



# Climate Risk Report

on Task Force on Climate-related  
Financial Disclosures (TCFD)



GREEN SWAN  
PLATFORM  
A TSKB INITIATIVE



Extraordinary times call for extraordinary measures!

As a development bank working for the economic, environmental and social development of Turkey for 70 years, this is our call for you.

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May 2021



**“Climate change mitigation and adaptation are among our strategic priorities”**

## Message from the CEO

### **The effects of climate change have become one of the biggest threats on a global scale**

Climate change poses serious risks for the global economy and creates devastating effects for our lives. Combating climate change and the resulting issues is a matter that should be focused on both in our country and in the world.

According to the Global Risks Report and Survey of the World Economic Forum, climate-related risks have surpassed other risk types in recent years and ranked first in terms of likelihood and impact level.

Having entered into force in 2016, the Paris Climate Agreement requires countries to formulate action plans to reduce carbon emissions as part of their commitments and then act in line with their goal of becoming carbon neutral by 2050. The main objectives of this Agreement include reducing greenhouse gas emissions, increasing adaptation against the negative effects of climate change, improving climate resilience and ensuring low-carbon development.

### **The contribution of the financial sector to the success of green recovery process stands out as a critical factor**

The goal of net zero carbon emissions by 2050, an objective led by the United Nations, has been adopted by an increasing number of states and organizations. We acknowledge the fact that we enter a critical period in terms of climate targets.

Extraordinary developments such as recent natural disasters and pandemics around the world increase the importance of green recovery and accelerate steps towards a future decarbonization of global markets. In this process, companies, financial institutions, development financial institutions, investors, citizens as well as governments and regulatory institutions bear various responsibilities. In business environment, it is highly critical to create road maps correctly and formulate action plans quickly. As a development bank specifically concentrated on sustainability and climate, we witness the transformative power of finance sector. We believe that a greener financial system and the structured contribution by the players all over the world are critical success factors in a resilient and sustainable recovery process.

### **We make a significant contribution to Turkey's transition to a low-carbon industry**

In our Climate Risk Report, we disclose our efforts and goals for combating the climate crisis transparently. Following the signing of the United Nations Global Compact in 2010, we have come a long way in our sustainable banking journey by focusing on the Sustainable Development Goals (SDG). Today, 74% of our loan portfolio consists of sustainable and social investments such as clean energy, energy and resource efficiency, environment and women's employment and this makes a concrete contribution to Turkey's transition to a low-carbon industry.

The priorities of our sustainable banking strategies include playing an active role in combating climate change in cooperation with all our stakeholders and supporting Turkey's transition to a low-carbon, industry based economy. We shared our roadmap and targets in the Integrated Annual Report for 2020 and rendered the aforementioned priorities concretely.

By 2023, we will have concluded our studies to evaluate our loan portfolio in terms of climate risks and integrate climate risks into our loan evaluation and monitoring processes. In the same period, we aim to keep the weight of SDG-linked loans within the total portfolio at 90% and above providing SDG-linked financing worth USD 8 billion by 2030.

#### **Taking decisive steps with a global effort and coordination is required to solve the climate crisis**

For the last 30 years, we have adopted sustainable practices in all our processes with a door to door approach. We are proud to be an institution differentiating itself in responsible banking thanks to our global business relationships, the initiatives we are a part of, and the innovative practices we have implemented.

The pandemic has affected the whole world and once again underlined the concept of sustainability. We know that Environmental, Social and Governance (ESG) issues are just as important as financial issues. Taking decisive steps with a global effort and coordination is required to solve the climate crisis.

Based on this perspective, we were inspired by the concept of "Green Swan" in the last quarter of 2020 and launched the "TSKB Green Swan Platform". With this structure, we aim to take effective steps towards a solution regarding climate change by assuming responsibility together with the business world, the public, NGOs, universities and the media. Under the umbrella of the "Green Swan Platform", we closely follow global and national developments and take the climate crisis into focus in our publication "Climate Review".

#### **We will continue to work with our stakeholders, without a pause, to mitigate climate risks**

We are aware that climate-related risks are an increasingly important perspective for our investors and customers. In order to transparently present the results of our accelerated work to our stakeholders, we published our first UNEP FI Principles for Responsible Banking Progress Report. In the coming years, we will continue to disclose respective analysis together with these goals.

We are one of the leading institutions supporting the Task Force on Climate-related Financial Disclosures (TCFD) in Turkey. Furthermore, our first Climate Risk Report, which is prepared in line with TCFD recommendations and strategically enriches our sustainable transformation journey, is the starting point for our commitment to declare climate-related risks and opportunities.

This report hereby marks another major step towards integrating climate risk awareness into our banking

model. We are aware that this is a long journey without any pause. In the upcoming period, we will continue to work with our stakeholders, without a pause, to mitigate climate risks.



**Ece Börü**  
TSKB CEO

**Table 1. TSKB TCFD Table of Disclosures**

	<b>TCFD Recommendations</b>		<b>Related Section</b>
Governance	a	Describe the organization's governance around climate-related risks and opportunities.	2.1.
	b	Describe the management's role in assessing and managing climate-related risks and opportunities.	2.2.
Strategy	a	Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	3.2.
	b	Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	
	c	Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	3.3.
Risk Management	a	Describe the organization's processes for identifying and assessing climate-related risks.	4.1.
	b	Describe the organization's processes for managing climate-related risks.	4.2.
	c	Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organization's overall risk management.	
Metrics and Targets	a	Disclose the metrics used by the organization to assess climate-related risks and opportunities in line with its strategy and risk management process.	5.1.
	b	Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	5.2.
	c	Describe the targets used by the organization to manage climate-related risks and opportunities and performance against targets.	



# TSKB and Sustainability

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Milestones of the Sustainability Journey
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- 1.3. TCFD Recommendations and TSKB Approach



## 1.1. TSKB's Sustainability Journey

Supported by the World Bank and the Central Bank of the Republic of Turkey, the Industrial Development Bank of Turkey (TSKB) was founded in 1950 with a mission to support sustainable and inclusive development. TSKB is Turkey's first private development and investment bank. Having focused on sustainability since its establishment, the Bank operates in Corporate Banking, Investment Banking and Advisory Services.

As a development and investment bank, TSKB provides sustainability themed loans for Turkish corporates in accordance with sustainable development goals thanks to its collaborations with development finance institutions (DFIs) and international financial institutions. Its long-term relationship with these institutions not only enables mutual capacity building but also ensures that recent developments are followed up, new themes and practices are adopted, and pioneering steps are taken in the field of sustainable and responsible banking in Turkey.

TSKB's banking model offers solutions for combating climate change and supports the transition to a low-carbon economy coupled with its sustainability-themed loans, and enables the Bank to differentiate itself in the financial sector. TSKB's support for investments in renewable energy, energy and resource efficiency, environment, women's employment and access to inclusive finance constitutes 74% of the Bank's total loan portfolio. TSKB is committed to evaluating and monitoring the environmental and social risks of not only investment loans but also working capital loans, regardless of the amount.



WITH A SUSTAINABILITY-  
THEMED LOAN RATIO OF

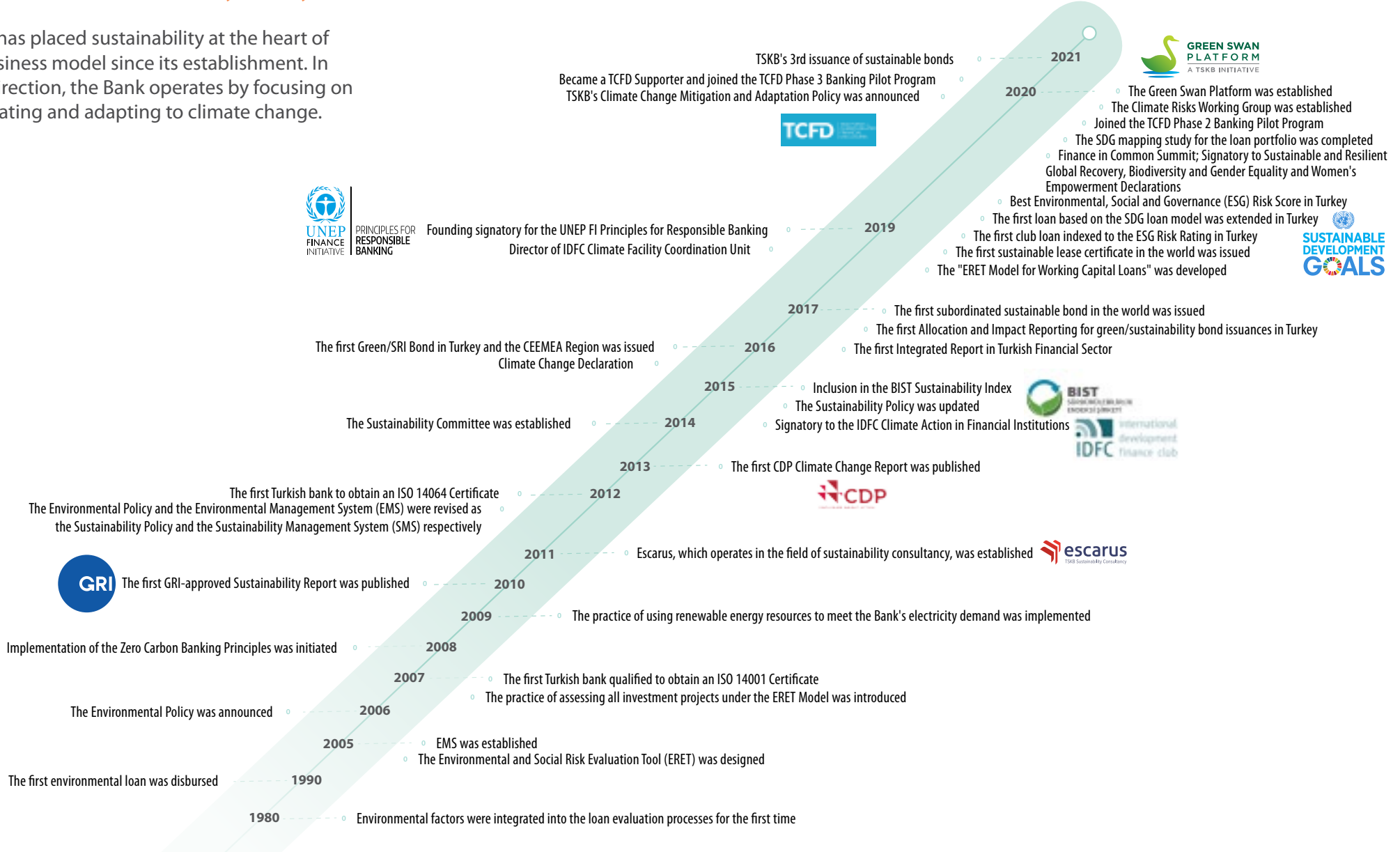
**74%**

A BANKING MODEL THAT PRODUCES SOLUTIONS FOR CLIMATE CHANGE AND FOR COMBATING IT WHILE SUPPORTING THE TRANSITION TO A LOW-CARBON ECONOMY



## Milestones of the Sustainability Journey

TSKB has placed sustainability at the heart of its business model since its establishment. In this direction, the Bank operates by focusing on combating and adapting to climate change.





