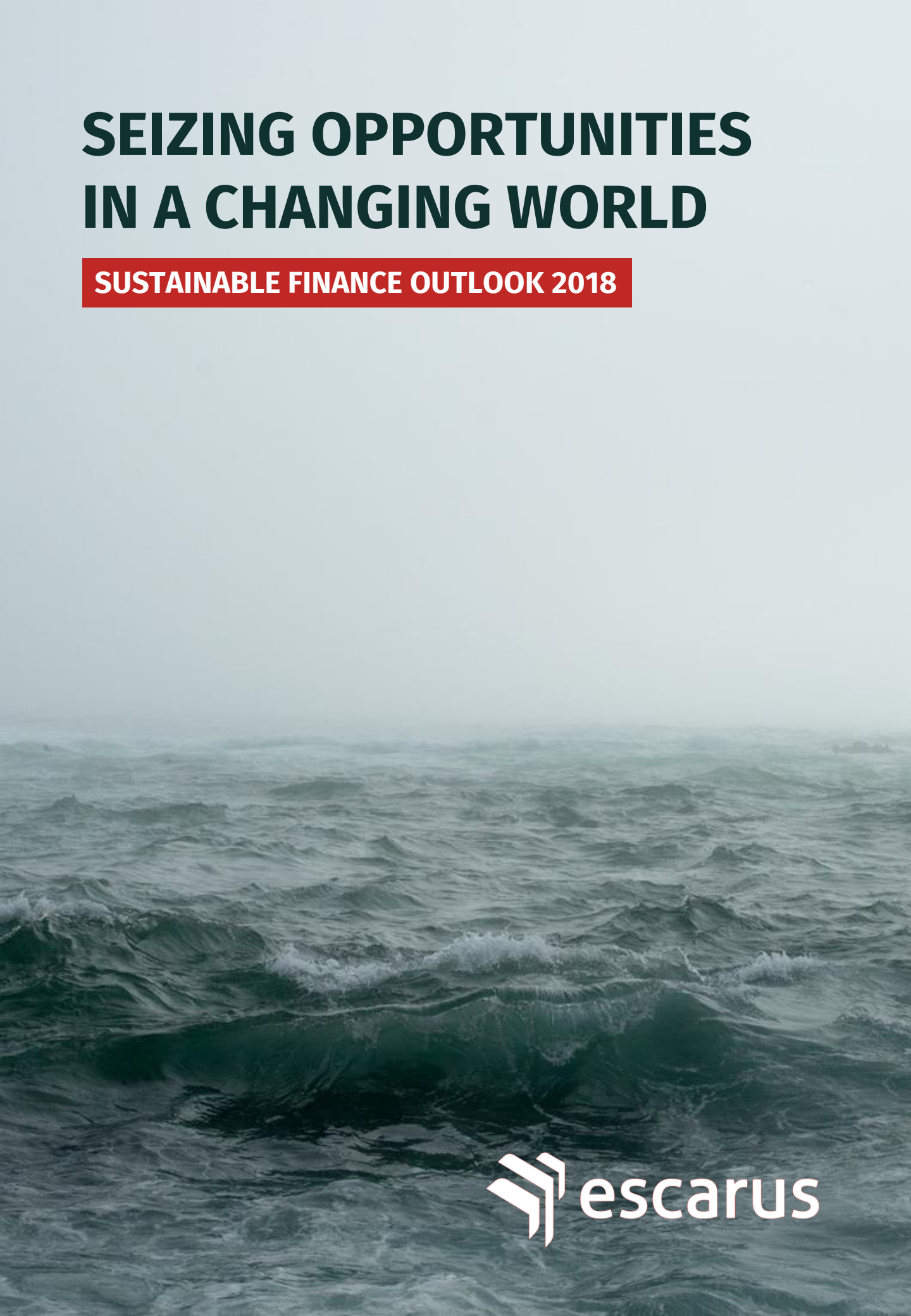
# SEIZING OPPORTUNITIES IN A CHANGING WORLD

## SUSTAINABLE FINANCE OUTLOOK 2018



escarus

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# ABBREVIATIONS:

| | |
|---|---|
| **ACMF** | ASEAN Capital Markets Forum |
| **ASEAN** | The Association of Southeast Asian Nations |
| **BCSD Turkey** | Business Council for Sustainable Development Turkey |
| **CDP** | Carbon Disclosure Project |
| **CIF** | Climate Investment Funds |
| **CoI GFI** | City of London Green Finance Initiative |
| **CSEF** | Commercializing Sustainable Energy Finance Program |
| **CSFB GFC** | China Society for Finance and Banking Green Finance Committee |
| **CTCN** | Climate Technology Center and Network |
| **CTF** | Clean Technology Fund |
| **EIB** | European Investment Bank |
| **ESG** | Environmental, Social, Governance |
| **EU** | European Union |
| **FSB** | Financial Stability Board |
| **GBP** | Green Bond Principles |
| **GCF** | Green Climate Fund |
| **GEF** | Global Environment Facility |
| **GEMS** | Hawaii Green Energy Market Securitization Program |
| **GeoDELF** | Geothermal Development Lending Facility |
| **HLEG** | European Commission High-Level Expert Group on Sustainable Finance |
| **ICMA** | International Capital Market Association |
| **IEA** | International Energy Agency |
| **IFC** | International Finance Corporation |
| **IIGCC** | The Institutional Investors Group on Climate Change |
| **LDCF** | Least Developed Countries Fund |
| **LGX** | Luxembourg Green Exchange |
| **MTOE** | Million Tons of Oil Equivalent |
| **NDRC** | The National Development and Reform Commission of the People's Republic of China |
| **NPV** | Net Present Value |
| **PES** | Payments for Ecosystem Services |
| **PPCR** | Pilot Program for Climate Resilience |
| **PRI** | UN Principles for Responsible Investment |
| **PV** | Photovoltaic |
| **SDG** | Sustainable Development Goals |
| **SEBI** | Securities and Stock Markets Commission |
| **SME** | Small and Medium Sized Enterprises |
| **SRI** | Socially Responsible Investment |
| **TCFD** | Task Force on Climate-related Financial Disclosures |
| **$tCO_2e$** | Ton of Carbon Dioxide Equivalent |
| **TEC** | UNFCCC Technology Executive Committee |
| **TuREEFF** | Turkish Residential Energy Efficiency Financing Facility |
| **TurSEFF** | Turkey Sustainable Energy Finance Facility |
| **UNEPFI** | United Nations Environment Program Finance Initiative |
| **UNFCCC** | United Nations Framework Convention on Climate Change |
| **USA** | United States of America |
| **WEF** | World Economic Forum |

# CONTENTS:

# WHY SUSTAINABLE FINANCE OUTLOOK?

Dear Readers,

Türkiye Sınai Kalkınma Bankası (TSKB), which is one of the significant building stones in Turkey's development banking, is an institution that made sustainability in Turkey a mission. Our Bank places sustainability at the heart of its business model, thus maintaining its leadership in the field. The support we provide for Turkey's sustainable development is also supported through our affiliates.

TSKB Sürdürülebilirlik Danışmanlığı - Escarus is a TSKB subsidiary that aims to develop sustainability solutions with its experienced and professional staff to deliver consultancy services and integrate internationally recognized environmental and sustainable approaches into the Turkish business world. Escarus continues its thematic research and reporting in order to offer added value and create a difference, as stated in its mission. We are glad to have published *Sustainable Finance Outlook* this year, for the first time, as a new fruit of these works.

Sustainable finance has become an approach whose importance is being more and more understood lately and which is visible gradually more both in Turkey and international markets. To this end, we decided to publish a series of analysis where we will periodically share the developments in sustainable finance, prominent matters and the examples of best practices.

We are planning to publish Sustainable Finance Outlook, first of which was published this year, annually in the future.

In order to scrutinize last year's prominent issues in sustainable finance, we determined the focal point of this year's report as green and social bonds. Green and social bonds are seen as financial tools that are appetizing and contain new opportunities for the issuer and investors in both developed and developing markets.

In light of this, the number of green and social bond issuances increase and even the issuances of sustainability bonds that have the characteristics of green and social bonds pick up speed. In addition, we anticipate that new movements in the sustainable finance world such as climate-related financial disclosures and climate adaptation funds will shape sustainable finance in the future and change it in a way that is stronger and more inclusive. For this, we share our suggestions for the future actions for all market stakeholders in the conclusion chapter.

We would like to thank TSKB Economic Research, Financial Institutions and Corporate Communication departments for their support and contribution during the preparation of the report.

Kindest Regards.

*«The green bond market has followed an upward trend in growth since the first issuance in 2007. The issuance amount is expected to reach USD 250-300 billion by the end of 2018.»*

# EXECUTIVE SUMMARY

## «Sustainable and green finance bring in new opportunities. How can we make the best of it?»

Sustainability and green finance terms date way back to 18th century. As the impact of destruction caused by environmental accidents since the 1980s on the people and economy became more and more prominent, the issue of sustainability gained weight and green finance started to pick up pace and evolve.

The need for a new infrastructure to protect the environment, mitigate the impacts of climate change and, in short, build a sustainable life also gives rise to a need for financing of these projects. To this end, financing sustainability and green is first and foremost seen as a public responsibility. However today, the matter found a place in the agenda of private sector as well through international documents that underline the common responsibilities of different stakeholders in public, namely the Sustainable Development Goals (SDG) and Paris Agreement, and the finance world as well as the companies started to use developments and opportunities in the field.

As sustainable life styles become a need, the necessity for finance comes with it to establish the infrastructure to make it happen. This notion called financing sustainability differs from conventional finance approaches due to the need for technical expertise in the fields it finances.

What makes financing sustainability different and special is that it introduces new perspectives. At the outset, it should be underlined that every kind of social responsibility this matter bears is actually a new business opportunity for the institutions thanks to its added value. The demand pressure on the natural resources is not sustainable and causes destruction. Increasing consumption, rising demands directly proportionate to the growing population and depleted resources that cannot meet this consumption demand all evolve production concept towards efficiency and sustainability. Sustainable finance creates different opportunities for institutions that are aware of the matter, adopt new approaches and have the pioneering role in order to benefit from the opportunities.

Through this new approach, sustainable finance concept also enables these institutions create new business strategy and a venue. With this in mind, it is seen that benefiting from economic opportunities to the maximum does not conflict with the goal of financing sustainable development. On the contrary, achieving both of these goals instead of choosing between the two would be the option creating the highest added value for all the actors in the economy and the public. Effective risk management is another prominent reason.

Risks related to environmental change and sustainability significantly climbed up on the global agenda. Behind the change in global risk perception of economy and finance world, there are concrete events and economic losses cementing this perception. This makes effective risk notice and management mentality indispensable in terms of mitigating risks and seizing opportunities, regardless of location or economy. In financing of sustainability and green economy, this brand new approach became the valid guide. In short, there is a need for balance considering both the public needs and the economic growth and production demands.

