasing the share of green finance could help Turkey to partially mitigate the recent financial shock and attract investors during the post-COVID-19 recovery period.

Best practice guidance based on international advances in sustainability measures and disclosing risks related to global and domestic environmental policy, and climate change impacts, needs to be provided. Guidelines can be prepared in line with recommendations of the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD). They can be used by banks to increase awareness about and transparency in addressing climate related risks and opportunities, and possibly to report their sustainability activities to increase awareness, encourage best practices, and enable the measurement and tracking of implementation progress. The domestic authorities, especially financial sector regulators including the BRSA and the CBRT, could step up to guide the financial sector players on environmental sustainability, drawing on the international best practice set by the NGFS.

In addition to the green finance supply side (firms and banks) in product and credit markets, the role of households in demand-oriented green transformation is also crucial. Raising the awareness of households on green finance and green products could force both banks and firms to take actions and accelerate the green transformation.

5.5. TECHNICAL INNOVATION AND INNOVATIVE FINANCING APPROACHES

Government support for innovation is warranted given its important role in developing new practices and technologies needed to produce goods in a more environmentally sustainable way. Which technologies to support, and where along the value chain that support should be targeted, depends on competitive advantages and national interest, and the Government may wish to apply demand-pull and supply-push policies (see figure 1. on the Innovation Chain in Chapter 4). Furthermore, government support could be by way of fiscal support to create market demand, or with economic instruments to disincentivize polluting projects.

Technical and financial support for ILBANK can play a critical role in increasing the green investment initiatives of municipalities across sectors. It would help initiatives in energy (renewable energy generation, street lighting, and energy efficiency in buildings), transport (modal shift from road to rail, urban public transport with intelligent transportation system, and the use of renewable energy in infrastructure), as well as in the environment and urbanization (municipal climate action, urban transformation, air quality management measures, water resource management efficiency, and zero-waste initiative). Long-term loan financing with blending options would encourage municipalities to meet infrastructure needs through green investments. These sustainable infrastructure investments would serve all three dimensions of sustainability (social, economic, and environmental). The IPA III programming period with strong emphasis on sustainable development might be an opportunity to leverage green investments in municipalities.

Financial innovation and well-established de-risking instruments can play a significant role in scaling up green finance in Turkey. By providing ways to mitigate – or share – the risk for investors and leverage private investment, guarantees, insurance, first loss capital and loan loss reserves can all help to de-risk projects, as well as assist investors to gain experience in lesser known sectors, build their internal capacity, and shape their risk perception. Green issuances could also broaden the investor base. Developing green bond standards and incentives for issuers and investors, and designing other innovative green financing instruments would be useful. In parallel, the greening of the taxation system can help with the design of broad-based fiscal stimulus to support and sustain post-COVID-19 economic recovery by establishing a robust stream of revenues for the short- to medium-term, while strengthening the foundation for long-term sustainable growth.

ANNEXES

ANNEX 1: GREEN GROWTH POTENTIAL IN TURKEY'S POST-COVID-19 ECONOMIC RECOVERY

Countries are suffering from the economic impacts of the COVID-19 pandemic. The coronavirus outbreak in February 2020 adversely affected Turkey's recent economic recovery from earlier financial market stress. Turkey has suffered severe FX volatility and portfolio outflows during COVID, like other emerging economies, but there were no FDI outflows and the country has managed the situation better than many developed and developing peers. Fiscal measures were also extensive, but Turkey has not applied any rescue package from the IMF or World Bank other than the World Bank's emergency response projects. The additional impacts of the COVID-19 pandemic, dependent on its severity and duration, is expected to put additional stress on the Turkish economy. Even the baseline scenario assuming the lifting of containment measures, including quarantines, travel restrictions and international border closures by the end of Q2 of 2021 is expected to result in a continued fall in investments, shrinking exports and disruptions to economic activity due to social distancing measures to contain the spreading of the virus. To mitigate some risks, the President of Turkey has outlined a 21-point stimulus package focusing on fiscal and financial sector measures to provide short-term liquidity to private enterprises. However, additional support from multilateral development banks (MDB) for Turkey is important in terms of encouraging companies to recover sustainably.