## 1.2. TSKB's Perspective on Climate Risks

The increase in greenhouse gas emissions from human activities into the atmosphere in the aftermath of the industrial revolution triggered climate change, which is considered as one of the major problems threatening the future of humanity and has environmental, social and economic dimensions. Scientific studies indicate that climate change will have different consequences for each region and basin in Turkey. These studies also demonstrate that, in parallel to the global case, average temperatures will rise, water resources will be depleted, the issue of access to food will grow due to decreased agricultural productivity, sea levels will rise, drought and desertification will become more severe, and the frequency and impact of extreme weather events such as floods and forest fires will increase in Turkey. Accordingly, there will be negative changes regarding financial stability. Climate-related risks are evaluated in two categories, namely physical risks and transition risks, the latter being associated with the transition to a low-carbon economy.



**Physical risks** are categorized into two groups as acute and chronic risks. While long-term changes such as rising average temperatures, changes in precipitation patterns and rising sea levels constitute chronic risks, extreme weather events such as floods, forest fires and drought pose acute risks. Changing weather conditions and extreme weather events can have direct or indirect impacts on the assets, production processes and supply chains of organizations. As a result of such impacts, it is inevitable that there will be additional investment costs, an increase in operating costs or a decrease in revenues due to loss of market share. Therefore, it is considered that climate-related physical risks could have serious financial consequences for organizations.

Considering **transition risks**; changes in climate policies, technology, consumer preferences and financial market expectations cause large fluctuations in asset values in various sectors and increase costs. In view of such conditions, businesses as well as financial institutions which do not design their methodologies and models in line with the green economy are exposed to risks to the extent of the positions they assume.

There is an increasing awareness regarding the climate-related risks as financial risks, they could drag companies into financial difficulties on a micro basis, and they will significantly affect global economic and financial stability on a macro level perspective.

Aiming to integrate climate-related risks and opportunities into all business processes, TSKB sees the dedicated efforts against the climate crisis as a key part of its mission in cooperation with its stakeholders and from an inclusive development banking perspective. TSKB monitors the impact it creates from its activities. Delivering sustainability agenda through various working groups under the Sustainability Subcommittee, the Bank established the Climate Risks Working Group reporting to the Sustainability Subcommittee in 2020. In addition, TSKB launched the Green Swan Platform<sup>1</sup>, which aims to bring all stakeholders together in order to increase awareness on climate change.

<sup>1</sup> [Click here for information on the Green Swan Platform](#)

## 1.3. TCFD Recommendations and TSKB Approach

In 2015, the Task Force on Climate-related Financial Disclosures (TCFD<sup>2</sup>) was established as a result of the work the Financial Stability Board (FSB), led by the G20 Finance Ministers and Central Bank Governors, delivered on how the finance sector should address climate-related risks. TCFD aims to manage climate-related risks and opportunities at a global level and ensure that organizations define how they manage climate-related risks and opportunities to maintain financial stability and share their findings with their stakeholders. To that end, it creates a technical platform to ensure that the declarations and statements by different institutions are comparable over certain criteria.

On that note, TCFD recommendations and its relevant reporting framework suggest that companies test, under various climate scenarios, their resilience and recovery capacities against the potential short-term and long-term shocks – brought along by climate-related risks and the transition to a low carbon economy – on their corporate strategies, business processes, future plans and financial standings, and to publicly disclose the results of such tests. Thus, it ensures that the results of the stakeholders are comparable.

The number of organizations which act with regard to the TCFD recommendations and address climate change from a more strategic perspective, evaluate the impact of climate change within a context of risks and opportunities and set targets has been increasing.

TCFD recommendations cover 4 thematic areas:



### Governance

Disclose the organization's governance around climate-related risks and opportunities



### Strategy

Disclose the potential impacts of climate-related risks and opportunities on the organization's strategic planning



### Risk Management

Disclose how the organization identifies, assesses, and manages climate-related risks



### Metrics and Targets

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities and integrate these into financial reporting

This report is a study that summarizes TSKB's journey to combat and adapt to climate change and explains its alignment with TCFD recommendations over the 4 major headlines. The information regarding the strategies, metrics and targets included in the report will be periodically reviewed.



<sup>2</sup>TCFD



# Governance

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  - 2.1. Board Oversight
  - 2.2. Sustainability Management
  - 2.3. Three Lines of Defense

## 2.1. Board Oversight

Combating and adapting to climate change is a matter addressed through the active participation of the Board of Directors and the Executive Committee. The Board of Directors guides the Bank's operations by ensuring that the Bank is being managed in accordance with its strategic focuses and pre-determined targets. The Board of Directors consists of 11 members including the Bank's CEO and 3<sup>3</sup> independent members. Complementary policies the Sustainability Policy and the Climate Change Mitigation and Adaptation Policy, which encompass the responsible banking approach, were approved by the Board of Directors and entered into force.

The Bank's performance is regularly monitored through the five Committees reporting to the Board of Directors. [Click here](#) for more information about the Board of Directors.

TSKB's organizational structure for sustainability involves the Board of Directors and the Executive Committee and comprises of all employees. Business plans and activities to be developed within the scope of TSKB's sustainability strategy, vision and goals, particularly climate-related risks and opportunities, are addressed by the Sustainability Committee with the active participation of the Board of Directors and the Executive Committee. Established in 2014, the TSKB Sustainability Committee consists of 3 Board Members as well as the CEO and 2 Executive Vice Presidents as

of the end of 2020. This structure enables an effective management at the highest level of all Environmental, Social and Governance (ESG) issues, including climate risks, which are among the strategic focuses of the Bank. The scope conducted by the committee matches with the executive responsibility areas of the Executive Vice Presidents, who are members of the committee to enhance the effectiveness further. The members of the committee are appointed via Board resolutions.

Reporting to the Board of Directors, the Audit Committee is responsible for ensuring the efficiency and adequacy of the Bank's risk management, internal control and internal audit operations under the relevant legislation. The Risk Management Department develops the systems required for risk management processes and conducts such operations, monitors the compliance of risks with policies and standards as well as the Bank's limits while reporting to the Board of Directors via the Audit Committee. In line with the Bank's risk appetite, environmental risks including climate change that arise or may arise from lending operations are included in the Bank's risk management processes.

<sup>3</sup> 2 members of Audit Committee are accepted as Independent Members of the Board of Directors as per the provisions of Capital Market Board's Corporate Governance Communiqué No: II.17.1.



## 2.2. Sustainability Management

The Sustainability Committee monitors the activities of the working groups formed by employees from various disciplines through the Sustainability Subcommittee with an integrated approach.



### TSKB has a sustainability management system that covers all business processes

Since its establishment, TSKB's long lasting relationship with DFI's and the international initiatives it has joined have enabled the Bank to bring ESG scope to core of its activities much earlier than anticipated and to quickly integrate them into its business model. In the 2000s, TSKB established the Environmental Management System (EMS) and subsequently improved its scope to establish the Sustainability Management System (SMS). The SMS serves the purposes of reducing the environmental and social impacts of the activities by TSKB, which acts on a mission to create value for inclusiveness and sustainable development in Turkey and supports Turkey's transition to a low-carbon economy.

TSKB's Sustainability Policy constitutes the basic framework of the SMS. In 2012, TSKB expanded the scope of its Environmental Policy published in 2006 and then revised it as the Sustainability Policy. The Bank's Sustainability Policy is supported by ESG-backed complementary policies. In line with its responsible banking approach, TSKB has identified the activities not to be financed and published them as an annex to its Environmental and Social Impact Policy, which is one of the complementary policies.



### Sustainability Subcommittee consisting of representatives from various departments

Chaired by the Bank's CEO and led by 3 Executive Vice Presidents, the Sustainability Subcommittee was established to ensure the integration of ESG activities into all business processes in line with the vision and strategy set by the Sustainability Committee. The Sustainability Subcommittee reports to the TSKB Sustainability Committee. The internal coordination of the sustainability organization at TSKB is ensured by the Sustainability Coordination Officer. In order to advance the Bank's sustainability strategy, sustainability workshops have been organized. To that end, new roles with bearing individual responsibility in this field only have been made for the follow-up of contemporary agenda and for much effective management of processes.



### Sustainability operations are carried out by 8 Working Groups working in synergy

TSKB has internalized sustainability from its mission to its business model and processes. At TSKB, all sustainability scope and foci including those related to climate risks are delivered in an integrated manner via 8 different working groups reporting to the Sustainability Subcommittee. TSKB Executive Committee appoints members to working groups. TSKB's sustainability organization and related working groups are presented in Figure 1.



### ESG Targets

ESG targets are set on capital basis with an integrated perspective and are approved by the Executive Committee and the Sustainability Subcommittee. All targets and key performance indicators including climate-related issues within the scope of both operational activities and sustainable finance are reviewed twice per year. Audited realized figures are transparently disclosed to the stakeholders through the integrated annual report with comparative key performance indicators.

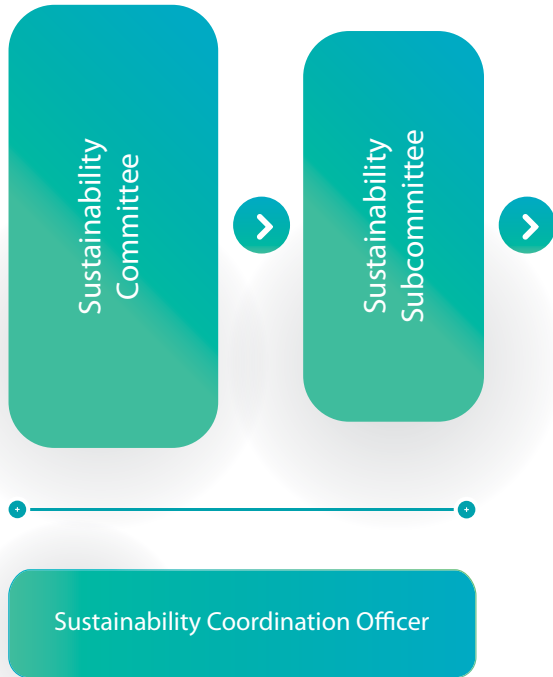


### Performance Management

The annual targets of the Sustainability Subcommittee are determined smartly and reflected in the performance scorecards of all Subcommittee members. In addition, the targets of the relevant sustainability projects can be added to the performance scorecards of working group members with the mutual decision of the employee and related manager. One of the common goals of the working groups is to organize internal training events and information sessions in order to ensure the capacity development of all TSKB employees on sustainability. Efforts to this end will be further increased and maintained. ▼



**Figure 1. TSKB's Sustainability Organization - Working Groups**



**Climate Risks Working Group**

With an aim to include climate risks in all business processes and analyze indirect effects from lending operations, the Bank established the Climate Risks Working Group. Intending to integrate climate risks into its business processes more deeply, the Group develops its capacity and conducts various studies to identify, measure and report portfolio risks within the framework of both physical and transition risks.

The Chair of the Working Group also serves as the Head of Loan Monitoring. In order to deal with the climate risks with a collective approach, the Working Group members consist of the representatives from the Economic Research, Development Finance Institutions, Loan Monitoring, Loan Allocation, Corporate Compliance, Engineering and Technical Advisory, and Risk Management departments.