Issues such as increasing population and exponentially growing consumption, decreasing resources that are insufficient and limited as well as energy security, access to energy and energy related emissions indicate that the relation between supply and demand should be balanced on a sustainable level in the long term, without hindering economic growth or production. In order to establish this balance, new ways of doing business and efficient practices should become the dominant trend.

Although the impact area of sustainable finance is quickly expanding, the development rate of definitions and standardization of taxonomies do not catch up. Today, the definitions that define sustainable and green finance concepts differ from institution to institution, even from location to location. For instance, a framework action plan for sustainable finance was established in Europe thanks to the European Union's attempts, while endeavors in Asia has a specialized structure both within the scope of country and region union and individual matters such as green bond. In parallel to this approach, the sustainable finance products are also diversified and detailed in the same manner.

***«Green bond market has followed an upward trend in growth since the first issuance in 2007. The issuance amount, which was USD 15.4 billion in 2013, is expected to reach USD 250-300 billion by the end of 2018.»***

These products have a wide range from conditional loans improving based on the sustainability performance of an institution to sustainable development goals bond. The improvement and diversification of the products in this field based on demands, needs and local dynamics will help further adoption of sustainable finance world in new markets.

In addition to products and instruments, national and international standards shaping sustainable finance practices are developed while incentive mechanisms on financial and policy basis are designed. Supporting the developed products with legislation such as standards and/or incentive mechanisms contribute the establishment of a long-termed structure with a resilient foundation. All these suggest that the role of financing is assumed to be "mobilizer" and "enabler" in transition to sustainable and green economy. The incentive power of green and sustainable finance mechanisms as well as its encouraging role for new investments and the technical capacity increase and cost lowering effect in time in the developing economies act as a double-sided lever.

This year's report in sustainable finance outlook planned to be published annually focuses on green and sustainable bonds among the sustainable finance instruments. Green/sustainable bonds, which are sustainable investment approaches on the global agenda and global interest as they are in Turkey, are borrowing instruments where the revenue from the bonds are used to finance or re-finance the projects with environmental or social positive impacts. Green bond market has followed an upward trend in growth since the first issuance in 2007. Issuance amount of USD 15.4 billion in 2013 reached USD 157 billion in 2017. Estimations foresee that the issuance will reach USD 250 to 300 billion by the end of 2018.

Social bonds, which started to emerge after green bond issuances, are used to finance projects focusing on social impact. Social contribution of green projects can be limited. However, projects that cannot be strictly defined as green but have significant social impact on the society, such as infrastructure investments, can create social impact and contribute to the mitigation of environmental impacts.

Matters such as establishing income equality among all parts of the society and empowering women are consequently areas of investment that are needed for the development of societies. Financing provided for SMEs and local establishments as well as microfinance fields become prominent when the current issuance fields for social bonds, emerged for this need, are examined. They are followed by projects for increasing employment and social housing projects. Practices for gender equality such as empowering female business owners and projects for accessing basic services such as education and health also fall under the fields supported through social bonds.

Although the examples of sustainable bonds, bonds that aim to support both environmental and social impact, are seen less frequently than green and social bonds around the globe, they quickly develop in international markets. When use of proceeds of the sustainable bonds issued is analysed today; renewable energy, clean transportation, mitigating emissions as well as energy and resource efficiency become prominent under the topic of environment, while increasing social inclusion, improving infrastructure services and access to basic services show as distinct issuance themes within the scope of social/economic field.

It is thought that works towards green/sustainable funds will also diversify in the future as their impacts on the society and development is understood more clearly. For instance, it is understood that bonds directly impact the SDGs and therefore the institutions, primarily international banks, started to issue SDG bonds, the bond frameworks of which were drawn up based on certain SDGs and targets. As the importance of this issue surfaced, global interest increased and even a guideline for mapping green/sustainable bond frameworks with the SDGs was published in June, 2018.

Green and social bonds are considered as a new and alternative business strategy for investors. Therefore, green/social bonds offer investors both a chance to fulfill their commitments and a new investment area within the scope of responsible investment. In parallel with this trend by investors, stock exchanges and companies providing investment services started to establish green bond indices where green bonds are offered as an investment product. When the period to this date is examined, it can be seen that certain themes in terms of financing sustainability and green economy that used to be neglected until now has begun to attract attention under today's conditions. To this end, examining past and current developments indicate that certain themes in sustainable finance are foreseen to be prominent in the future. Among these themes are:

- Climate change adaptation,
- Increasing resilience in cities against disasters and changes caused by climate,
- Ensuring and improving the continuity of ecosystem services,
- Innovation, entrepreneurship and technological development initiatives.

In conclusion, when all developments and prominent matters stated in the report are considered, new areas of responsibility are arising for the actors in economy. Different suggestions can be applied for different actors in line with these responsibilities. Utilizing new opportunities coming to existence with financing of sustainability and green economy, and effectively managing the new risks depend on the new roles of all stakeholders, their cooperation and working through new structures. The most significant opportunity created for an institution by sustainable finance is developing innovative products and services in line with this approach. While using the opportunities in this field, it will be important for the company to design a product development model that is innovative and sustainable.

This new finance approach which can be characterized as the new winds of the economic growth in the context of welfare increase, sustainable development and development of society across the globe, offers the chance of new economic opportunities to countries that especially conduct assessment actively based on this approach, develop products and processes and strive for being the pioneer.

To this end, sustainable and green finance can also offer opportunities to Turkey. In order to make use of these opportunities with maximum potential, it is seen beneficial that the future road map should be created in line with the international developments and considering the following:

## ROAD MAP

Establishing a road map for the finance of sustainability and green economy will be important for enabling sector players to adapt the matter and to be encouraged.

## RESILIENCE AND COMPLIANCE

Establishing sectoral risk assessments and resilience plans in line with the climate change adaptation plan will enable sustainable finance products to be structured based on these risks and needs.

## DATA AND TRANSPARENCY

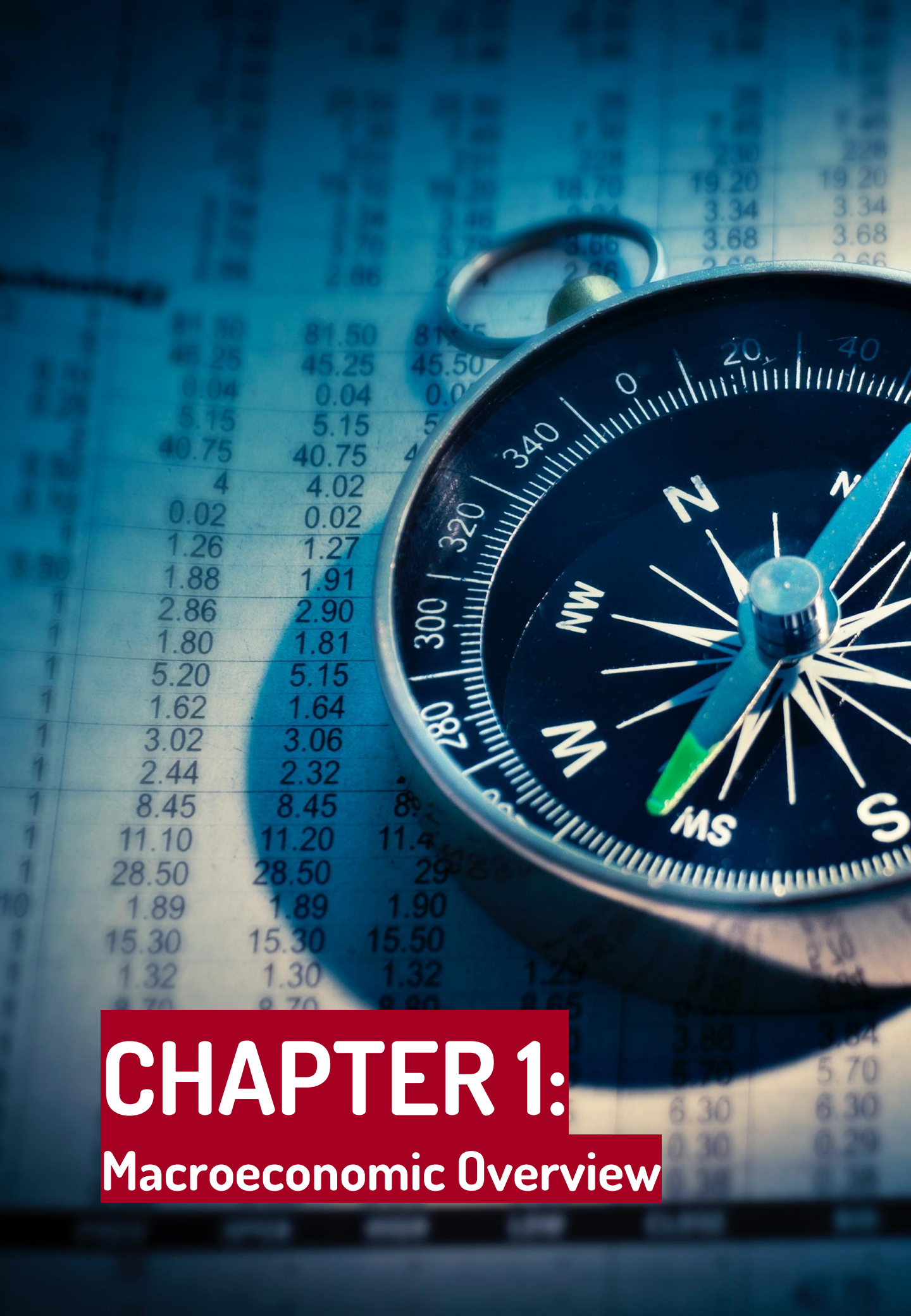
Reporting and monitoring the contribution of finance institutions to the development agenda will play a meaningful role in making the created added value visible.

## NON-FINANCIAL RISKS

Implementing the non-financial risks such as climate change, environmental and social risks into risk assessments and impact reporting will ensure more concrete mapping of threats and opportunities in this field and make it easier to develop products and services for these.

## LEGAL INFRASTRUCTURE AND LEGISLATION

It would be beneficial if the legislation and incentive work for diversifying sustainable finance products is designed considering the country's dynamics, needs and priority sectors.



# CHAPTER 1:
## Macroeconomic Overview

# 1. Macroeconomic Overview

## «We Attach Great Importance to Sustainable Growth.»

The economy of Turkey has achieved an average annual growth rate of 6.8% in the period following the Great Recession despite insufficient savings and structural problems thanks to the funding possibilities brought on by global capital inflow. Various questions come to mind regarding both the sustainability and comprehensiveness of an economic activity of such power right after the impressive performance recorded. According to the estimates of TSKB, the potential economic growth, which we think decreased below 5% due to reasons some of which we will mention here, may decrease even further in the near future if the necessary measures are not taken (**Figure 1**). In this framework, the country needs investments that would help efficiency increase and improvement of human capital quality.