Enhancing policy responses to limit the pandemic's economic effect. At times of economic crises, policymakers may be tempted to set back environmental standards, which are often perceived as constraints on economic activity. Such practice could worsen the impact of the economic crisis. For instance, increased pollution could potentially increase human susceptibility to the virus and prolong the pandemic. Water access and quality as well as efficient waste management became critical for preventing the spread of the virus through the secondary impacts on human health and the environment. In the absence of such environmental standards, the adverse impacts on economies could be extended due to continuation of containment measures to prevent the spread of the virus. Therefore, strengthening the pollution management regulations and supporting behavioral practices that reduce exposure has become even more important during the global fight against COVID-19. One of the essential lessons learned from the COVID-19 crisis is the importance of early action, while safeguarding jobs and the financial mechanisms for re-growth. Seventeen European climate and environment ministers have already agreed to rebuild the economy without losing sight of climate and ecological crisis, having declared their dedication to fulfilling climate actions, and protecting and conserving biodiversity as a key part of the response to the pandemic.

Rebuilding economic policy actions should be aligned with strengthening climate resilience and supporting green growth in Turkey. Before the COVID-19 outbreak, Turkey was already of the view that the implementation of incentive policies and measures at the national level was necessary to protect the global climate system and pursue sustainable development, as stated in the National Climate Change Strategy of the country. The National Climate Change Adaptation Strategy and Action Plan (2011) focuses on strengthening response mechanisms for natural disasters caused by climate change, including the identification of existing and future effects and risks of climate change on public health, and building capacity to address these risks. In addition, environmental

challenges having additional impacts on human health such as air pollution, leading to more susceptibility to viruses and higher mortality make a strong case for prioritizing climate action in response to COVID-19 and similar pandemic scenarios. In this context, Turkey will need additional support to integrate the sustainability consideration and reduction of carbon emissions, as well as other emissions that contribute to air pollution, into economic recovery programs.

Financial mechanisms calling for the strengthening of climate resilience and promoting green growth should be enhanced. It is evident that more interventions reducing exposure and vulnerability to disaster and climate risk in consideration of future changes in climate conditions, and supporting long-term climate strategies will be needed, including the climate mitigation goals of Turkey and contributing to developing or piloting low-carbon technologies and reducing costs. Turkey will also need economic and fiscal instruments that would enhance efficient use of water, energy, land and other resources in strategic sectors to be more resilient and responsive to COVID-19 and the impacts of any other potential future disaster.

The rapid responses developed by countries/policy makers/MDBs now will support the global economy, which will have lasting effects over decades. The actions will also have an impact on emissions, climate change and sustainable development considerations. Therefore, options for doing better at promoting green and climate-smart development need to be prioritized to achieve long-term resilience and sustainable economic growth. This support is particularly relevant in the World Bank's projects targeting SMEs. The Emergency Firm Support Project and the Turkey Rapid Response and Recovery for Micro, Small and Medium Enterprises (MSMEs) project aims to provide support to viable and operational MSMEs that are adversely affected by the ongoing COVID-19 pandemic through direct support measures, including grants for utility and rental payments, and forgivable loans for payroll expenses. The goal is to support MSMEs maintain employment and service critical obligations, and to enable them to adapt to the new environment.

ANNEX 2: INTERNATIONAL GREEN FINANCE INITIATIVES

Financing environmentally sustainable growth requires substantial amounts of investment from the public and private sectors to be mobilized and deployed across a wide range of financial institutions and instruments. A significant share of global investment capital is concentrated within a relatively small number of institutional investors and banks. Engagement and alignment of global policymakers with investors around areas of shared interest will be essential to stimulate the scale-up of climate finance and sustainable investment. Some leading and emerging initiatives for fostering green finance include:

- The Central Banks and Supervisors [Network for Greening the Financial System \(NGFS\)](#) – a group of central banks and supervisors established with the purpose of strengthening the global response required to meet the goals of the Paris Agreement, and to enhance the role of the financial system to manage risks, as well as mobilize capital for green and low-carbon investments in the broader context of environmentally sustainable development.
- [The Financial Stability Board \(FSB\) Task Force on Climate-related Financial Disclosures](#) – has developed a framework for voluntary, consistent climate-related financial disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders. The TCFD aims to enhance market transparency and understanding of climate-related risks and opportunities, to facilitate the efficient allocation of capital in the transition to a low-carbon economy.
- [The Basel Committee on Banking Supervision](#) has been working on transmission channels of climate-related risks to the banking system, and the measurement methodologies of climate-related financial risks. The Committee investigates the extent to which climate-related financial risks can be addressed within the existing Basel Framework, and to identify potential gaps in the current framework and consider possible measures to address them.
- The IFC-supported [Sustainable Banking Network \(SBN\)](#) – a voluntary community of financial sector regulatory agencies and banking associations from emerging markets committed to advancing sustainable finance in line with international good practice, representing 85% of the total banking assets in emerging markets (2019). SBN members are committed to moving their financial sectors towards sustainability, with the twin goals of improved ESG risk management (including disclosure of climate risks) and increased capital flows to activities of positive climate impact. It is a platform for knowledge sharing and capacity building that facilitates the mobilization of practical support for members to design and implement national initiatives.
- The [OECD Centre on Green Finance and Investment](#) – the Centre's mission is to help catalyze and support the transition to a green, low-emissions, and climate-resilient economy through the development of effective policies, institutions and instruments for green finance and investment.