The activities of the Working Group are regularly reported to the Sustainability Subcommittee, Executive Committee and Sustainability Committee.

In 2020, TSKB became the only bank from Turkey to participate in the UNEP FI TCFD Phase 2 Banking Pilot Program. The Climate Risks Working Group represented TSKB in the subject program and conducted studies in line with the TCFD recommendations. As of 2021, the Bank has been participating in the Phase 3 Program, which is a follow-up of the Phase 2 studies.

**ISO Standards Management Working Group**

This Working Group is responsible for the coordination of the measurement, monitoring and auditing of internal effects from the Bank's operations. As part of ISO 14001 and 14064 Certifications, the Working Group regularly monitors the carbon footprint from internal consumption, implements action plans aiming to reduce its impacts and sets targets to improve performance. Performance results are periodically monitored and reported to the Sustainability Subcommittee.

**Social Impact Analysis Working Group**

The Social Impact Analysis Working Group was established to develop the social impact analysis approach in TSKB's lending activities. The Group carries out detailed matching and reporting studies regarding the contribution of investment and business loans by the Bank to the United Nations Sustainable Development Goals (SDG) and determines actions to improve the social benefits of investments. Accordingly, the impact of the Bank from financing operations within the scope of all SDGs, particularly of SDG 13: Climate Action, is regularly analyzed and reported.

**Cooperation with International Initiatives on Sustainability Working Group**

The Group endeavors to determine the resource needs for the work to be carried out with international and development financial institutions and international initiatives with which the Bank cooperates within the scope of sustainability and to organize the mutual efforts. It works in coordination with the Climate Risks Working Group and is responsible for capacity building and experience sharing on climate change practices.

**Sustainability Index Working Group**

The Sustainability Index Working Group manages relations with the BIST Sustainability Index and international sustainability rating companies. To that end, it develops suggestions for improvement and coordinates such efforts. All sustainability indices and ratings, which include the Bank's operational and financing activities to the extent of their relationship with climate change, are evaluated by the Working Group.

**Gender Equality Working Group**

The Gender Equality Working Group works on gender equality, one of the strategic focuses of the Bank, in order to increase effectiveness on various platforms. TSKB believes that tackling a global problem such as climate crisis is only possible by empowering women and aims to make an impact on combating and adapting to climate change by bringing women into the economy and raising awareness through gender equality efforts.

**Reporting Working Group**

The Reporting Working Group is responsible for publications such as the Carbon Disclosure Project (CDP) Climate Change Report, the Integrated Annual Report and the UNEP FI Principles for Responsible Banking Progress Report. To that end, it closely follows local and global best practices and latest developments and observes highly-recognized international standards.

**Dialogue with the Stakeholders Working Group**

Dialogue with the Stakeholders Working Group contributes to the Bank's ESG work at a communication level. It raises awareness on climate change and conducts capacity building activities by sharing information on zero-carbon activities and ESG-focused platforms.



## 2.3. Three Lines of Defense

The Bank has adopted Three Lines of Defense Approach (Figure 2), which is an effective method in managing physical and transition risks from climate change by integrating them in risk management processes and controlling operational activities.

Figure 2. TSKB's Three Lines of Defense



In the First Line, all relevant business units and management bodies review and assess incoming loan applications for climate risks in terms of risks arising from the loan portfolio. They also evaluate how building operation activities are impacted by climate risks in terms of operational risks. As the first step of risk management, these units carry out a multidimensional risk assessment with their subject matter expertise.

In the Second Line, activities and controls are performed through structures reporting to the Board of Directors and the Executive Committee in line with the Bank's risk appetite and policies.

In the Third Line, all activities, including the management of climate risks, are independently audited by the Internal Audit Department reporting to the Audit Committee, which is composed of the members of the Board of Directors.





# Strategy

- 3
  - 3.1. TSKB's Climate Change Mitigation and Adaptation Policy
  - 3.2. Climate-Related Risks and Opportunities
  - 3.3. Scenario Analysis


Global climate change and the mitigate the effects of climate change is a major issue that deserves focus both in Turkey and in the world. In this context, the physical and transitional risks arising from climate change will pose serious threats in the short, medium and long term. On the other hand, provided they are well planned for and managed, they will bring valuable certain opportunities for both financial institutions and companies operating in different sectors. TSKB initiated the carbon neutral banking practice in 2008 and published the first CDP Climate Change Report in 2013. It became a signatory to the IDFC Climate Declaration in 2015 and to the UNEP FI Principles for Responsible Banking in 2019. During the Finance in Common Summit in 2020, it became a signatory to Sustainable and Resilient Global Recovery and Biodiversity Declarations. As a supporter of TCFD, TSKB aims to fully integrate climate risks into its business processes and to materialize them through targets and performance indicators.

### 3.1. TSKB's Climate Change Mitigation and Adaptation Policy

TSKB, which adopts sustainability and inclusion as its main business model for Turkey's qualified development, is aware of the physical and transition risks arising from climate change, the steps to be taken to manage these risks and the opportunities which will also arise.

TSKB addresses its actions and targets for mitigating and adapting to climate change in 3 main pillars within the scope of its Sustainability Strategy:

- 
















**Supporting Turkey's sustainable development model**
- 

**Playing an active role in tackling climate change**
- 

**Contributing to Turkey's industrial transition to a low-carbon economy**

With its banking model that provides solutions to climate change and supports the transition to a low-carbon economy through sustainability-themed loans, TSKB has specified its priority areas of focus in its [2020 Integrated Annual Report](#)

**Table 2. TSKB's Focus Areas**

 <p><b>Combating climate change</b></p>	 <p><b>Strong financial performance and efficiency</b></p>	<p>TSKB creates an impact through its loan portfolio with 7 SDGs</p>       
	 <p><b>Strengthening international collaborations and developing new collaborations</b></p>	
 <p><b>Strong corporate governance &amp; effective risk management</b></p>		
 <p><b>Overseeing equal opportunity inside and outside the institution</b></p>		
 <p><b>Maintaining cooperation in synergy with group companies</b></p>		
 <p><b>Maintaining the high-calibre human resources</b></p>		
 <p><b>Undertaking development projects and supporting the SDGs with the three main business lines</b></p>		

As one of TSKB's main strategic focus areas, mitigating and adapting to climate change directly and indirectly affects other priority areas of focus. When the Bank's strategic focus areas are considered, it directly contributes 7 out of 17 SDGs.



Leveraging on its experience regarding the sustainable banking principles and in line with its strategies, TSKB will continue to play an active role in combating climate change and Turkey's transition to a low-carbon economy. Accordingly, TSKB sets out the scope and principles of the strategy to combat climate change in the Statement on Climate Change published in 2016 and the "Climate Change Mitigation and Adaptation Policy"<sup>4</sup> published in 2021.

**Table 3. Focal Points for TSKB's Climate Change Mitigation and Adaptation Policy**

- Mitigating and adapting to climate change in all fields of activity
- Addressing mitigating and adapting to climate change through the active participation of the Executive Committee including the Board of Directors
- Integrating physical and transition risks arising from climate change into the Bank's risk management system
- Actively contributing to the UN SDGs with a focus on mitigating climate change
- Working in cooperation with all stakeholders for mitigating and adapting to climate change
- Transparently sharing objectives and impacts regarding mitigating and adapting to climate change
- Using publicly available reports and regular publications as a means to raise awareness on mitigating and adapting to climate change
- Monitoring national and international declarations and measuring and reporting in line with the TCFD recommendations

## 3.2. Climate-Related Risks and Opportunities

The environmental, social and economic effects of climate change bring along major shifts for organizations. Climate change is a phenomenon that should be strategically addressed by all organizations. TSKB defines climate risks and opportunities from the internationally-recognized perspective of physical risks and transition risks. From this point of view, it examines the risks and opportunities created by climate change within the organization in terms of i) direct and ii) indirect effects.

**i) Direct risks and opportunities** focus on the effects of climate change on TSKB's operations and activities

**ii) Indirect risks and opportunities** focus on the effects of climate change on TSKB's products and services as well as its loan portfolio.

The Bank defines direct and indirect risks and opportunities in the short, medium and long term (Table 4) and analyzes the effects of these risks and opportunities on the organization's activities, strategy and financial structure.

**Table 4. Term Definitions (years)**

Short	Medium	Long
<1	1-5	>5

### 3.2.1. Direct Risks and Opportunities



The basis of TSKB's climate-related direct risks is the physical impacts on office buildings. The Bank's operations are primarily conducted at the Head Quarters (HQ) building in Istanbul. IT units as well as all operational and technical support units operate in this building. In addition, the Bank also has an emergency center at a different location.





<sup>4</sup> [Click here for TSKB's Climate Change Mitigation and Adaptation Policy](#)

Direct climate risks that TSKB may be potentially exposed to for its banking operations are summarized in Table 5. Potential climate-related opportunities in terms of banking operations are listed in Table 6.

**Table 5. Climate-Related Direct Risks**

Risks	Type	Description	Term	TSKB Action
Extreme Weather Events	Physical	Excessive rainfall and hail have become more frequent in Turkey due to climate change particularly in recent years and have caused floods in Istanbul. This may pose a risk for the Bank's operations and business continuity.		TSKB has prepared the necessary action plans (Emergency and Contingency Plan) against climate events such as excessive rainfall, floods and drought in a way to include all service buildings. Regular updates are in place. Following floods in Istanbul in the past years, infrastructure improvements were made in service buildings. Efforts to strengthen the Bank's business continuity and resilience are coordinated by the Business Continuity Management Committee and the Building Operation and Administrative Affairs Unit.
Increasing greenhouse gas emissions	Transition	An increase in greenhouse gas emissions from the Bank's use of natural resources, electricity consumption, vehicle use, business trips may pose a transition risk.		TSKB periodically monitors and reports all greenhouse gas emissions from its activities within the scope of the SMS in accordance with the ISO 14064 Greenhouse Gas Accounting and Verification Management System. The Bank has set science-based greenhouse gas reduction targets for Scope 1 emissions for 2030 and 2035 which contribute to the Paris Agreement's goals (Section 5.1). TSKB has met all its electricity needs (Scope 2) from renewable energy power plants with IREC certification since 2009 and will continue to do so. TSKB has been offsetting greenhouse gases from its operations since 2008 and has been crowned as the first carbon-neutral bank in Turkey.

**Table 6. Direct Opportunities from Combating Climate Change**







Opportunities	Type	Description	Term	TSKB Action
Technology changing business models	Transition	As the use of remote working applications and enabling technological infrastructures increase within business models, the Bank's business travels have decreased in number. This technological change may further reduce the Bank's greenhouse gas emissions.		TSKB intends to expand the use of pandemic-related remote working and video conferencing applications in order to reduce business travels in the future.
Utilizing renewable energy sources	Transition	While the costs of generating electricity from renewable sources are decreasing, rooftop solar installations are more commonly preferred by organizations. The Bank may meet part of its electricity need from solar energy, thus save on electricity costs.		TSKB will continue the practice of meeting its electricity needs from power plants holding IREC certification. In addition, it will also consider the opportunities to directly benefit from renewable energy.