After the first signals of global liquidity possibilities decreasing in 2013, we see that the GDP per capita in Turkey has decreased on USD basis, and the rate of unemployment increasing during times where the incentives towards the labor market are withdrawn.

As an emerging market economy, Turkey exhibits a structural dichotomy, as a "mid-high income Turkey" that is trying to accumulate wealth and a "low income Turkey" in the poverty trap. This dichotomy often results in regional inequalities.

As a result of the costs of production borne by the corporate tax and regulations of the high-income Turkey carrying onto the low-income Turkey, an unsustainable growth path emerges where irregular urbanization and poverty and unofficial activities are constantly repeated. In this context, Turkey stepping out of the poverty trap depends on the creation of sustainable economy policies.[1] On the other hand, the post Great Recession Era has been marked by low inflation around the world, whereas Turkey has diverged negatively from its peers with its high and volatile rates of inflation. While the lowest income segment of the society pay most dearly for high inflation, the effective transfer of savings to investments is disrupted and the appetite for investment is also affected. Growth rate is restricted as a result.

For taking steps towards the solution of a structural problem such as income inequality, it is important to encourage policies that support women's participation in the workforce and creating funding in this regard. As can be seen in **Figure 2**, women's participation in the workforce exhibits a faster increase compared to that of men.

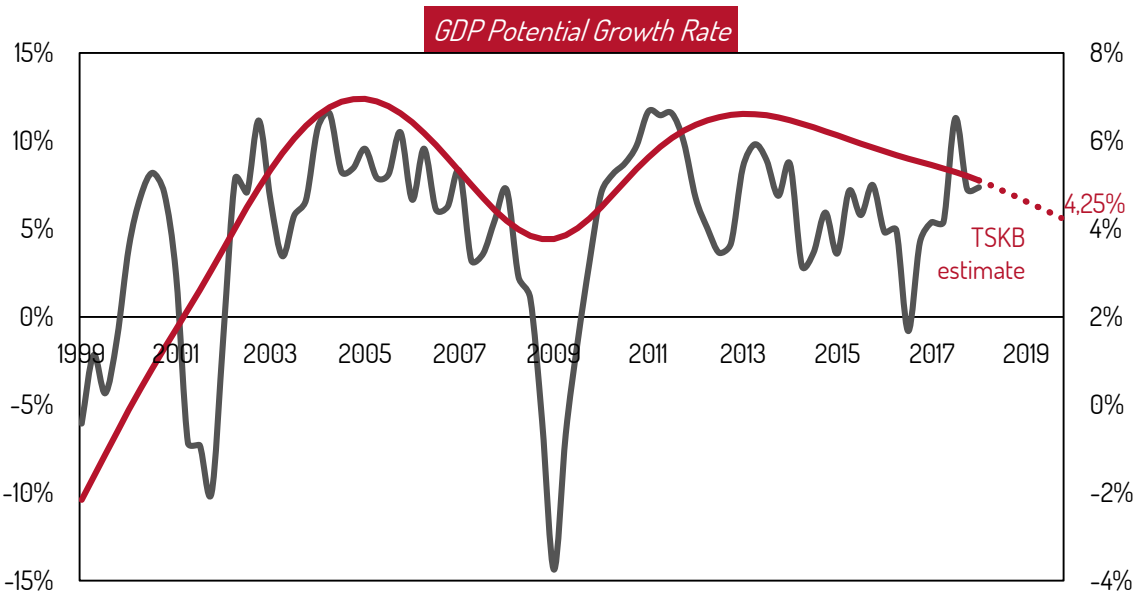



***Figure 1.*** *GDP potential growth rate (Source: TurkStat, TSKB Economic Research)*

[1] Acar, S., Voyvoda, E. & Yeldan, E. (2018). *Macroeconomics of Climate Change in a Dualistic Economy: A Regional General Equilibrium Analysis.* Academic Press. doi: https://doi.org/10.1016/C2016-0-04839-8

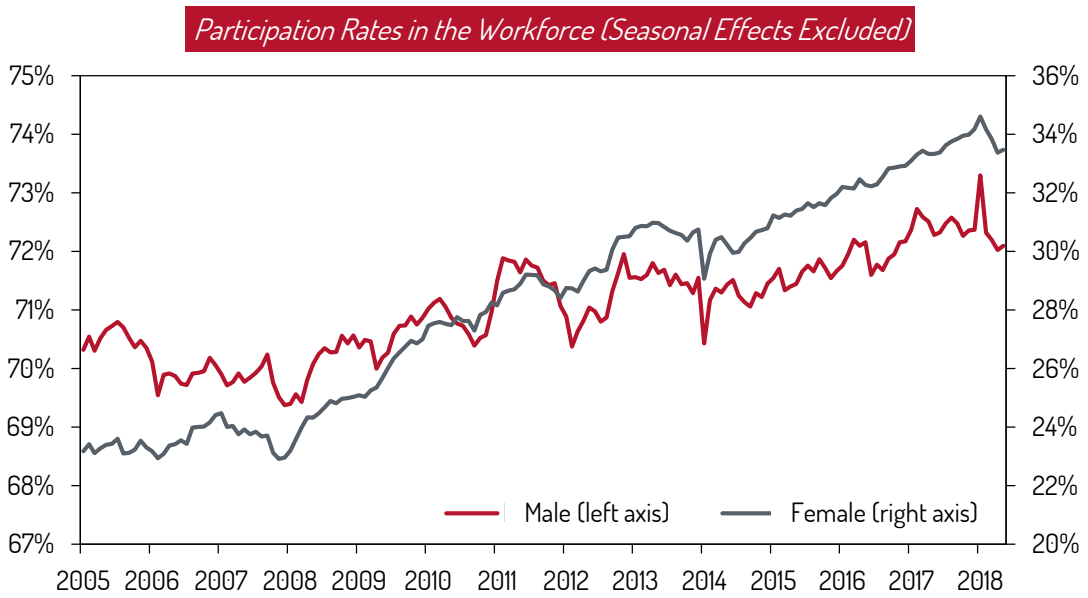



***Figure 2.*** *Participation rates in the workforce (Source: TurkStat, TSKB Economic Research)*

Therefore, we have our reasons to be optimistic. The opinion that women's participation in the workforce will also increase the low rate of savings, which is another structural problem, and that the increased amount of savings will reduce the current deficit is widely acknowledged in the economics literature.[2] On the other hand, studies indicate that there are losses up to 27% of the GDP per capita due to the gender gap in the labor markets of certain regions.[3]

Economic growth is directly related to the efficient use of resources and the quality of the environment. Turkey's growth is also characterized by its ecological footprint that is low compared to the growth paths of other developing countries and the global average, yet gradually increasing over time. Signing of the Kyoto Protocol in 2009 and the publication of the Global Climate Change Action Plan in 2011 are among the developments towards green growth. In the case of the implementation of green development policies, the ratio of the current account deficit to GDP is expected to fall 22% below the baseline scenario by 2040, and the total GDP is expected to rise 6% above the base scenario.[4] Another study predicts that the policies will carry the GDP to 5% above the base scenario by 2030.[5]

This situation draws attention to the significance of embracing green growth targets in terms of development.

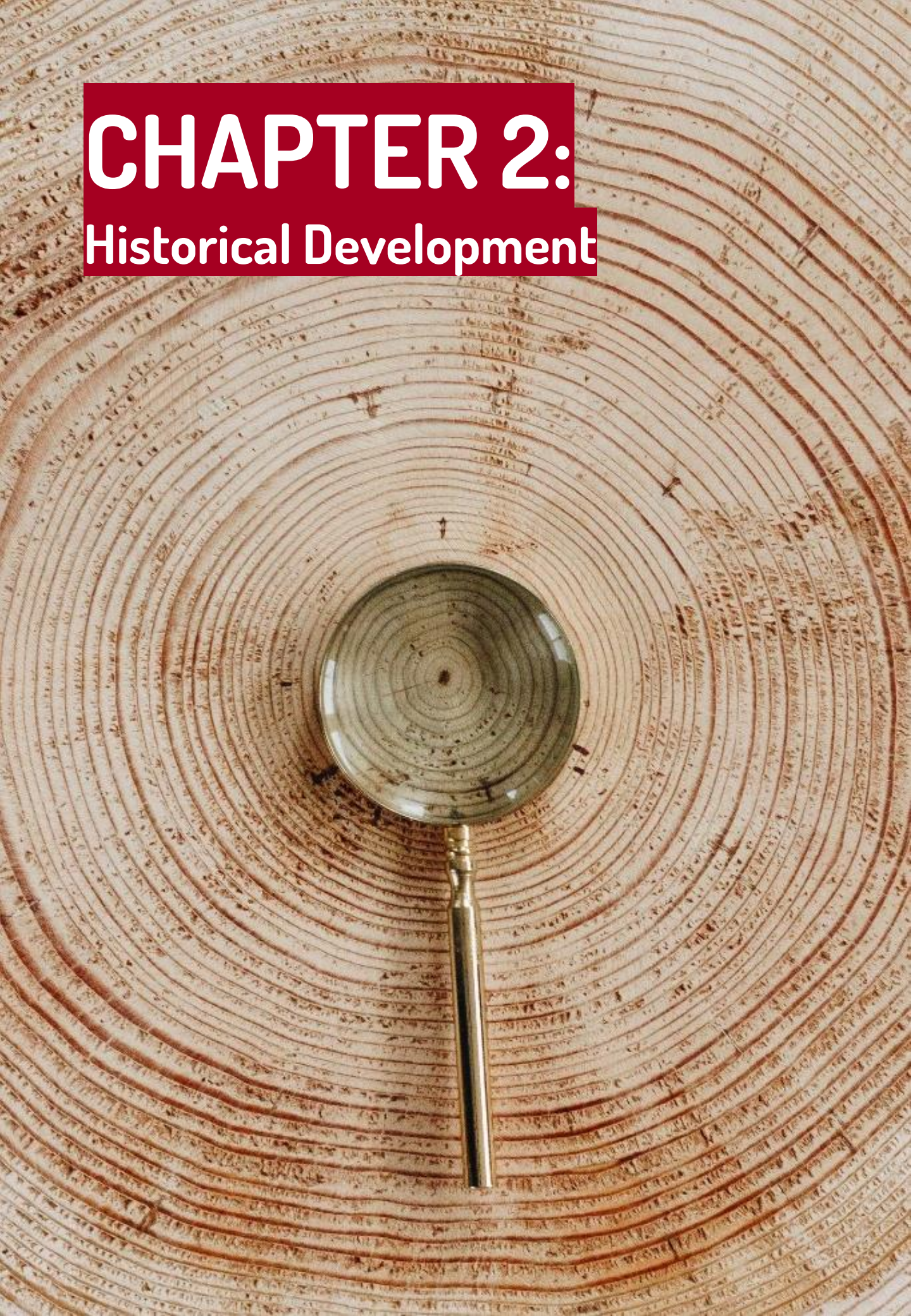
Sustainability in the economy is also important in terms of price stability. According to the research published by the Central Bank, the temperature values of Turkey affect the prices of processed food products positively.[6] Considering the fact that a major portion of the consumer baskets are composed of food products in developing countries, it is clear that temperature increases due to global warming will cause an upwards change in the inflation of Turkey. Therefore, such a structural problem will bring along income inequality in the long term.