- UN Environment-supported [Green Digital Finance Alliance](#) – the objective of the Alliance is to leverage digital technology & innovations to enhance financing for sustainable development.
- The [Coalition of Finance Ministers for Climate Action](#) - governed by the [Helsinki principles](#), the Coalition will help countries mobilize and align the finance needed to implement their national climate action plans, establish best practices such as climate budgeting and strategies for green investment and procurement, and factor climate risks and vulnerabilities into members' economic planning.
- The [Sustainable Insurance Forum](#): The SIF is a network of leading insurance supervisors and regulators seeking to strengthen their understanding of, and responses to sustainability issues for the business of insurance. It is a global platform for knowledge sharing, research and collective action.
- [The International Organization of Securities Commissions \(IOSCO\)](#): IOSCO is the international body that brings together the world's securities regulators, and is recognized as the global standard setter for the securities sector. In April 2020 the Sustainable Finance Network of IOSCO (SFN) published the report [Sustainable Finance and the Role of Securities Regulators](#), which highlights three recurring themes that involve multiple and diverse sustainability frameworks and standards, including sustainability-related disclosure, a lack of common definitions of sustainable activities, and greenwashing, as well as other challenges to investor protection.

ANNEX 3: FINANCIAL SECTOR MEASURES TO MITIGATE DISASTER RISKS

Financial planning to protect people against climate shocks, disasters, and other crises is a core priority for all countries. Such events have direct fiscal (e.g. health response costs), financial, economic, and social impacts, and put severe pressure on the financial sector. Large scale shocks that can be triggered by climate related disasters can have multiple negative impacts: they damage assets, cause business disruption, loss of jobs and earnings, as well as difficulties to reimburse loans and conduct immediate withdrawals; they increase emergency loans demand and high perceived risks of the borrower with increased delinquency and tight liquidity. Early action to inject liquidity is critical to reduce the short-term and long-term social, economic, and financial impacts. Having finance and systems in place ahead of a disaster is critical in order to reduce the impact of the shock and speed up recovery, as the COVID-19 crisis has shown worldwide.

Building financial resilience should be a priority. Maintaining existing financial protection, particularly in areas most heavily affected by disaster shocks (e.g. Sovereign Insurance, Agricultural Insurance for Farmers) is essential. Building financial protection depleted by crisis – e.g. reserves, guarantee funds, and establishing flexible “shock-responsive” finance for projects exposed to disaster risks, including shock-responsive lines of credit, should be employed. Moreover, flexible mechanisms such as Cat DDO and partial guarantees should be designed to provide a financial buffer against more difficult-to-predict compounding risks.

Strengthening resilience through financial “shock-absorber” mechanisms is also essential. Building pre-arranged liquidity pools covering a wider range of sectors, like MSMEs and financial institutions that can be triggered rapidly if a crisis occurs, should be set up considering existing risk pools and by transferring risks to the private insurance markets where appropriate. If a disaster occurs, these backstops can provide either protection for the financial institutions against rising non-performing loans (NPLs), or else change terms for borrowers to avoid double shock (e.g. full or partial loan forgiveness, interest rate subsidies, extending maturities), and to give additional assistance to borrowers through existing FI channels (e.g. disaster recovery grants to affected borrowers, additional soft loans).

A number of analytical and financial tools have been developed for more effective financial support after disaster shocks and crises. Analytical tools include:⁸² risk analytics to help quantify the expected human, economic and fiscal impact of shocks, as well as related financial response costs, analytics to build and price objective triggers for speedy and targeted release of funds, structuring of financial strategies through a risk-layered approach (e.g., reserves, contingent credit, risk transfer), and integration of financial planning for shocks in longer term fiscal risk management and financing strategies. These tools could be applied to health shocks for short term operations to support early-action response and medium-term operations to support economic recovery (3-6 months out).

⁸² World Bank, [Global Crisis Risk Platform](#), 2018.