Short  Medium  Long 

### 3.2.2. Indirect Risks and Opportunities

As part of physical and transition risks, transition to a low-carbon economy is expected to present new opportunities for TSKB in the fields of financing, investment banking and advisory services. It is predicted that the transitional process will increase the demand for renewable energy as well as other products and services with a low carbon footprint. TSKB's risks and opportunities through the products and services it offers are outlined in Table 7 and Table 8 respectively.

**Table 7. Climate-Related Indirect Risks**

Risks	Type	Description	Term	TSKB Action
Rising average air and water temperatures at a global scale: Electricity generation	Physical	It is considered that increases in average air and water temperatures at a global scale may lead to decreases in efficiency, particularly in conventional and hydroelectric power generation.		TSKB strives to include physical climate risks in all risk processes starting from the loan evaluation stage. TSKB has started to take into account climate change-related temperature increases in its projections at the loan evaluation stage and monitoring studies for its energy portfolio. For HPP financing, watershed-based analysis are performed in loan allocation and monitoring processes
Rising average air temperatures at a global scale: Labor factors	Physical	Due to increasing average air temperatures, losses in labor productivity are expected, particularly in labor-intensive sectors where work is performed outdoors (such as agriculture, construction and mining).		In environmental and social assessment processes, TSKB will continue to closely monitor the workforce management practices of clients.
Increasing levels of water stress and drought	Physical	Increasing water stress and drought caused by climate change may adversely affect production processes in water-intensive sectors.		During loan evaluation, TSKB evaluates the potential negative impacts of climate change on water resources. It uses inputs from the ETA and Loan Analysis departments to analyze multiple dimensions of the matter from loan allocation to loan monitoring processes. To that end, integration efforts into risk management processes will continue.
Extreme weather events	Physical	The expected increase of the frequency and impact of extreme weather events such as floods, forest fires and storms due to climate change is likely to have an adverse impact on energy, production, mining, electrical power distribution and logistics sectors.		TSKB strives to include physical climate risks in all risk processes starting from the loan evaluation stage. In loan assessment stages, TSKB plans to make more use of local and global data platforms and assessment tools on physical climate risks.
Increasing demand for low-carbon products and services	Transition	As the demand for the use of low-carbon, climate-friendly products increases, changes may be required in the production processes of intermediate and end product manufacturers. This may affect the cash flows of clients offering high-emission products and services in the Bank's portfolio, which in turn may create a potential risk for the loan repayment of clients.		TSKB conducts various studies to better understand the effects of climate risks on its loan portfolio. Accordingly, market expectations and changes are also consistently followed up. The Bank will keep its heat map studies up-to-date and diversify its case analysis studies in order to better identify the risks that may arise over the sectors which are likely to be affected by the changing market expectations in the upcoming period.
Carbon pricing policies	Transition	The EU Green Deal proposes a carbon border adjustment mechanism as an option, which may bring along the practice of imposing carbon tax on products exported from Turkey to the EU region. Such a tax may increase the cost of Turkish export products and reduce their competitiveness. The launch of the emissions trading mechanism in Turkey as an alternative/complementary element for the carbon border tax has led to discussions in the country. The mechanism will establish a trading system to include emission-intensive sectors. These two developments may affect the sectors that are in TSKB's loan portfolio and will be included in the tax or trading system.		TSKB conducts various studies to analyze the Bank's exposure to and possible impact on sectors that may incur additional carbon costs. Accordingly, the Bank actively follows the studies of PMR Turkey <sup>5</sup> project, which works on Turkish carbon markets, and monitors the developments closely. In addition, case studies are being conducted regarding the proportion of vulnerable sectors within the portfolio and sectoral risks of carbon pricing for the case that carbon trading systems would be put into practice. The relevant heat map study also contributes to the evaluation of the sectors and clients exposed to the aforementioned transition risk.

<sup>5</sup> Partnership for Market Readiness - PMR Turkey



**Table 8. Indirect Opportunities from Combating Climate Change**

Opportunities	Type	Description	Term	TSKB Action
The need for the real sector to adapt to climate change	Physical and Transition	The effects of climate change have been felt more deeply in recent years. Climate change is expected to cause greater physical damage both in the world and in Turkey in the future. Therefore, it is necessary to raise awareness and support capacity building and development in real sector companies about managing climate risks.		TSKB will continue to use tools such as the “Green Swan Platform” to raise awareness on climate risks. It is considered that TSKB's engagements will accelerate the efforts of institutions to increase their adaptation capacities. Steps to be taken in the field of climate adaptation will bring along valuable opportunities for TSKB, including those related to technical advisory services <sup>6</sup> .
Climate adaptation resources	Physical	The physical changes that climate change will cause in Turkey also drive the need for new infrastructure compatible with the new climate order. Multiple adaptation factors will receive spotlight, such as buildings resistant to disasters including extraordinary weather events, rainfall and hail, and the practice of designing coastal buildings, factories and facilities in consideration of rising sea levels in the long term. It is believed that a substantial amount of funds will be required for adaptation to happen. It is considered that this will present opportunities for new adaptation loans.		TSKB continues to carry out various studies to better understand climate adaptation and its implications for Turkey. It also plans to continue its internal development in order to establish climate adaptation as a credit line and to maintain communication with development financial institutions and international financial institutions.
New product development	Transition	Transition to a low-carbon economy will increase the demand for investments in this area. Thus, the need for low-carbon financing will also increase. This will allow TSKB to develop new loan products. As investment demands increase particularly in the fields of renewable energy, resource efficiency and climate adaptation financing, the need for funds is expected to rise simultaneously.		TSKB offers thematic funds secured from development financial institutions serving the sustainable development of Turkey and transition to low-carbon economy. It also works to diversify its low-carbon and climate finance funds. The Bank is one of the leading institutions in Turkey in financing renewable energy projects which play a key role in combating climate change. In the upcoming period, TSKB will continue its operations by diversifying its product range in line with Turkey's climate policies and strategies and taking social impact into account.
Technological change	Transition	The criteria updated via legislation lead the market to produce more sustainable products. Technology is also developing accordingly. Additional investments are required for transition to new and green technologies in production processes. This may create new funding opportunities for TSKB.		TSKB monitors the market status, needs and the opportunities to develop credit lines for technological development and investment in low carbon technologies in order to update the products and services it offers.
New service development	Transition	Turkey's transition to a low-carbon economy requires the need for restructuring at companies. This is expected to increase the demand for TSKB's advisory services in the field of sustainability and low-carbon or carbon neutral economy. In addition to projects such as the computation of carbon footprint and carbon offsetting, it is expected that the demand for advisory services will increase in different fields such as low-carbon investment plans and green bond issuances for climate finance.		TSKB offers services in areas such as climate change, transition to a low-carbon economy and green bond consultancy via both its own technical advisory services and the sustainability consultancy services that Escarus <sup>7</sup> , a TSKB subsidiary, offers.

Short  Medium  Long <sup>6</sup> TSKB ETA Services<sup>7</sup> TSKB Sustainability Consultancy | Escarus

### 3.3. Scenario Analysis

TCFD defines climate scenario analysis as a tool to develop critical strategic thinking for future uncertainties. Scenario analysis is a set of projections based on forecasting multiple variables such as economic growth, technological development, greenhouse gas emissions, social values and demography<sup>8</sup>. The purpose of scenario analysis is considered as evaluating the performance of institutions in different situations that they would encounter in the future, in a way to better understand the consequences<sup>9</sup>. Climate scenario analysis aim to develop and expand the level of awareness as well as resilience, foresight and financial planning on how climate-related physical and transition risks and opportunities could affect institutions over time.

One of the main difficulties in measuring climate risks is that historical data do not shed light on the future and indeed weaken the predictability in evaluating these risks. Climate risks involve complex dynamics that interact with each other through different aspects in the short, medium and long term. Therefore, a scenario-based model and projections are required to measure them. It is key to build scenarios on climate risks on a sectoral and institutional level. Within this scope making predictions about how climate and socioeconomic factors will interact with each other is the ultimate aim.

In climate scenario analysis, TCFD recommends the use of sources by the International Energy Agency (IEA),

Intergovernmental Panel on Climate Change (IPCC) and World Resources Institute (WRI), et al.

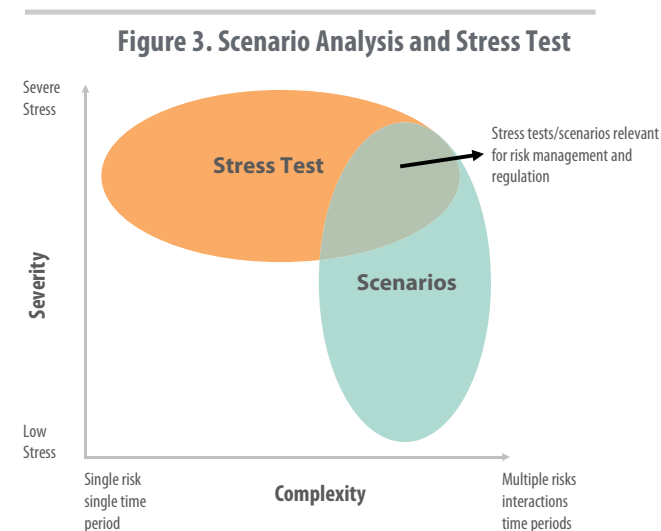
TSKB aims to develop its climate scenario analysis and stress testing processes in line with the aforementioned recommendations, considering the forecasts and studies of various international institutions such as the IPCC, IEA and 2DII (PACTA). In addition to these, climate scenarios published by the “Network of Central Banks and Supervisors for Greening the Financial System” (NGFS), an initiative established by central banks and financial authorities, are analyzed to be used in the scenario analysis related to climate risks. Sectors that may be affected by new regulations such as carbon border

tax to be implemented as part of the Green Deal announced in EU in line with the goal of offsetting net greenhouse gas emissions by 2050 are also evaluated separately. It aims to create solutions by analyzing the contributions of all these stakeholders with a holistic approach.

Along with the scenarios prepared by international organizations, TSKB also focuses on those targets Turkey develops in its climate policies. Regulations such as the Emissions Trading System, which is expected to come into effect in the near future in accordance with the Intended Nationally Determined Contribution (INDC<sup>11</sup>) submitted by Turkey as part of the Paris Agreement, are expected to affect carbon-intensive sectors in terms of transition risks. It is considered that the amounts of emission reduction applicable with these sectors will be set in accordance with Turkey's INDC.

TSKB aims to finance combating and adapting to climate change. While analyzing scenarios, the Bank not only focuses on risks, but also uses its scenarios to evaluate climate-related opportunities such as renewable energy, energy efficiency, climate change and adaptation projects, which will increase the need for climate-related financing.