The steps to be taken for sustainable growth will provide solutions to certain structural problems of Turkey, some of which we mentioned in the paragraphs above. Therefore, the development of financing models such as green, social and sustainable bonds towards these implementations is crucial for the prosperity of the country.

*Can Uz*
Economic Research, TSKB

[2] World Bank and Republic of Turkey Ministry of Development, 2011
[3] Cuberes, D. & Teignier, M. (2012). Gender gaps in the labor market and aggregate productivity.
[4] Acar, S., Voyvoda, E., & Yeldan, E. (2018). *Macroeconomics of Climate Change in a Dualistic Economy: A Regional General Equilibrium Analysis*. Academic Press.
[5] World Bank. (2013). *Turkey Green Growth Policy Paper: Towards a Greener Economy.* Washington, DC. Retrieved from https://openknowledge.worldbank.org/handle/10986/16088 .
[6] Başkaya, Y. S., Gürgür, T. & Öğünç, F. (2008). Küresel Isınma, Küreselleşme ve Gıda Krizi-Türkiye'de İşlenmiş Gıda Fiyatları Üzerine Ampirik Bir Çalışma. *Central Bank Review / The Central Bank of the Republic of Turkey, 8*(2), 1-32.

# CHAPTER 2:
## Historical Development



# 2. Historical Development

## 2.a. A Brief History of Sustainability and Green Economy Finance

It is possible to base the concept of sustainability on a quite old historical basis. Even though this concept is first thought to be used by Hans Carl von Carlowitz in 1713 regarding the rapid depletion of forest resources in the Saxony region[7], the most comprehensive and widely accepted definition was made in the United Nations Brundtland Commission Report in 1987.[8] According to the report, sustainability is meeting the needs of current development without hindering the ability of future generations to meet their own needs. Focusing on social justice, economic growth and environmental protection at the same time, this approach affects almost all fields of society and economy, and causes a transformation in a positive sense.

First put forward in 1989, green economy is a concept of economy that is considered within the framework of sustainability, especially aiming to minimize environmental risks.[9] Besides the contribution of the economy to the environment and social development, there is also the harm inflicted on them. Naturally, this harm being on the agenda is one of the factors speeding up this transformation. Scientists, artists, and social movements have consistently put the need for sustainability on the agenda by putting forward works that emphasize the necessity of sustainability.

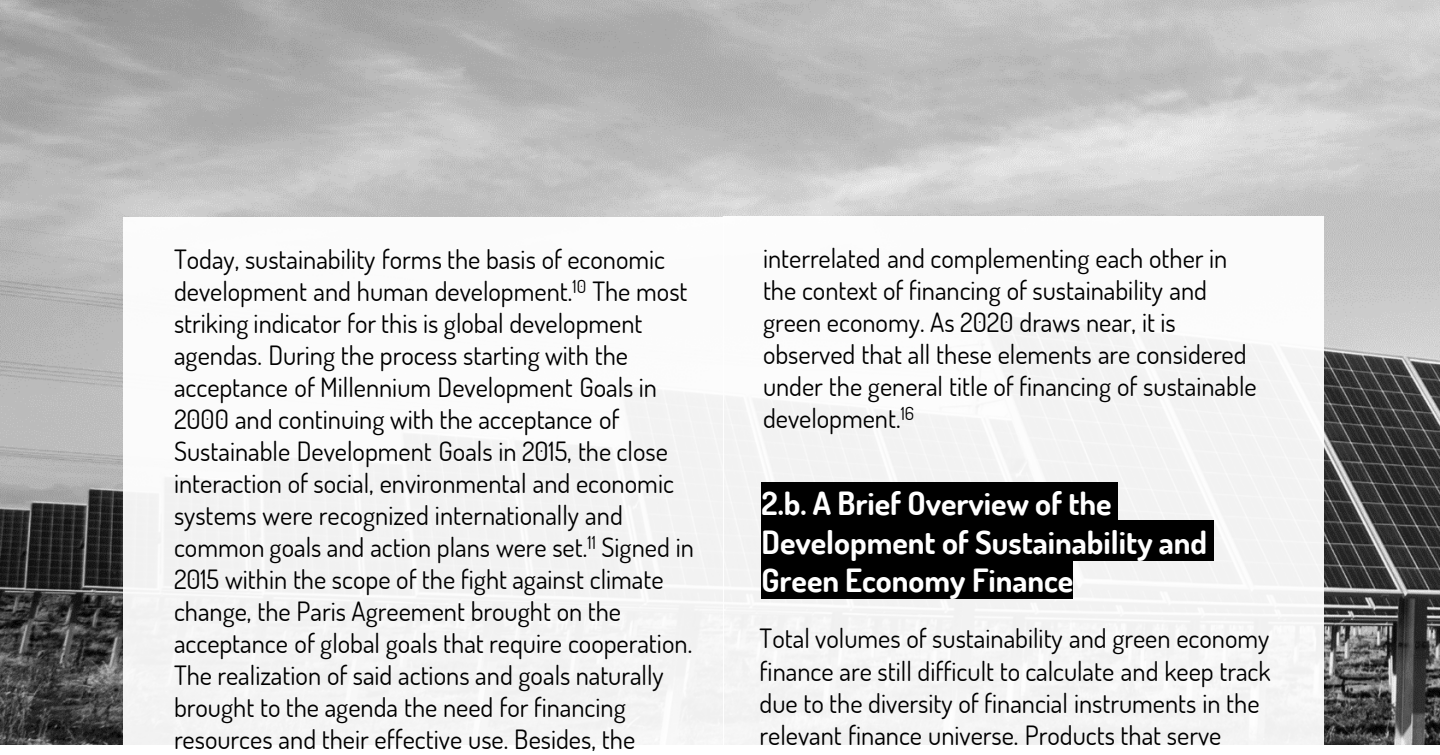
The greenhouse effect being set forth by Glen Thomas Trewartha in 1937, Rachel Carson mentioning in 1962 the effects of pesticides used in agriculture on human health and biological diversity in her book called Silent Spring, celebrating the Earth Day for the first time with social movement protests in 1970 are among some of the examples for the works highlighting sustainability.

The cumulative effect of these developments can be observed in the changes that move sustainability up the agenda worldwide, such as the implementation of the United Nations Environment Programme in 1972. The signing of the United Nations Framework Convention on Climate Change at Rio Earth Summit 1992 by 172 countries is considered as one of the most striking examples indicating the necessity for change in economy was understood and accepted worldwide. Sustainability had started to become mainstream before the year 2000. With the United Nations Environment Programme Finance Initiative starting operations in 1991 and the implementation of Dow Jones Sustainability Indices in 1999, the pioneers of sustainable investment indices emerged, and this indicates that the world of finance has stepped up from being merely interested in the subject to internalizing it. The companies had started to prepare sustainability reports by 2000, and the first standards regarding the subject came to existence. In 2002, Johannesburg Stock Exchange broke new grounds by implementing the requirement for the quoted companies to report on sustainability. The Carbon Disclosure Project (CDP), for which the companies report their fight against climate change, was initiated in 2003. Following the financial crisis of 2008, the concept of sustainability, for which effective risk management and concepts such as efficiency are the basis, became the main perspective of economy and all aspects of the world of finance. This perspective was also reflected in the legislations. As of the beginning of 2018, it was made obligatory for large scale companies in member states of the European Union to issue non-financial disclosures on environmental, social and governance subjects.

[7] It is known that the word "Nachhaltigkeit" used by Carlowitz points to the concept of sustainability. See Bosselmann, K. (2016). *The principle of sustainability: transforming law and governance.* Routledge.

[8] Retrieved from Sustainable Development 2015 Advocacy Toolkit Mini-site. https://www.sustainabledevelopment2015.org/AdvocacyToolkit/index.php/earth-summit-history/historical-documents/92-our-common-future

[9] Retrieved from Green Economy. https://sustainabledevelopment.un.org/index.php?menu=1446



Today, sustainability forms the basis of economic development and human development.[10] The most striking indicator for this is global development agendas. During the process starting with the acceptance of Millennium Development Goals in 2000 and continuing with the acceptance of Sustainable Development Goals in 2015, the close interaction of social, environmental and economic systems were recognized internationally and common goals and action plans were set.[11] Signed in 2015 within the scope of the fight against climate change, the Paris Agreement brought on the acceptance of global goals that require cooperation. The realization of said actions and goals naturally brought to the agenda the need for financing resources and their effective use. Besides, the environmental changes throughout the world and their effects becoming more visible have also underlined the need for financing. The mobilization of private sector resources is a must as well as that of the relatively limited public resources for sustainability and financing the green economy.[12, 13]

The sustainability-oriented initiatives of the finance world goes through changes over time to become more integrated. While development finance was evolving into the financing of sustainability towards the end of the 20th century, the developments that can be classified under environmental finance[14] also evolved in parallel with the concept of sustainability becoming mainstream, diversified and become more widespread. The transformation of financial institutions continues in the light of these developments.[15] In the real sector, some perspectives and instruments that focus on certain aspects of the big picture such as investments for preventing/reducing industrial pollution, financing of environmental projects, financing of renewable energy, financing of energy and resource efficiency, financing of clean production and cyclical economy, green finance, climate finance have become elements that are sometimes interwoven, interrelated and complementing each other in the context of financing of sustainability and green economy. As 2020 draws near, it is observed that all these elements are considered under the general title of financing of sustainable development.[16]

## 2.b. A Brief Overview of the Development of Sustainability and Green Economy Finance

Total volumes of sustainability and green economy finance are still difficult to calculate and keep track due to the diversity of financial instruments in the relevant finance universe. Products that serve sustainability and green economy in fields such as personal banking, corporate banking, investment banking, asset management, insurance can be tracked as separate items, or they can be tracked according to the mobilization methodologies of private sector and public resources, or thematically (for example climate financing) depending on the areas where they are transferred to. Since adding up the volumes of all products in the finance universe to find the total volume of financing may cause various double counting errors,[17] new standards and methodologies are being developed in order to tackle especially this type of problems.[18]