Financial Instruments have been introduced as part of the response to disasters and COVID-19, to support the design and preparation of medium-term projects for economic recovery.⁸³

Catastrophe Deferred Drawdown Options (CAT DDO) is a contingent financing line that provides immediate liquidity to countries to address shocks related to natural disasters and/or health-related events. It aims to secure rapid liquidity in case of a crisis through a policy matrix. This proposed product could be designed as having triggers based on country-specific conditions and be deployed in the event of a catastrophic event. The Contingent Emergency Response Component (CERC) is another contingent financing tool that allows for quick disbursement of uncommitted balances from existing projects in the event of a crisis or emergency. The Pandemic Emergency Facility (PEF) is a financial intermediary fund managed by the World Bank to provide early and rapid surge (grant) financing to countries and qualified responding agencies to combat pandemic outbreaks. One potential source of grant funding is the Global Risk Financing Facility (GRiF). GRiF is a US\$200 million + trust-funded program jointly managed by the World Bank's Disaster Risk Financing and Insurance Program (DRFIP) and the Global Facility for Disaster Reduction and Recovery (GFDRR).

⁸³ DASK, Turkish Natural Catastrophe Insurance Pool in Turkey (<https://dask.gov.tr/tcip/>) is established in 2000 following the 1999 earthquake and a legal entity which is responsible for provision, implementation and management of Compulsory Earthquake Insurance in the country. DASK issued a \$400 million CAT-bond in 2013. Insurance Regulation and Supervision Agency (SEDKK) recently announced that they are working to expand the scope of this compulsory earthquake insurance pool. They work on the design of a holistic compulsory natural disaster insurance which has been initiated by integrating other types of natural disasters, especially floods, into compulsory earthquake insurance, including additional coverage. There are other insurance pools, such as agriculture insurances, partly cover the climate-related risks in Turkey.

ANNEX 4: ISLAMIC GREEN FINANCE

Islamic green finance: the potential of green Sukuk

There is growing recognition that the Islamic finance market has major potential to play an instrumental role in scaling up finance to realize climate and sustainable development objectives. In light of the fundamental principles of risk sharing and sustainability, there is a strong link between Islamic finance and green finance. The Sukuk market in particular is well suited to direct the growing global pool of Shari'ah compliant capital to fund renewable energy and climate change projects. Recent years have seen increasing issuance of green Sukuk, which has been met by significant investor appetite and often substantially oversubscribed.⁸⁴

Green Sukuk, also called green Islamic bonds, are Shari'ah compliant innovative financing instruments used to fund environmental and climate-related projects. The commonalities between Sukuk and green bonds means this instrument could be effectively leveraged to tap the Islamic finance markets and maximize private sector financing for green projects. The green Sukuk has the potential to channel US\$2 trillion of Islamic capital toward the funding of green and sustainable investment projects, and to help countries achieve their climate and sustainable development goals.⁸⁵

Other innovations in the Islamic green finance space provide further potential to boost finance for sustainable activities, including positive screening to incorporate ESG into Shari'ah-compliant equities, Shari'ah compliant sustainable asset management and integration of ESG considerations (both risks and opportunities) more broadly into Islamic banking practices.⁸⁶

Case study: Malaysia

Malaysia has proven to be a particularly important innovator in the Islamic green finance space. It has traditionally been the largest Shari'ah compliant debt market in the world. In 2017, the World Bank supported Malaysia in issuing the first ever green Sukuk.⁸⁷ The Sukuk was used to finance a domestic solar power plant, endorsed by the Shari'ah Advisory Council and independently reviewed by the Center for International Climate and Environmental Research Oslo (CICERO). To facilitate the issuance of green Sukuk, Malaysia's Securities Commission launched the Socially Responsible Investment Sukuk Framework, which encompasses SRI projects relating to natural resources, renewable energy and energy efficiency, community and economic development and waqf properties. To date, 75% of Malaysia's outstanding green bonds have been issued in Sukuk format.

⁸⁴ Global Islamic Finance and Impact Investing Platform on [Green Sukuk Initiative](#).

⁸⁵ World Bank and Securities Commission Malaysia, [Islamic Green Finance: Development, Ecosystem and Prospects](#), 2019.

⁸⁶ [Refinitiv, Islamic Finance ESG Outlook 2019](#).

⁸⁷ World Bank, [Pioneering the Green Sukuk: Three Years On](#), Washington, DC: World Bank, 2020.

In parallel, Malaysia has made strong efforts to strengthen its policy environment to enable further development of the (Islamic) green finance market, both from a government and central bank perspective. Examples include the Green SRI Sukuk Grant Scheme, which provides tax exemption benefits, and the central bank's work on green taxonomies to facilitate financial institutions (including Islamic banks) in identifying and classifying economic activities that could contribute to climate change objectives.