Each of the climate-related scenarios will have different impacts on various sectors and on the



Source: International Actuarial Association<sup>10</sup>, TSKB

<sup>8</sup> TCFD Hub

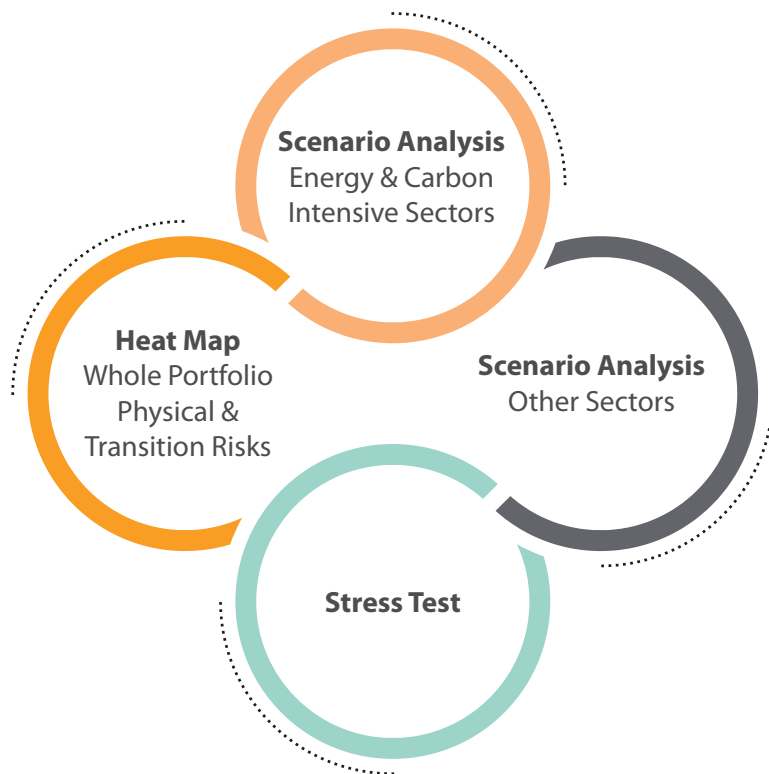
<sup>9</sup> TCFD Technical Supplement

<sup>10</sup> Stress Testing & Scenario Analysis

<sup>11</sup> INDC

Bank's direct and indirect operations. Future analysis on physical and transition risks to be conducted in line with climate scenarios will help TSKB's scenario analysis methodologies to be further developed. A more detailed assessment of asset resilience against climate risks is planned through scenario analysis and stress testing. TSKB aims to use scenario analysis and stress test tools effectively to identify the potential consequences of climate-related risks and opportunities under different time and conditions and to include the results accordingly into the business processes with a strategic planning.

**Chart 1. TSKB's Management Process of Climate-Related Risks and Opportunities**



To that end, the current climate-related risks in TSKB's portfolio were identified through a sector-based heat map (Section 4.1.2.). This study is considered to constitute the basis of future scenario analysis and stress test studies.

TSKB reinforces its climate risk scenario analysis by case studies. These studies evaluate the resilience of sectors which have weight in the Bank's loan portfolio being vulnerable to climate change. In this context, scientific data generated by running different global climate models with RCP4.5 and RCP8.5 climate scenarios were used in the scenario analysis performed for hydroelectric power plants within the scope of physical risks (Section 4.2.1). For the upcoming period, case analysis studies will be further developed. The Bank thus aims to include the climate risks perspective in various scenario analysis it has been applying for years to its loan portfolio.

The energy sector is closely monitored as it has a significant weight in TSKB's lending portfolio, and is a sector that is both critical for Turkey and vulnerable to climate-related risks. The Bank's Energy Working Group (EWG) functions effectively in this regard. Recently, an internal model study which estimates the Turkish market clearing price (MCP) for the period 2021-2035 has been put into use within the EWG. The aforementioned PTF estimate considers various issues such as electricity demand, market developments, energy profile, investments to be commissioned, exchange rate and power plant input prices. The study also considers scenarios that may arise from various climate risks such as drought and heavy rainfall and monitors their effects. By being the first example of climate-oriented scenario analysis studies within

the Bank, the related process is updated and revised periodically.

Consequently, the aim is to integrate the results from climate risk scenario analysis to be developed quantitatively and qualitatively on an international and local basis into risk management and financial planning processes. Since the climate scenario studies is needed to continuously improve, it is of utmost importance to build capacity and ensure continuity in this field.





# Risk Management

## 4

- 4.1. Climate-Related Risks
- 4.2. Sectoral Analysis and Management of Risks



## 4.1. Climate-Related Risks

Climate risks are classified into two as physical and transitional risks (Section 1.2.). These risks affect the financial sector directly and indirectly through microeconomic and macroeconomic transmission channels such as changes in economic conditions, job losses, price fluctuations, income losses and cost increases.






The risk management process serves to establish a common risk culture within the framework of the Bank's risk management policies and legal and international regulations. It is a structure in which risks are defined, and measurement, analysis, monitoring and reporting activities are carried out. Reports include measurements regarding main risks, stress tests and scenario analysis as well as compliance with the determined limit and risk appetite indicators. These reports are submitted to the Board of Directors via the Audit Committee, Executive Committee and related departments within the Bank.

Climate-related physical and transition risks are evaluated within the scope of existing risks defined at the Bank and are included in the Bank's risk management processes. In this regard, both physical and transition risks of climate change are classified, monitored and managed under credit, market, operational, liquidity and reputation risks, as provided in Table 9.



Considering the investment loans allocated by the Bank in accordance with its vision and mission, for the sustainable development in the country, it is anticipated that the fundamental impact of climate change may stem from credit risk. Therefore, in loan evaluation, allocation and monitoring stages, in addition to the Environmental and Social Risk Evaluation Model (ERET) rating (Section 4.1.2.), the greenhouse gas emissions and energy and resource efficiency dimensions of the financed projects are taken into consideration. Credit risk, concentration risk, collateral quality and relevant internal rating levels of all clients including those exposed to climate risks are monitored. In the Bank's internal rating model, climate risks are currently considered in the judgmental evaluation chapter. While the relevant metrics are closely monitored in order to manage such risks, risk monitoring processes will be further developed.

Table 9. Climate-Related Risks

Types of Risk	Definition of Risk	Physical Risks	Transition Risks	Impact Area	Management	Impact Term	Impact Level
<b>Credit</b>	Credit risk is the possibility of a loss being incurred by the Bank due to the fact that a counterparty does not fulfill their liabilities in line with the terms and conditions of the agreement.	Financial repayment difficulties that may arise from decrease in value of customer assets and loss of income, and decrease in collateral values	Financial impact of additional investment needs and cost increases while adopting to changes in legal regulations and technologies	Increase in non-performing loans (NPL), increase in loss given default (LGD), increase in probability of default (PD)	Monitoring the loan portfolio in terms of climate risks, inclusion in the internal rating model and individual assessment studies, determining risk limits and criteria		High
<b>Market</b>	Market risk is the risk that the changes in the values of the positions in the trading portfolio of the bank as a result of market fluctuations will adversely affect its financial status. Interest rate, exchange rates, stock and commodity prices are the major market risk factors.	Possible loss of value in assets	Changes in demand for assets in the investment portfolio and the resulting loss of income	Fluctuation in prices of financial assets, commodities and stocks	Stress and Scenario analysis, and prediction of losses		Medium
<b>Operational</b>	Operational risk is the risk of loss resulting from the inadequacy of processes, human resources and systems or related malfunctions, or errors, external events, compliance with laws and ethical standards.	Interruption of operations	Difficulties and cost increase in the process of compliance with regulations	Financial difficulties that may occur as a result of interruption of operations and business continuity, increase in improvement and repair costs as well as insurance charges	Making estimates of losses, Emergency and Contingency Plan and Business Continuity Plan, Sustainability Committee activities		Medium
<b>Liquidity</b>	Liquidity risk is the risk of not meeting the balance sheet and off-balance sheet liabilities on time and in full.	Inability to meet the cash flow and margin call needs of the bank	Decline in fund-raising capacity and increase in funding costs with regard to regulations	Deterioration of the bank's cash flow, possible difficulties in fund-raising and financing, maturity mismatch	Monitoring counterparty, instrument, maturity, market etc. concentrations of fund sources and fund usage, establishing an Emergency Action and Funding Plan		High
<b>Reputation</b>	Reputation risk refers to the negative opinions of the stakeholders about the Bank, the loss of trust in the Bank as a result of not complying with the current legal regulations, or the loss that may occur due to damage to the Bank's reputation.	Failure to provide service continuity at the expected level	Failure to comply with legal regulations and standards, and decline in financial performance	Increased risk premium, loss of market and trust	Creating a Sustainability Management System and Business Continuity Plan, ESG Rating tracking		Medium

Short  Medium  Long 






### 4.1.1. Portfolio-Based Climate Risks Approach: Physical and Transition Risks

Table 10. Climate-Related Hazards

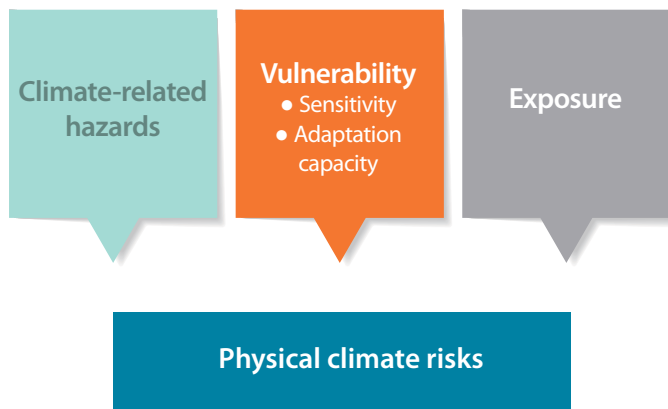
#### Physical Risks

Physical risks arise from the physical impacts of climate change on the organizations' assets, operations, workforce, supply chains and markets. Long-term climate change causes chronic risks, while extreme climate events lead to acute risks. Table 10 summarizes some of the climate-related hazards that can cause chronic and acute risks.

	 Temperature	 Wind	 Water
Long-Term Climate Change (Chronic)	Change in air and water	Change in wind pattern	Change in precipitation pattern Rising sea levels
Extreme Climate Events (Acute)	Hot and cold air waves Forest fires	Storms	Drought Heavy precipitation Floods

There are three determinants in the process of evaluating physical climate risks, namely climate-related hazards, exposure and vulnerability (Figure 4)

Figure 4. Determinants of Physical Climate Risks



Source: TSKB

Scientific studies indicate that climate change will have different consequences for each region and basin in Turkey. Physical climate risks are directly linked to the geographic location of the operation or asset, the raw materials and technology used, and the adaptation capacity. Therefore, it should be noted that institutions operating in the same sector will be exposed to different degrees of physical climate risks, and the most accurate assessment can be made at an individual asset level.



## Transition Risks

While climate events create physical risks by disrupting economic activities, the tendency towards a low-carbon economy reveals the transition risks.

In the scenario models for transition risks developed within the scope of TCFD recommendations, the main dynamics that may have effects at a sectoral level during the transition to a low-carbon economy are divided into three categories which are stated below<sup>12</sup>:

### Policy and regulatory risk

Changes in the regulatory framework could lead to an increase in the credit risks of institutions through practices such as carbon tax and tightening of energy efficiency standards.

### Technology risk

Disruptive technologies could result in changes in competitive dynamics in various industries, thereby increasing production costs and operating costs.