The development of the volume of sustainability and green economy finance can be partially understood by focusing on the parts of the big picture, despite the methodological difficulties. For example, the status of financing in renewable energy and climate change subsets provide a meaningful idea concerning the big picture. According to an extensive study regarding global climate finance accounting, the financing volume peaked from USD 359 billion in 2012 to USD 437 billion in 2015, and it was approximately USD 383 billion in 2016.[19]

[10] Sachs, J. D. (2015). *The age of sustainable development*. Columbia University Press.
[11] Scholtens, B. (2017). Why finance should care about ecology. Trends in ecology & evolution, 32(7), 500-505.
[12] Mawdsley, E. (2018). From billions to trillions' Financing the SDGs in a world 'beyond aid. *Dialogues in Human Geography, 8*(2), 191-195.
[13] Anbumozhi, V. & Timilsina, P. (2018). *Leveraging Private Finance Through Public Finance: Role of International Financial Institutions. In Financing for Low-carbon Energy Transition* (pp. 317-334). Springer, Singapore.
[14] Labatt, S., & White, R. R. (2003). *Environmental finance: a guide to environmental risk assessment and financial products (Vol. 200)*. John Wiley & Sons.
[15] Bouma, J. J., Jeucken, M. & Klinkers, L. (Eds.). (2017). *Sustainable banking: The greening of finance*. Routledge.
[16] Steckel, J. C., Jakob, M., Flachsland, C., Kornek, U., Lessmann, K. & Edenhofer, O. (2017). *From climate finance toward sustainable development finance. Wiley Interdisciplinary Reviews: Climate Change*, 8(1), e437.
[17] Brown, J., Bird, N. & Schalatek, L. (2010). Climate finance additionality: emerging definitions and their implications. *Climate Finance policy brief, 2*, 1-11.
[18] Buchner, B., Abramskiehn, D., Stadelmann, M., Wilkinson, J., Rosenberg, A. & Mazza, F. (2014). *The global landscape of climate finance 2014.*
[19] Global investment to address climate change reached a record high in 2015. Retrieved from http://www.climatefinancelandscape.org/ .

According to the annual joint reports prepared by multilateral development banks, the climate finance provided by these institutions has surpassed USD 35 billion in 2017 (**Figure 3**).[20]

As for the current status [22]of renewable energy finance, it is seen that the investment amount peaked from USD 178 billion in 2013 to USD 278 billion in 2015, and that it was approximately USD 229 billion in 2016 (**Figure 4**).

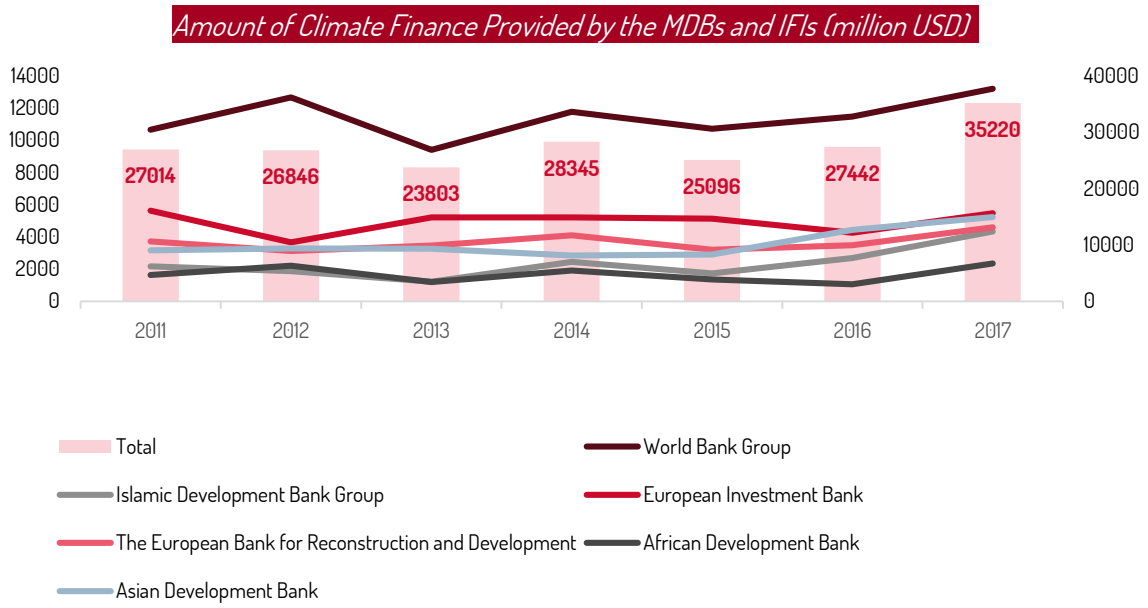



***Figure 3.*** *Amount of climate finance provided by the MDBs and IFIs between 2011-2017*[21]

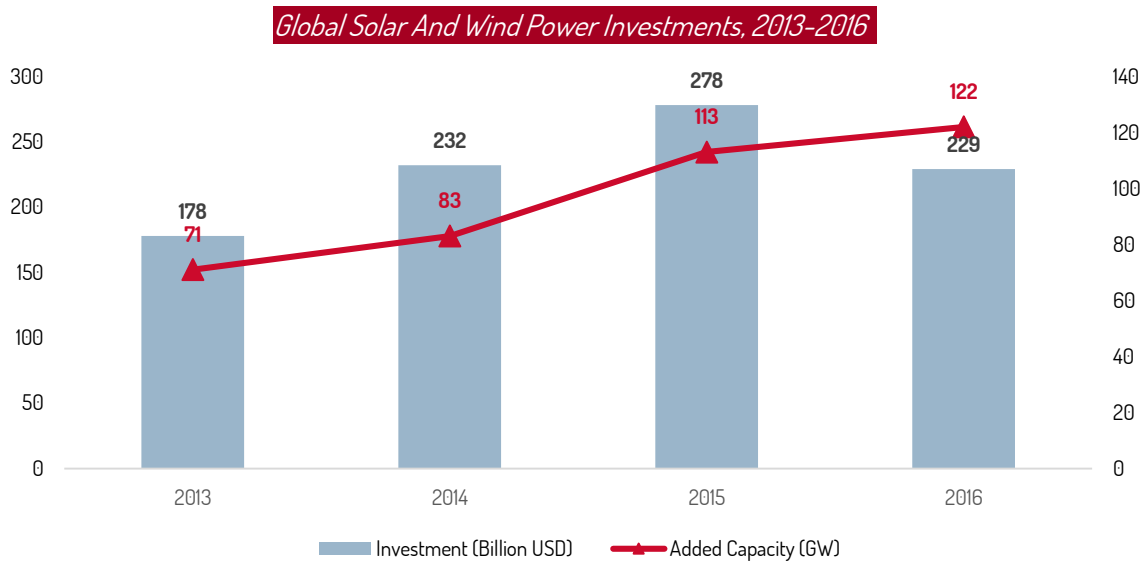
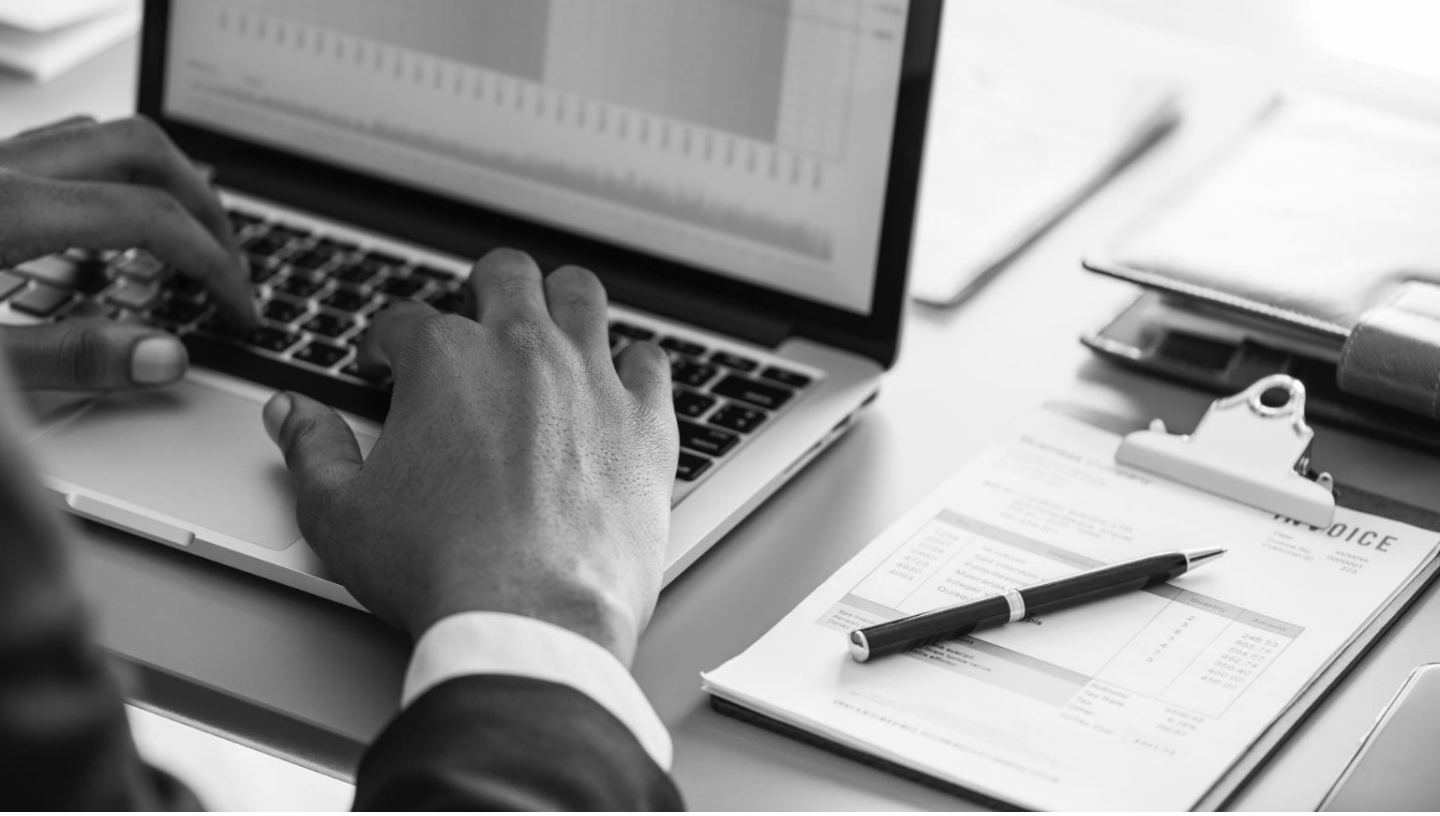



***Figure 4.*** *Global solar and wind power investments between 2013-2016*[23]

[20] MDB Climate Finance Hit Record High of US$35.2 billion in 2017. (June 13, 2018). Retrieved from https://www.worldbank.org/en/news/press-release/2018/06/13/mdb-climate-finance-hit-record-high-of-us352-billion-in-2017.
[21] ibid
[22] IRENA and CPI (2018). *Global Landscape of Renewable Energy Finance, 2018*. International Renewable Energy Agency: Abu Dhabi.
[23] ibid



Looking at the developments in singular instruments provides useful insight regarding the financing of green economy and sustainability.