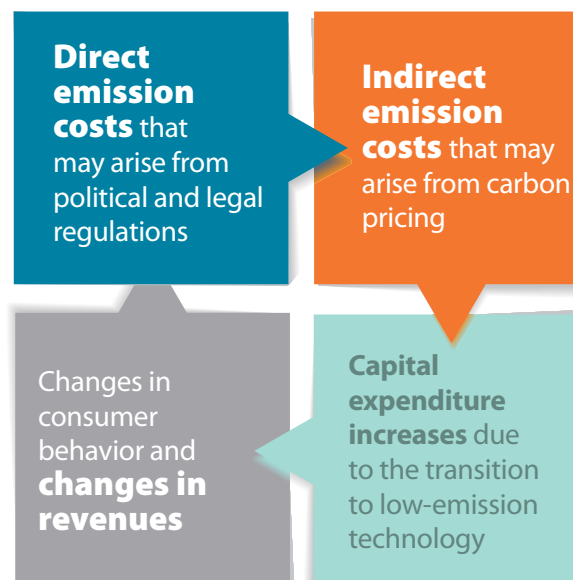
### Changing consumer preferences and market impact

The consumer trend towards products with a low-carbon footprint limits the income generation potential in various sectors, while causing a decline in the value of corporate assets.



Based on the aforementioned starting principles, four risk factors are forecasted at a sectoral and geographic level to cover the main drivers of financial risks. Four risk factors are detailed in the TCFD reports<sup>12</sup> as provided in Table 11.

**Table 11. Transition Risk Factors**



Each risk factor when considered individually may have separate effects on the respective cash flows of companies. In order to evaluate the probability of default for companies exposed to such risk factors, all four risk factors should be assessed simultaneously.

## 4.2.1. TSKB Heat Map

Considering the TCFD recommendations, a portfolio heat map was developed in order to monitor the climate risk vulnerability of the sectors in TSKB's portfolio. It aims to enable an initial assessment of the pressures on costs and incomes of sectors affected by climate change. The sub-sectoral breakdowns in the loan portfolio and their climate change vulnerability have been analyzed in terms of both physical and transition risks.

In terms of physical risks, the risk level defined for different sectors shows a general degree of vulnerability determined irrespective of the geographical location, the physical and technological characteristics of assets and operations. While rating physical risks, basic parameters such as the sectors' dependence on water, their vulnerability against extreme weather events and the need for raw materials were taken into account.

TSKB's heat map employs a 5-tier risk categorization (Table 12). The risk categories are classified as indicated in Table 13 in order to quantify the climate-related risks in terms of credit risk on a sectoral basis. A climate risk vulnerability assessment was performed by weighing TSKB's loan exposures in the subject sectors as well as the determined risk category.

<sup>12</sup> UNEP FI & Oliver Wyman, *Extending Our Horizons Report, 2018*  
 UNEP FI, *Beyond the Horizon, 2020*

**Table 12. TSKB Heat Map**

Sector and Subsector		Physical Risk	Transition Risks
Renewable Electricity Generation	WPP	High	Low
	SPP	Low	High
	GPP	Low	High
	BPP	Moderate	Moderate
	BES	Low	Low
Non-Renewable Electricity Generation		High	High
Electricity Power Distribution		High	Moderate
Natural Gas Distribution		Moderate	Low
Agriculture and Livestock		High	Moderate
Manufacturing Industry	Automotive	Moderate	High
	Textiles	Moderate	Moderate
	Iron & Steel	Moderate	High
	Cement	Moderate	High
	Petrochemistry	Moderate	High
	Chemistry	Moderate	High
	Packaging	Moderate	High
	Paper and Forestry Products	High	Moderate
	Food and Beverages	Moderate	Moderate
Service Sector	Health	Moderate	Low
	Training & Education	Low	No Impact
	Logistics	Moderate	Moderate
	Infrastructure (Port Management)	Moderate	Low
	Real Estate Development Commercial (Office, Shopping Mall)	Moderate	Low
	Tourism	Moderate	Low
Finance		Low	Low
Construction and Contracting		Moderate	Low
Retail		Low	Low
Telecommunications/Media/IT		Moderate	Low

An analysis of the heat map demonstrates the following:

■ **Concerning physical risks**, when climate change is evaluated in terms of water resources, it may have negative impacts on the agriculture sector as well as the energy and industry sectors where water is used extensively. Some industrial sectors such as fossil-based conventional electricity generation, hydroelectric power generation, and paper and forestry products are considered to be high risk. This is due to the critical importance of water in these sectors.

Some sectors are highly vulnerable to extreme climate events. The frequency and intensity of climate events such as floods and storms are expected to increase due to climate change, which may have major financial consequences for organizations and their operations. For instance, the electricity power distribution sector falls under that category.

■ **Concerning transition risks**, the non-renewable electricity generation, iron and steel, cement, automotive, chemistry-petrochemistry and packaging sectors are considered as high-risk sectors. As stated in relevant studies<sup>13</sup>, it is anticipated that direct and indirect costs will be incurred in the non-renewable electricity generation sector due to high emissions. Besides direct and indirect emission costs,

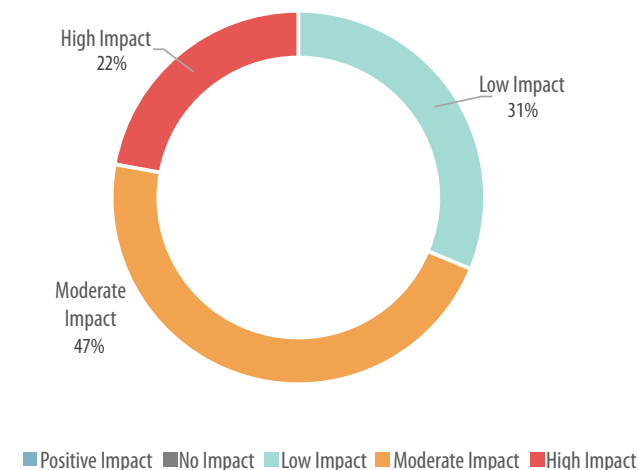
additional investment and operating costs are expected to occur. On the other hand, the heat map studies show that the future steps to combat against climate change will make a positive contribution to organizations and investors operating in the field of wind power and solar power.

**Table 13. Heat Map Risk Categorization**

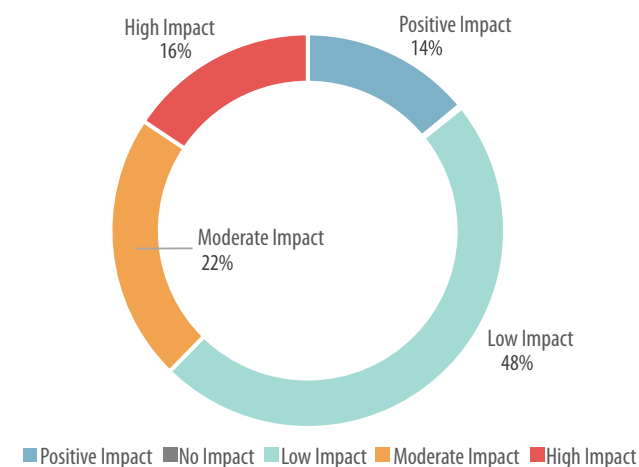
Positive Impact	Blue
No Impact	Grey
Low Impact	Light Green
Moderate Impact	Orange
High Impact	Red

The risk categorization of cash loan portfolio in terms of physical and transition risks by 2020 year-end is provided in Charts 2 and 3.

**Chart 2. Breakdown in terms of Physical Risks (2020)**








**Chart 3. Breakdown in terms of Transition Risks (2020)**









UNEP FI, Beyond the Horizon, 2020<sup>13</sup>

The sectors indicated as “high risk” in Chart 2 and Chart 3 and their share are detailed in Table 14 and Table 15.

**Table 14. Exposures in Sectors with High Physical Risks**

Sectors	Share (%)
 HPP	11.9
 Electrical Power Distribution	5.2
 Non-Renewable Electricity Generation	4.5
 Paper and Forestry Products	0.6
 Agriculture and Livestock	<0.1
<b>TOTAL</b>	<b>22.2</b>

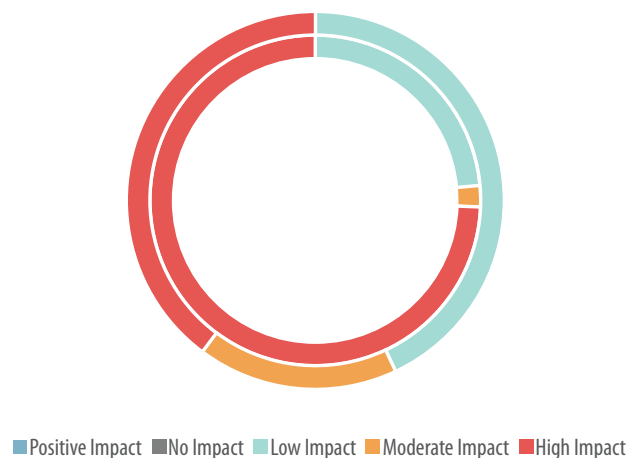
**Table 15. Exposures in Sectors with High Transition Risks**

Sectors Exposed to High Transition Risks	Pay (%)
 Non-Renewable Electricity Generation	4.5
 Iron & Steel	4.1
 Chemistry & Petrochemistry	3.5
 Automotive	1.5
 Cement	1.3
 Packaging	0.9
<b>TOTAL</b>	<b>15.8</b>

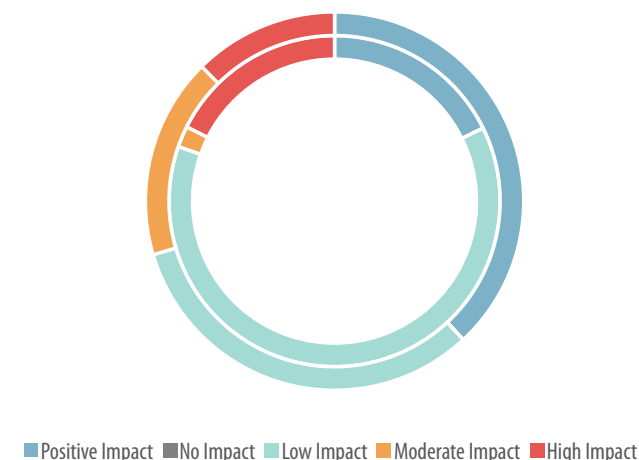
As of the end of 2020, the electricity generation sector has the largest share in TSKB's loan portfolio with 38%, while 88% of the Bank's energy portfolio consists of renewable energy projects. In TSKB's loan portfolio, the energy sector has maintained its weight over the years.

Although its power generation portfolio mostly consists of renewables, TSKB is aware of the climate risks that the energy generation sector may be exposed to in the medium run. Charts 4 and 5 demonstrate that the loans in the energy generation sector are monitored and managed in terms of physical and transition risks. In the upcoming period, these risks will be subject to mitigation in line with the "TSKB's Climate Change Mitigation and Adaptation Policy", which sets out TSKB's climate strategy and principles.

**Chart 4. Physical Risks in the Electricity Generation Sector (Inner 2014 – Outer 2020)**

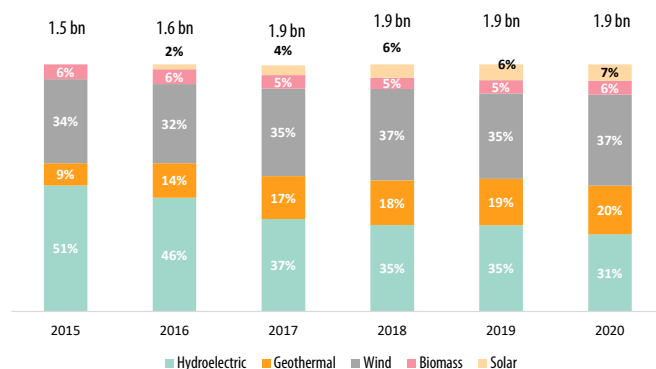


**Chart 5. Transition Risks in the Electricity Generation Sector (Inner 2014 - Outer 2020)**



When the progress of renewable energy projects which have the highest share in TSKB's total loan portfolio is considered over the years, it is observed that the share of hydroelectric power plants in the total renewable power generation portfolio has deliberately shrunk. TSKB regularly monitors the solvency of the companies in its HPP portfolio by analyzing different scenarios in terms of generation amount. In addition, considering that HPPs are vulnerable to climate change, a detailed evaluation was carried out to cover all basins for HPPs exposures. Information on the relevant study is provided under the heading 4.2.1. During the same period, the shares of WPPs and SPPs have increased resulting with a positive impact in terms of transition risks (Chart 6).

**Chart 6. TSKB's Renewable Energy Portfolio (bn USD)**



TSKB has so far financed numerous projects that have contributed to Turkey's sustainable development. The share of non-renewable electricity generation, which is considered to be a high-risk sector in terms of transition risks, is negligible within TSKB's loan portfolio. To note, TSKB declares that it will not finance greenfield coal-fired thermal power plant investments.

When the cement industry is analyzed as a representative sector for the manufacturing industry, the additional investment and operating costs as well as direct and indirect emission costs are expected to rise since the sector is a carbon-intensive industry that is considered exposed in terms of transition risks. While TSKB's risks regarding the cement industry are quite low, a specific case study for the cement industry was conducted to manage the risks that may arise (Section 4.2.2). The experience from this study has enabled TSKB to monitor developments in other key industry business lines with high carbon footprints. The Bank aims to improve the awareness of its stakeholders on climate change and climate risks.

### 4.1.3. Loan-Based Climate Risks Approach

#### ERET Model

**TSKB has designed the Environmental and Social Risk Evaluation Model (ERET) based on the standards of development finance institutions as well as the Equator Principles in order to measure the environmental and social risks of projects.**

Since 2007, ERET has been applied to all eligible investment projects within a sustainability approach that meets the environmental and social standards of development finance institutions. Following environmental and social evaluation and risk categorization by ERET, the environmental and social management plans that should be prepared by the company or the consultant are determined in order to minimize the potential negative effects of investment projects while maximizing their positive effects. The model is periodically reviewed and updated.

The ERET for current investments is answered by the ETA and consists of a total of 35 questions under 5 main headings. This model includes questions that enable the rating of electricity consumption, water consumption and greenhouse gas emission levels in order to measure the impact of projects on climate change during the loan evaluation process as well as their contribution and adaptation to combating climate change.

Furthermore, regarding the degree of exposure to climate-related risks, there are also questions related to determining the total environmental and social credit risk of the evaluated project or activity in terms of climate risks.

Expanding its environmental and social risk management approach in a way that includes working capital loans, TSKB has played a pioneering role in the sector and created ERET for working capital loans, the environmental and social risk measurement tool

for working capital loans, in 2020. During the loan monitoring process, TSKB is committed to using ERET for all working capital loans to monitor the environmental and social impacts and ESG performances of its customers that receive operating loans.

In order to measure the ESG performance and risks of companies, the existence of monitoring and reporting practices for greenhouse gas emissions under the legislation as well as that of the greenhouse gas management system (ISO 14064) and energy management system (ISO 50001) is questioned via ERET for working capital loans.

The result of project evaluation under ERET is integrated into the internal rating model of the Bank as a notching criterion. For detailed information on the ERET Model, please see the [TSKB 2020 Integrated Annual Report](#).

#### Climate Risks Assessment Tool

TSKB aims to address climate-related risks, so far being handled within the ERET Model, with a separate model in detail and to create loan-specific action plans by evaluations within the framework of physical and transition risks. Thereby, it aims both to prevent credit risk and also to enhance awareness and capacity development regarding clients. Similar to developing the ERET Model, the Bank decided to increase its capacity and expertise internally in engagement with its stakeholders while establishing a functional climate risk assessment tool.

TSKB started its relevant operations in 2021 and aims to start pilot practices for the Climate Risks Assessment Tool by 2022. By the end of 2023, the Bank plans to integrate the evaluation results into its internal rating model as it is the case with the ERET Model. The Heat Map as explained above in detail constitutes the basis for the assessment tool concerned.



## 4.2. Sectoral Analysis and Management of Risks

During the loan allocation stage, steps required to be able to monitor and manage risks that are determined methodologically as well as remedial action are recommended and included in the loan agreement. Likewise, risks identified by relevant teams are followed up on and reported to the Executive Committee. The ETA is responsible for the technical, environmental and social evaluation and monitoring of investment projects at TSKB and may propose practices that increase the capacity and performance of companies to combat and adapt to climate change during the loan monitoring period.

As part of the evaluation of TSKB portfolio in terms of climate risks, sectoral case studies were performed in order to effectively manage climate-related risks that may occur in two high-risk sectors. These studies are provided in Sections 4.2.1. and 4.2.2.

### 4.2.1. Sectoral Case Study: Hydroelectric Power Plants

Located in the Eastern Mediterranean Basin, Turkey is considered to be a high-risk country in terms of the negative effects that may be caused by climate change. Based on the outputs of various climate models operated using different greenhouse gas emission scenarios, increases in average air temperatures and decreases in precipitation are expected for most of the countries in the Eastern Mediterranean Basin, including Turkey.

When evaluated in terms of extreme weather events, more frequent, severe and prolonged droughts are

expected in Turkey. On top of this, the increase in the number of days with short-term but heavy downpours is expected to lead to a significant increase in the flooding of rivers.

HPPs are in the high risk group in terms of climate-related physical risks. To that end, TSKB prepared a comprehensive internal study called "The Effects of the 2020-2021 Drought on Hydroelectric Power Plants and the Climate Change Outlook for the Period 2030-2040" to make a general assessment of the negative effects of climate change in the medium term as for the Bank's loans portfolio. The study includes technical evaluations of extreme climate events, such as river floods, together with long-term climatic changes such as average temperature increases and changes in precipitation regimes, which are also closely related to HPPs and are caused by climate change. In preparing the study, the outputs of projects carried out by respective public institutions, the relevant databases<sup>14</sup>, the current studies published<sup>15</sup> by industry stakeholders and an open-to-share international practice on climate change (WRI Aqueduct<sup>16</sup>) were used.

TSKB's reference studies include data generated by using three different climate models (HadGEM2-ES, MPI-ESM-MR and CNRM-CM5.1) based on optimistic-realistic scenario (RCP4.5) and worst-case scenario (RCP8.5) for the period 2015-2040. Using these data, the percentage changes that can be resulted in the gross water potential in all basins in Turkey and the potential effects of these changes on power generation at HPPs were evaluated in detail.



HPP projects have a share of 11.9% in the Bank's total loan portfolio and 99% of these projects are operational on an installed power basis. The outputs of the study and the roadmap are summarized below:

- Due to the expected decline in gross water potentials in the medium term, the HPPs in the Fırat-Dicle, Eastern Black Sea and Kızılırmak basins will be monitored closely. These basins will be detailed in the energy portfolio monitoring studies to be carried out by TSKB in the coming period.
- Excessive precipitation is a major extreme weather event that can adversely affect HPP operations as the river floods they cause pose a risk to dam safety. When the current river flood risk map obtained from Aqueduct for Turkey is examined, it is seen that HPPs which are located in the Black Sea Region in the TSKB's loan portfolio are exposed to a higher flood risk (Figure 5). In its energy portfolio monitoring studies, TSKB will continue to conduct comprehensive evaluations regarding the measures taken against river flood and landslide risks, particularly at HPPs located in the Black Sea Region.

**Figure 5. Flood Risk Map for Turkey and HPPs' Exposure**



<sup>14</sup> [İklimSu Project \(Project on the Impact of Climate Change on Water Resources\)](#)

<sup>15</sup> [Water Policy Association](#)

<sup>16</sup> [WRI Aqueduct](#)

## 4.2.2. Sectoral Case Study: Cement Industry

TSKB is aware that sectors with high energy intensity present a greater potential of being affected by climate-related risks. Therefore, the Bank takes the necessary steps to evaluate risks in its portfolio. The cement sector is differentiated in terms of climate-related risks due to both its high energy need and direct greenhouse gas emissions resulting from chemical reactions during the production process. Cement is a building material with no alternatives and has an inelastic demand curve. It is predicted that the use of cement will not decrease in the coming years, but will rather continue to increase, particularly in developing countries.

The cement sector falls within the implementation scope of the Regulation on Tracking of Greenhouse Gas Emissions in effect. Greenhouse gas emissions from cement plants are calculated, are validated by accredited organizations every year and are reported to the Ministry of Environment and Urbanization as required by the legislation. In addition to carbon pricing practices, transition risks from legislative changes, especially the National Climate Law and the Emissions Trading System, which are under development in Turkey, will become important for energy and carbon-intensive sectors.

The Turkish cement industry is in a leading position in terms of capacity and production levels in Europe and the Mediterranean regions. As of 2020, the sector ranks sixth globally in production capacity and second in exports. Although the recent increase in carbon prices in Europe has presented an opportunity for cement producers in Turkey, it is expected that the sector will be affected by the carbon border adjustment mechanism, which made its way into the agenda with the European Green Deal.

The main cost item in the cement production process is energy consumption-based expenditures, in which fossil fuel plays a major role. Potential restrictions and

regulatory practices related to fossil fuels may cause cement companies to turn to alternative fuel sources. The alternative fuel displacement ratio in Turkey is particularly low compared to those of the European facilities. Uncertainties in local industry regarding access to alternative fuel sources such as waste-derived fuels affect the potential of cement companies to change for alternative fuels.

In the process of evaluating and managing climate-related risks and opportunities, TSKB conducted a case study for a cement company. The facility of the company in question was established as a wet process and later converted into a semi-wet process. It has been rebuilt with a dry process-based system, which is the most energy efficient technology, thanks to the capital investment that included a loan obtained from TSKB. The company has been evaluated according to the climate risks and opportunities as well as its ability to manage such risks and opportunities. To that end, the company was evaluated in terms of the TCFD recommendations, and its climate governance, low-carbon transition strategy, risk management and specific climate metrics were addressed. It was rated as a "medium" risk company in terms of physical risks and a "high" risk company regarding transition risks.



The outputs of the study and the roadmap are summarized below:

- TSKB will continue to closely monitor policy and legislative changes in both Turkey and the EU. TSKB will maintain close communication with relevant sectoral organizations, associations and NGOs on how the EU Green Deal will affect Turkey's exporting sectors including cement.
- In terms of physical risks, TSKB will continue to examine the effects of different climate scenarios (RCP4.5 and RCP8.5) on water stress in Turkey as well as flood risk maps.
- TSKB will support cement producers to increase alternative fuel usage rates and to reduce clinker usage rates in cement production via alternative raw materials.
- Developments related to carbon capture and storage technologies will be followed closely.
- TSKB will also keep supporting private sector investments in combating and adapting to climate change using various credit lines

In the coming period, evaluation studies for sectors with high climate-related risks exposure will continue to be developed.