For example, the total value of green loans in some countries in 2014 is significant (**Figure 5**).

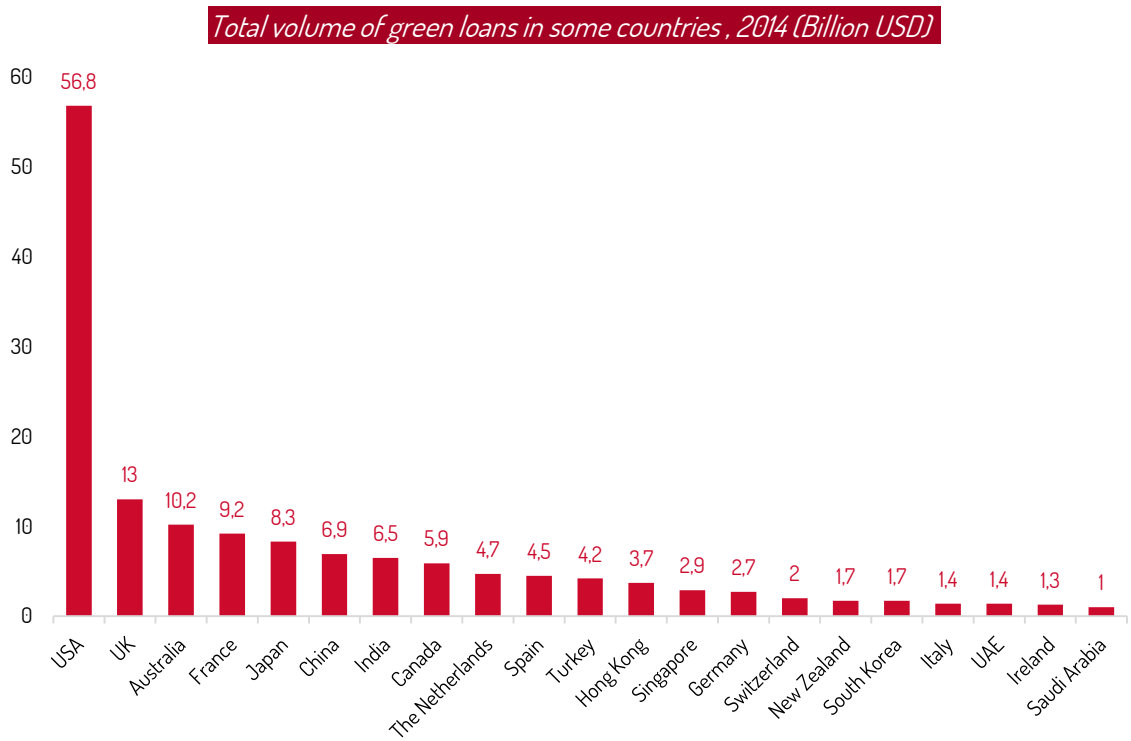



***Figure 5.*** *Total volume of green loans in some countries in 2014* [24, 25]

[24] IFC (2017). *Green finance a bottom-up approach to track existing flows*. Retrieved from https://www.ifc.org/wps/wcm/connect/48d24e3b-2e37-4539-8a5e-a8b4d6e6acac/IFC_Green+Finance+-+A+Bottom-up+Approach+to+Track+Existing+Flows+2017.pdf?MOD=AJPERES

[25] The graphic is derived from Thomson Reuters loan data for 2014 calendar year by IFC and categorized by the green sector and finance definitions of G20 Green Finance Study Group.

# CHAPTER 3:

## Rationale:
## Why Finance Sustainability?

# 3. Rationale: Why Finance Sustainability?

## 3.a. The New Irrefutable Truth

Why should we finance sustainability? In fact, the answer to this question is very simple. Today, sustainability is a necessity. Turning it into an economic model requires financing resources. However, financing sustainability is different than conventional financing. The subject matter should not only be restricted with providing funding; there are technical, even social aspects and technical and legal compliance criteria of the process. Special metrics, performance indicators and reporting techniques are required for defining projects.

The dynamics brought on by today's economy have turned financing sustainability and diversifying green finance instruments into a business opportunity. The increase in the investments compatible with the changing infrastructure, new climate and environment systems necessitates alternative financing to meet the rising demand in this field. To summarize, financing sustainability is a concept that should be regarded as a social responsibility, or corporate citizenship.

Although the new financing concept started to develop in the 1990s with the sensitivity towards the environment, green energy and climate, the acceleration of the subject matter happened at the beginning of 2000s. Primarily, environmental accidents contributed to the development of global awareness and responsibility. To prevent these accidents from happening again and to compensate for the damages, environmentally-sensitive production processes and environmental consciousness in construction came into prominence. With the onset of the new millennium, more aggressive measures were started to be taken concerning resource scarcity, environmental degradation and climate change. The increase in renewable energy production was revolutionary. The demand for the use of clean and renewable energy resources in addition to hydro-power such as wind, solar, geothermal and modern biomass power has increased steadily. Between 2006-2016, renewable energy consumption increased 16.6% on average annually and reached 486.8 million tonne of oil equivalent (MTEP) by the end of 2017.[26] Looking at power generation in terms of resources, according to 2016 data, 24% of the total power generated stemmed from renewable energy resources. International Energy Agency (IEA) estimates that this ratio will reach 30% by 2022 (**Figure 6**).[27]

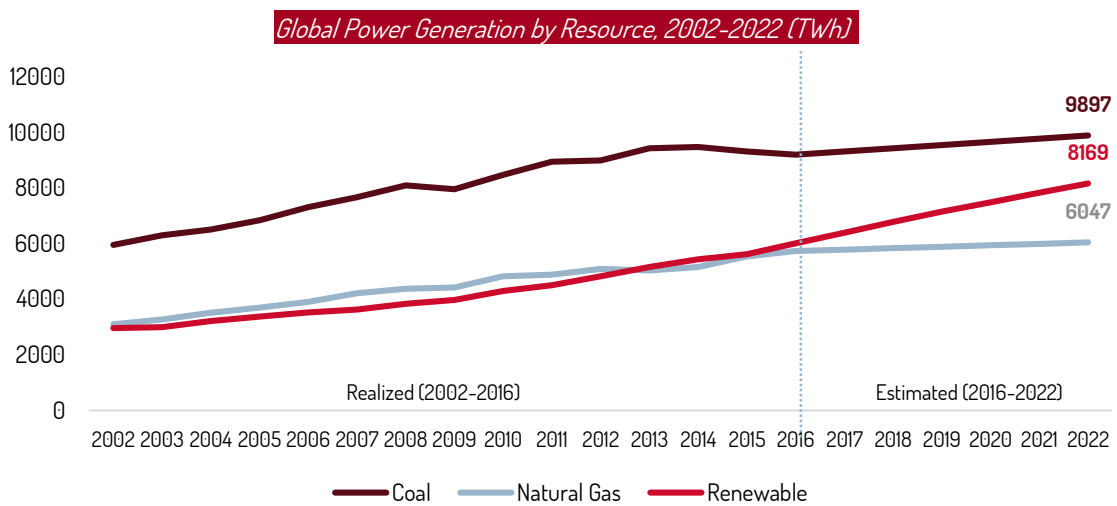



***Figure 6.*** *Global power generation by resource* [28]

[26] Retrieved from BP Statistical Review of World Energy 67th edition (2018). https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf.
[27] IEA. (October 4, 2017). *Retrieved from Renewables 2017.* https://www.iea.org/renewables/.
[28] ibid

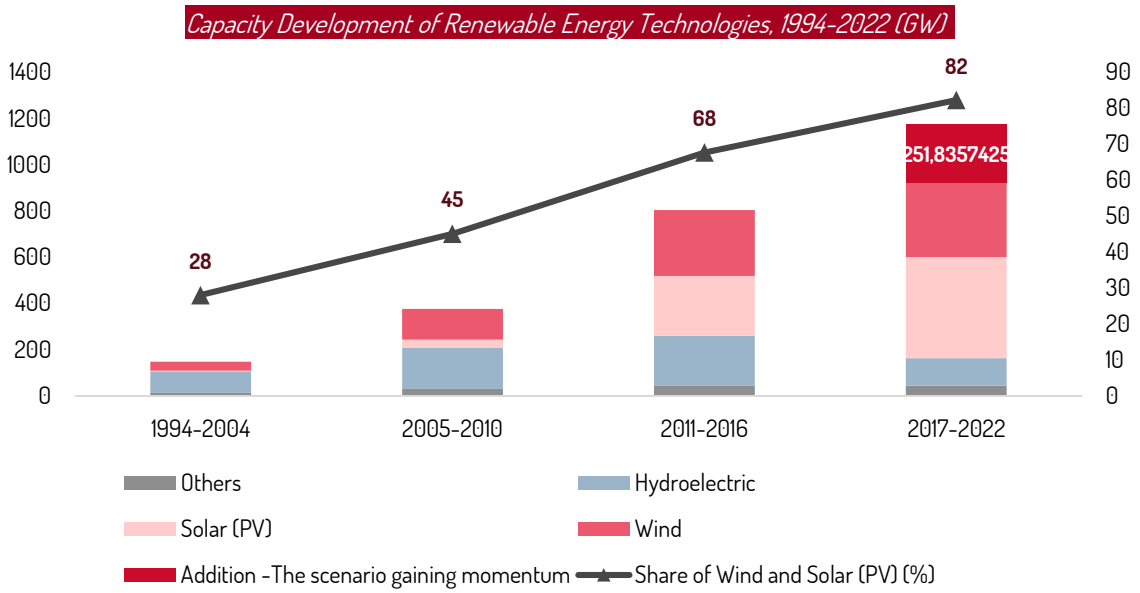



***Figure 7.*** *Capacity development of renewable energy technologies*[29]

By the mid-2000s, the fact that efficient energy use was as equally significant as developing clean energy resources was recognized worldwide, and energy efficiency became one of the principal subjects of the global agenda. Scarce resources and increasing costs ended up with the focus on the fact of consuming less energy both in production and consumption stages and obtaining more benefits/output.. The extent of the implementations that began with energy efficiency expanded over time to evolve into a concept of resource efficiency. In this regard, implementations concerning the efficient use of all kinds of natural resources and raw materials in addition to energy became more widespread.

The impact of this trend can be observed in implementations such as industry 4.0, circular economy and industrial symbiosis that gain more speed each passing day and are on the agenda. Establishments aiming to preserve biological diversity in parallel with the concept and necessity of consuming without depleting the scarce resources and infrastructure works that are based on climate change adaptation and ecosystem also have started to gain momentum concurrently. Having much less environmental impact compared to hydroelectric power plants, wind and solar investments in renewable energy industry were provided with significant incentives and these types of power plants became cheaper in relation to the advancement in technology.

It is estimated that wind and solar investments will be the driving resources in the new capacity increase in renewable energy (**Figure 7**).

This and other similar developments increased the demand for financing. Alternative models and instruments had to be produced especially for the financing of environmentally friendly projects that are difficult to fund with conventional financing models. Financing in this field, led by multilateral development banks, were adopted by commercial banking and leasing institutions. Financial institutions that can develop such models in a short period became prominent, and as a result of this, the financing of environment and sustainability started to be regarded as a business opportunity for financiers. On one hand, funding these projects is an opportunity with regard to the financial sector. On the other, risks may arise from the technical, legal and social aspects that differentiate sustainable finance from conventional finance. Factors such as the forecast of power generation, the importance of investment amount analysis in construction-based projects, the cost of machinery park in areas with rapid technology movement, the appropriateness of the selected projects and the ability to maintain its rationality in the medium-long term are the items that banks should pay attention to regarding risk management in sustainability finance related areas. Therefore, for the financing of such investments feasibility studies that take the above listed factors into consideration is also important.

[29] IEA. (October 4, 2017). *Renewables 2017.* Retrieved from https://www.iea.org/renewables/ .

## 3.b. Focusing on Positive Impact

Even though economic concerns arising from environmental sensitivity and resource scarcity lie in the basis of the concept of financing sustainability, the social impact created by this financing cannot be left aside. Sustainable finance instruments contribute to the prosperity of society by both addressing a new investor/user audience and creating economic profit for the financier, and by its indirect effects. All kinds of projects under the name of green projects, serving purposes such as renewable energy, energy and resource efficiency, protection of the environment, adaptation to climate change and reducing the impact of climate change, contribute to improving the life standards of the local population by strengthening infrastructure and thereby their level of prosperity.

Any type of financing that not only aims to improve environmental conditions but also supports social inclusion and positive impact on the society will contribute to increasing social impact. The perspective of finance extending from microfinance mechanisms that aim to promote the inclusion of the disadvantaged groups belonging to different socio-economic segments of the society and with limited access to services more in the economic life, to large scale infrastructure finances that increase social means such as hospitals or schools and affect indirect development parameters such as health and level of education throughout the whole country, should be approached with this idea of "positive impact".

Comparing the possible positive and negative impacts of the activity that is to be financed and preferring the one with more positive impact on society compared to the others is one of the implementations that are carried out by international financial institutions, creditors and governments.

Access to energy is one of the areas in which this positive impact can be observed most clearly. Societies that have very low levels of energy access have many problems concerning many fields such as health, transportation, quality nutrition.

In terms of renewable energy, even the micro renewable energy solutions such as regional or household-based solar power implementations improve the quality of life in these countries profoundly. Renewable energy contributes to the diversification of energy and greening the range of energy in developed countries, and contributes to the improvement of household prosperity in developing countries. With this point of view, the Positive Impact Initiative founded by the United Nations Environment Programme Finance Initiative (UNEP FI) focuses on realizing projects that will have a positive impact on society with the cooperation of banks, companies, investors and governments.

Within the scope of the said initiative, "Principles for Positive Impact" were formed, to which financial institutions can be signatory. The basis of these Principles is the idea that the needs of the society and the planet can be met by developing new business models that depend on direct impact within the financial profitability margins of the institution, thereby creating efficiency and reducing costs.

## 3.c. The Role of Financing in Terms of Increasing Environmental Risks and Risk Management

### 3.c.1. Risks Related to Environmental Changes is Scrutinized More Than Ever

Today, the risks directly and indirectly related to environmental changes are on the economic and financial agenda more than ever. The findings of the Global Risks Report published annually by the World Economic Forum (WEF) supports this argument. The changing perception of risk from 2008 to today is striking. In terms of their economic impacts, environmental risks first started to take place in the top five global impacts in 2011. In 2018, we see that three of the top five risks arise from environmental factors: extreme weather events, disasters, the possible failure in adaptation to and reduction of climate change. The burden incurred by these three on the economy was in top 5 in 2018 both in terms of the possibility of realization and the impacts (**Figure 8**).[30]

[30] World Economic Forum (2018). *Retrieved from The Global risks report 2018 13th edition*. http://reports.weforum.org/global-risks-2018/ .

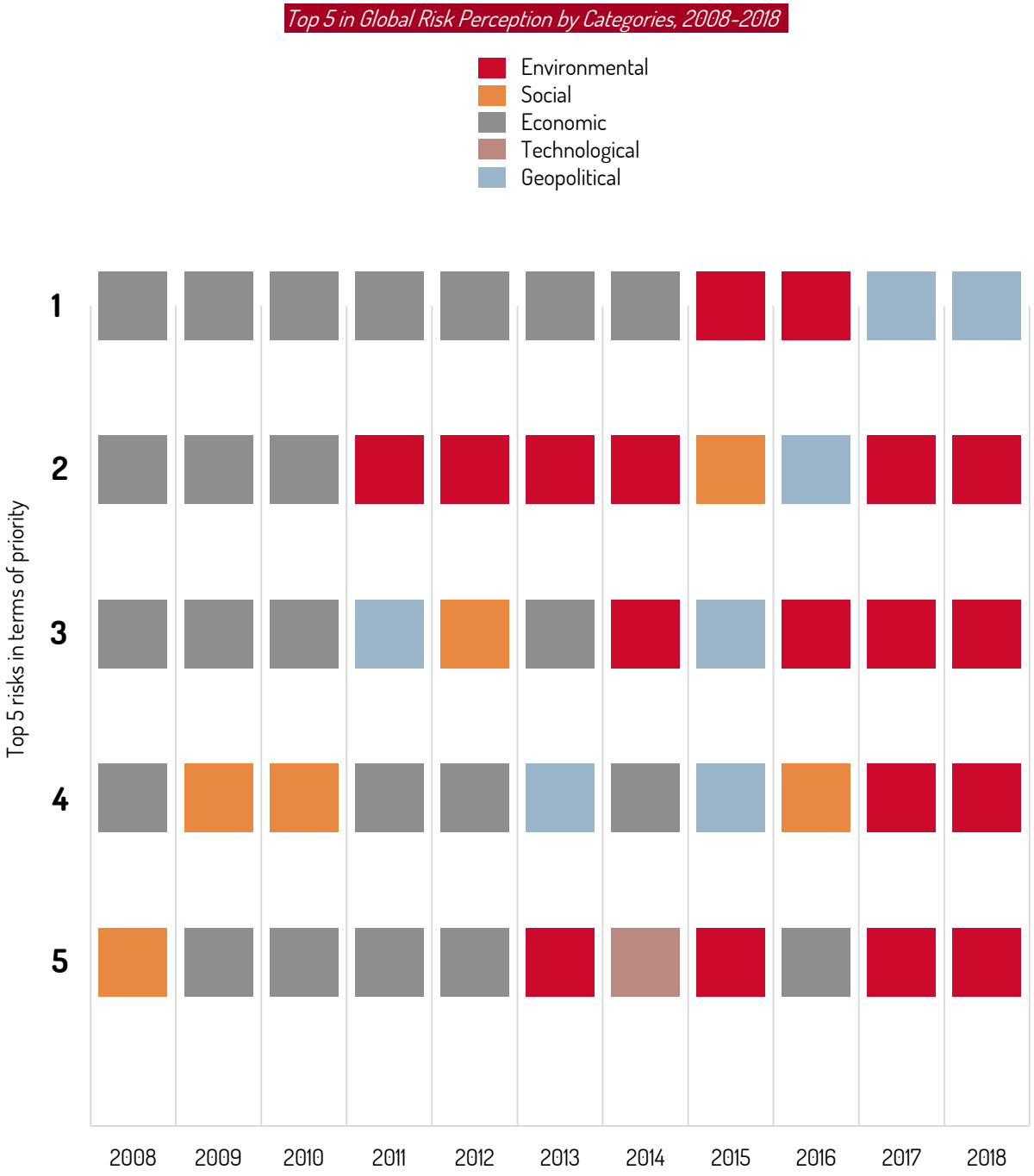



***Figure 8.*** *The change in global risk perception, 2008-2018* [31]

*Environmental risks have begun to rank higher in global risk perception, especially since 2011. It is striking that three of the top five risks in 2018 are comprised of environmental factors.*

[31] World Economic Forum (2018). *Retrieved from The Global risks report 2018 13th edition.* http://reports.weforum.org/global-risks-2018/ .