# Metrics and Targets

- 5
- 5.1. Metrics and Targets of Direct Impacts
  - 5.2. Metrics and Targets of Indirect Impacts

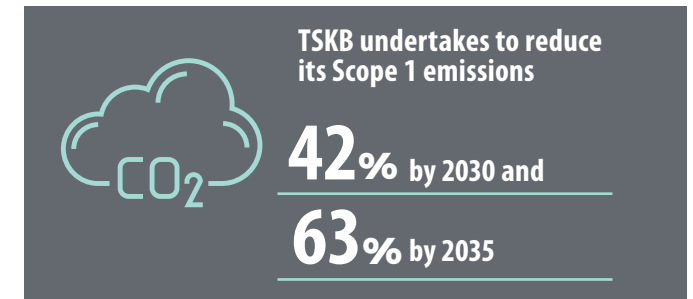
## 5.1. Metrics and Targets of Direct Impacts

TSKB launched its zero carbon banking practices in 2008 as part of its pioneering identity in the field of sustainability in Turkey and its responsibility to raise awareness. To that end, TSKB's greenhouse gas emissions from operational activities are calculated annually in accordance with the ISO 14064-1 Greenhouse Gas Accounting and Verification Standard and verified by independent audit firms. The Bank's total greenhouse gas emissions are offset by loans obtained from voluntary carbon markets. TSKB neutralized its greenhouse gas emissions (Scope 1 and Scope 3) in 2020 with carbon credits obtained from a wind power plant that has Gold Standard certification.

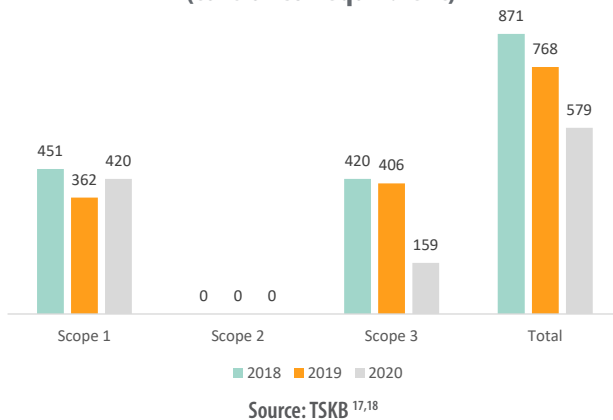
TSKB has been purchasing renewable energy from IREC-certified power plants since 2009 and thus offsetting its Scope 2 emissions. Chart 7 presents the development of greenhouse gas emissions from TSKB's operations over the last three years.

The direct impacts from TSKB's operational activities (electricity consumption, natural gas consumption, water consumption, paper consumption and the amount of glass, plastic, and paper waste) have been subjected to a limited assurance process by an independent audit firm. TSKB's 2020 Limited Assurance Reporting Guide and calculation methodologies for direct criteria can be found in the [2020 Integrated Report](#).

**TSKB has set its science-based reduction targets for GHG from its operational activities by taking the year 2020 as the reference. These targets comply with the goal of the Paris Agreement to limit the rise in temperature to 1.5 °C.**



**Chart 7. Greenhouse Gas Emissions by Scope (tons of CO<sub>2</sub> equivalent)**



### Science-Based Greenhouse Gas Mitigation Targets

TSKB became a signatory of the Science-Based Targets Initiative (SBTi) in 2015 in order to be a pioneering institution and increase its awareness in combating the climate crisis. The initiative houses organizations aiming to reduce greenhouse gas emissions (GHG) by considering science-based climate scenarios. As a member of the initiative, TSKB has set GHG reduction targets for direct emissions from its operations.

**Since 2009, TSKB has been offsetting its Scope 2 emissions by exclusively using renewable energy and will maintain this practice.**

**TSKB calculates Scope 3 emissions from purchased goods and services, personnel transportation, business travels and waste generation, as it calculates Scope 1 and 2 and include them in the verification process and works on mitigation scenarios.**

<sup>17</sup> Since TSKB uses renewable energy in its service buildings, Scope 2 greenhouse gas emissions are indicated as zero (0).  
<sup>18</sup> Scope-1 (Direct Emissions): These are emissions from greenhouse gas emission sources owned and directly controlled by the Bank. Greenhouse gas emissions from natural gas consumption, company vehicles, generators, cooling groups, ventilation and fire-fighting systems constitute examples for the Bank's Scope 1 emissions.

Scope 2 (Indirect Energy Emissions): These are emissions from the electricity purchased by the Bank.  
Scope 3 (Other Indirect Emissions / Value Chain Emissions): These are greenhouse gas emissions arising from the services provided by the Bank or from outsourced services (other than electricity) and emanating from assets and activities that the Bank cannot directly control.



## 5.2. Metrics and Targets of Indirect Impacts

TSKB is committed to measuring and managing the impacts of products and services as part of its strategies to combat and adapt to climate change.

It contributes significantly to the transition to a low-carbon economy through the renewable energy, energy and resource efficiency, and environment focused loans. The Bank started financing renewable

energy projects in the early 2000s within the scope of efforts to finance combating and adapting to climate change and added energy and resource efficiency projects to its range of loan themes in the 2010s. TSKB directly supports 7 SDGs, including the financing of combating and adapting to climate change. In this context, climate change performance indicators are followed meticulously.

Performance indicators used by TSKB to measure and monitor the impact of the financed projects on climate change mitigation performance are presented in Table 16, which covers the last three years.



**Table 16. Key Performance Indicators for Combating and Adapting to Climate Change**

KPI	2018	2019	2020
Renewable Energy Projects Funded (Number)	279	294	330
Total Installed Capacity of Renewable Energy Projects Funded (MW)	5,261	6,069	6,594
TSKB's Share in Turkey's Renewable Energy in Terms of Installed Capacity (%)	14%	14%	13%
Contribution to the Reduction of CO2 Emissions (tons of CO <sub>2</sub> e/year)	9.7 million	11.2 million	12.2 million
Share of Electricity Generation in Loan Portfolio (%)	34%	36%	38%
Share of Renewable Energy in Electricity Generation Portfolio (%)	84%	85%	88%
Share of Non-Renewable Energy in Loan Portfolio <sup>19</sup> (%)	6.0%	5.4%	4.5%
Share of Sustainability-Themed Loans <sup>20</sup> (%)	73%	74%	74%

<sup>19</sup> The coal-fired thermal power plants has a 3.6% share in the total portfolio as of December 31, 2020.

<sup>20</sup> The share of sustainability-themed loans in the total loan portfolio is 74%, and the total shares of Renewable Energy, Energy Efficiency, Resource Efficiency and Environment-focused loans are 49%, 50% and 53% for 2018, 2019 and 2020 respectively.



# TSKB's Indirect Goals Under the Bank's Sustainability and Climate Strategies



Within the scope of its commitment to support SDGs as put forth in the United Nations Global Compact signed in 2010,

TSKB aims to provide **USD 8 billion of SDG-linked financing** between 2021 and 2030.

To that end, the Bank aims to provide **SDG-linked funds worth USD 3.5 billion and above** between 2021 and 2025.

## Within the framework of the Bank's 2021-2025 road map:



TSKB intends to keep the ratio of SDG-linked loans in the total portfolio at the level of

**90%**

and above 2021 and 2025<sup>21</sup>



The Bank aims<sup>21</sup> the ratio of loans contributing to climate and environment-focused SDGs within the total loan portfolio to be at the level of

**60%**



TSKB intends to limit the share of power plants generating electricity from non-renewable sources within the Bank's entire loan portfolio to **5%**

## Targets linked to the transition to a low-carbon economy:



Within the scope of combating climate change, TSKB declares that it will not finance green-field coal-fired thermal power plants and coal mining investments for electricity generation purposes.



TSKB will continue to work on developing methodologies and criteria in order to effectively monitor the greenhouse gas emissions of companies operating in carbon-intensive sectors in its loan portfolio. It aims to share its Science-Based targets for the relevant carbon-intensive sectors, taking into account the contemporary guidance frameworks for Scope 3 emissions.



Key performance indicators developed for the banking sector such as the "Green Asset Ratio"<sup>22</sup>, a recommendation published by the European Banking Authority in March 2021, will be closely monitored and necessary actions will be taken in terms of risks and opportunities.



In between 2021 and 2023, the integration of climate risks during loan evaluation, internal rating stage, loan allocation and monitoring processes will be finalized.

<sup>21</sup> Based on TSKB's SDG Mapping study

<sup>22</sup> It is a key performance indicator aiming to measure the ratio of "climate-friendly", i.e. "green" assets (as loans, securities, advances, etc.) against the total assets of banks.



# Conclusion and Forward-Looking Steps

6

• Conclusion and Forward-Looking Steps

## 6. Conclusion and Forward-Looking Steps

As we are in the decade of action, finance industry is even more required to extend its transformative capacity to deliver sustainable and inclusive development, where the most urgent need is to combat with climate change. In doing so, the finance industry is obliged with identifying climate related risks and opportunities, integrating the respective models in its work processes and embodying the direct and indirect effects of its activities raised due to climate change.

In alignment with its development banking mission since its foundation, TSKB positions sustainability factors at the core of its strategy. While delivering its sustainable and inclusive development banking mission, TSKB shall continue to create value through utilizing each capital element in cooperation with all its national and international stakeholders.

The first report submitted on the basis of recommendations by TCFD has enabled TSKB to take the Bank's climate change oriented perspective one step further. In proceeding with mission and commitments, TSKB shall continue disclosing its targets and respective key performance indicators transparently.



## Abbreviations

2DII	2° Investing Initiative	FSB	Financial Stability Board	SMS	Sustainability Management System
BIST	Borsa Istanbul	GHG	Greenhouse Gas	SPP	Solar Power Plant
BPP	Biomass/Biogas Power Plant	GPP	Geothermal Power Plant	TCFD	Task Force on Climate-related Financial Disclosures
CBRT	Central Bank of the Republic of Turkey	GRI	Reporting Initiative	TSKB	Industrial Development Bank of Turkey
CDP	Carbon Disclosure Project	HQ	Head Quarters	UNEP FI	United Nations Environment Programme - Finance Initiative
CEEMEA	Central and Eastern Europe, the Middle East and Africa	HPP	Hydroelectric Power Plant	USA	United States of America
CMB	Capital Markets Board	IEA	International Energy Agency	WPP	Wind Power Plant
DFI	Development Finance Institutions	INDC	Intended Nationally Determined Contribution	WRI	World Resources Institute
EBA	European Banking Authority	IPCC	Intergovernmental Panel on Climate Change		
EMS	Environmental Management System	IREC	International Green Energy Certificate		
ERET	Environmental and Social Risk Evaluation Tool	MCP	Market Clearing Price		
ESG	Environmental, Social and Governance	PACTA	Paris Agreement Capital Transition Assessment		
ETA	Engineering and Technical Advisory Department	RCP	Representative Concentration Pathway		
EU	European Union	SBTi	Science Based Targets Initiative		
EWG	Energy Working Group	SDG	Sustainable Development Goals		

## Disclaimer

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This report has been prepared by TSKB Sustainability Committee Climate Risks Working Group  
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