## *The Dependence of Global Trends on Global Risks*

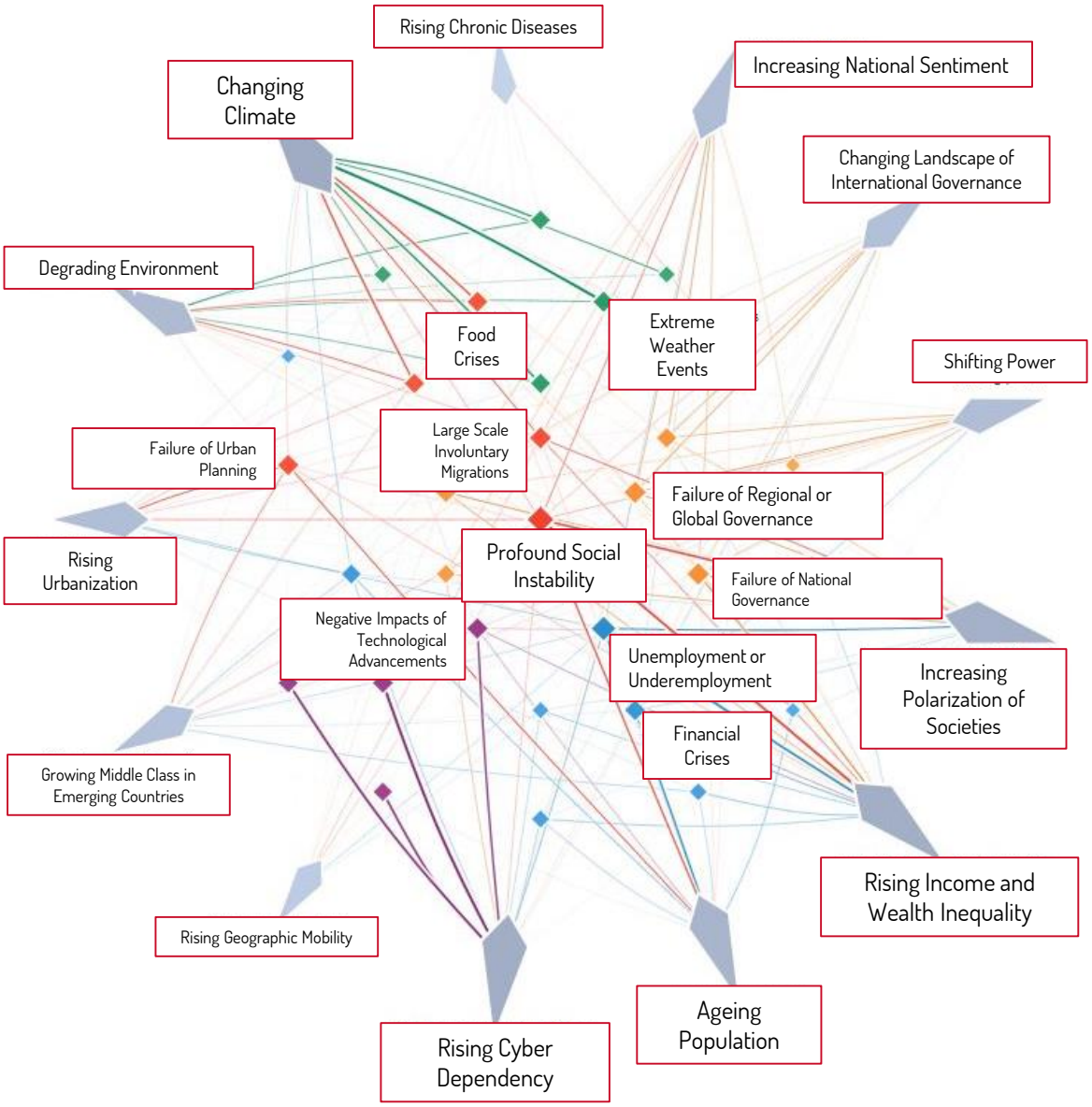
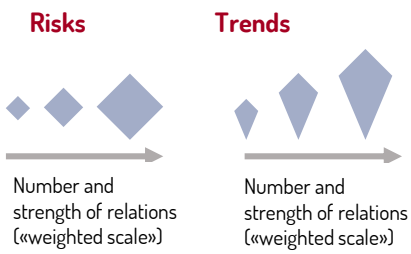



***Figure 9*** *The network of relations between global risks* [32]

The perception concerning the relations in between the risks is another striking aspect. The risks associated with environmental change, which have climbed to the top of the global agenda, have a triggering and increasing effect on almost all other risks (**Figure 9**). The rise of environmental and sustainability-related risks is parallel to the growing impact of interconnected and exponentially growing impacts worldwide. Behind this change in risk perception there are concrete events and economic losses cementing this perception. Risks are materialized in terms of many sectors and actors.




[32] World Economic Forum (2018). *Retrieved from The Global risks report 2018 13th edition.* http://reports.weforum.org/global-risks-2018/.

Recent years have witnessed many disasters that have negative impacts on the economies of countries and threaten sustainable development gains. The impact of hurricanes in the USA on the insurance sector reached a record level of USD 135 billion in 2017.[33] In 2018, there were far more incidents of forest fires that are known to destroy USD 14 billion worth of insured assets worldwide in 2017, compared to the usual amount in many countries.[34] It is calculated that the agricultural industry in India, making up 15% of the GDP, caused 1.5% loss in the GDP of the country due to the damages caused by climate change.[35] The economic losses incurred by the hurricanes Maria and Irma in the Caribbean was USD 120 billion in total, those by the flood disasters and Hato Typhoon in China was approximately USD 15.5 billion, and by the droughts in Southern Europe was nearly USD 6.6 billion.[36] There are more examples that have interrelated causes and effects. This makes effective risk notice and management mentality indispensable in terms of mitigating risks and seizing opportunities, regardless of location or economy.

### 3.c.2. New Era in Finance Sector: The Age of Sustainability and Climate Related Risks and Financial Disclosures

2015 was a year during which sustainability peaked as a goal in the global agenda, and irreversibly affected almost all kinds of fields. Developments such as the adoption of Sustainable Development Goals (SDGs)[37] in line with human development indicators, the acceptance of the Paris Agreement with regard to climate change[38], implementation of the Sendai Disaster Reduction Framework[39], adoption of Habitat III [40] agenda on the basis of sustainable urbanization constitute the corner stones of the change from global to local, and provide a set of principles and a road map to the world of finance for what lies ahead. In the basis of the intersection set for these developments and the new approach registered, lies transparent information sharing regarding the risks in terms of climate change and the management of said risks. Sustainability in its real sense will only be possible with (i) ensuring the correct information flow, (ii) internalizing this information in finance and economy, and using it effectively during decision making processes, (iii) monitoring and managing the relevant risks effectively. The efforts carried out by the international community and the world of finance in the light of these developments have accelerated and concretized in the recent years. The traces of these efforts are observed in the developments related to sustainability and climate related risks.

Establishing the framework for the fight against climate change on the international level, the impacts of Paris Agreement has been felt in all aspects of economy since its signing in 2015. The Taskforce on Climate-Related Financial Disclosures (TCDF), founded by G20 Financial Stability Board (FSB), establishes a framework concerning all economies and the world of finance with the concrete recommendations it puts forth. All actors in the economy disclosing how they manage climate change related risks, how they will be affected by climate change and how they will affect climate change becomes the norm in accordance with the aforementioned recommendations.[41]

In a nutshell, we are looking at a new disclosure process that focuses on the future and financial stability of institutions in the light on the impact of climate change, and holds all actors responsible for preparing for this process and complying.

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[33] Retrieved from Natural catastrophe review: Series of hurricanes makes 2017 year of highest insured losses ever (January 4, 2018). https://www.munichre.com/en/media-relations/publications/press-releases/2018/2018-01-04-press-release/index.html .

[34] At USD 144 billion, global insured losses from disaster events in 2017 were the highest ever, sigma study says. (April 10, 2018). Retrieved from http://www.swissre.com/media/news_releases/nr20180410_sigma_global_insured_loses_highest_ever.html .

[35] Goswami, S. (May 18, 2017). *Climate change impact on agriculture leads to 1.5 per cent loss in India's GDP.* Retrieved from https://www.downtoearth.org.in/news/climate-change-causes-about-1-5-per-cent-loss-in-india-s-gdp-57883 .

[36] Aon Benfield. (2018). *Weather & climate and catastrophe insight 2017 Annual Report.* Retrieved from http://thoughtleadership.aonbenfield.com/Documents/20180124-ab-if-annual-report-weather-climate-2017.pdf.

[37] The 17 goals. Retrieved from https://www.globalgoals.org/.

[38] What is the Paris agreement. Retrieved from https://unfccc.int/process-and-meetings/the-paris-agreement/what-is-the-paris-agreement .

[39] Sendai framework for disaster risk reduction. Retrieved from https://www.unisdr.org/we/coordinate/sendai-framework.

[40] Habitat III the united nations conference on housing and sustainable urban development. Retrieved from http://habitat3.org/ .

[41] Gündoğan, A. (May 16, 2018). *İklim değişikliği bağlantılı finansal bildirimlere hazır mısınız.* Retrieved from http://www.tskb.com.tr/web/333-3518-1-1/tskb-site-tr/tr-blog/tr-blog-yazilar/iklim-degisikligi-baglantili-finansal-bildirimlere-hazir-misiniz- .

The Paris Agreement is the strongest signal indicating the worldwide transition to low-carbon economy, and it necessitates the rapid transformation of all actors in economy by the goal of limiting the increase in global temperature average by 2°C at most. During the implementation of this transformation, it is critical to manage the negative impacts of climate change and the associated risks. The TCDF recommendations provide a new framework and some instruments for assessment in this exact direction. In this new period that can be described as "Post-Paris" that no longer lets the continuation of the current system, the public disclosure of the risks that are climate related and physical and transmission period related and putting them into numbers have started to become inevitable. TCFD recommendations are composed of 4 basic aspects and actions from different layers that can be implemented by all actors and sectors in the economy (**Figure 10**):

The feasibility of the new approach and its results being traceable depend on these conditions. As of 2018, 315 institutions that operate globally officially support the TCFD recommendations and they are committed to implementing them.[43] The sponsors are not just limited to finance, investment, insurance firms and banks; there are firms from almost all sectors. It is observed that companies in Turkey have also started to support the TCFD recommendations, although their numbers are quite low yet. These recommendations were not only met by voluntary supporters, but also by international entities such as G20 and the European Union. There are references to TCFD recommendations in the G20 Hamburg Climate and Energy Action Plan[44] and the new report titled "Financing a Sustainable European Economy"[45] prepared by the European Commission Sustainable Finance High-Level Expert Group (HLEG).


***Figure 10.*** *Summary of Task Force on Climate-related Financial Disclosures recommendations* [42]

When these layers are examined, it is especially important that senior management takes ownership of the issue, reflects this ownership on corporate strategies and that this ownership is in dialogue with all other institutional measures. Besides, according to this approach, the specialization of the risk management and metrics determination processes with respect to sectoral, geographical and several other parameters are also highlighted..

Some G20 countries, such as France, have entered legal regulations into force that require companies to carry out climate stress tests.[46] Besides such examples, it is observed that the current reporting approaches such as CDP and Global Reporting Initiative (GRI) are expanded in accordance with the TCFD recommendations.[47]

[42] TCFD. (June, 2017). *Final report recommendations of the task force on climate-related financial disclosures.* Retrieved from https://www.fsb-tcfd.org/wp-content/uploads/2017/06/FINAL-TCFD-Report-062817.pdf .
[43] Task Force on Climate-related Financial Disclosures. Retrieved from https://www.fsb-tcfd.org/.
[44] *G20 Hamburg climate and energy action plan for growth* (July, 2017). Retrieved from http://unepinquiry.org/wp-content/uploads/2017/07/Climate_and_Energy_Action_Plan_for_Growth.pdf .
[45] EU High-Level Expert Group on Sustainable Finance. (2018). *Final report 2018 by the high-level expert group on sustainable finance. Retrieved from* https://ec.europa.eu/info/sites/info/files/180131-sustainable-finance-final-report_en.pdf.
[46] French Sustainable Investment Forum. October, 2016). *Article 173-VI: Understanding the French regulation on investor climate reporting FIR Handbook No. 1 The ESG-Climate approach: from reporting to strategy, a tool for better investing.* Retrieved from https://www.frenchsif.org/isr-esg/wp-content/uploads/Understanding_article173-French_SIF_Handbook.pdf .
[47] CDP (2018). *CDP Question changes and map: 2017 to 2018. Retrieved from* https://b8f65cb373b1b7b15feb-c70d8ead6ced550b4d987d7c03fcdd1d.ssl.cf3.rackcdn.com/cms/guidance_docs/pdfs/000/000/480/original/CDP-climate-change-changes-document.pdf?1518701401 .

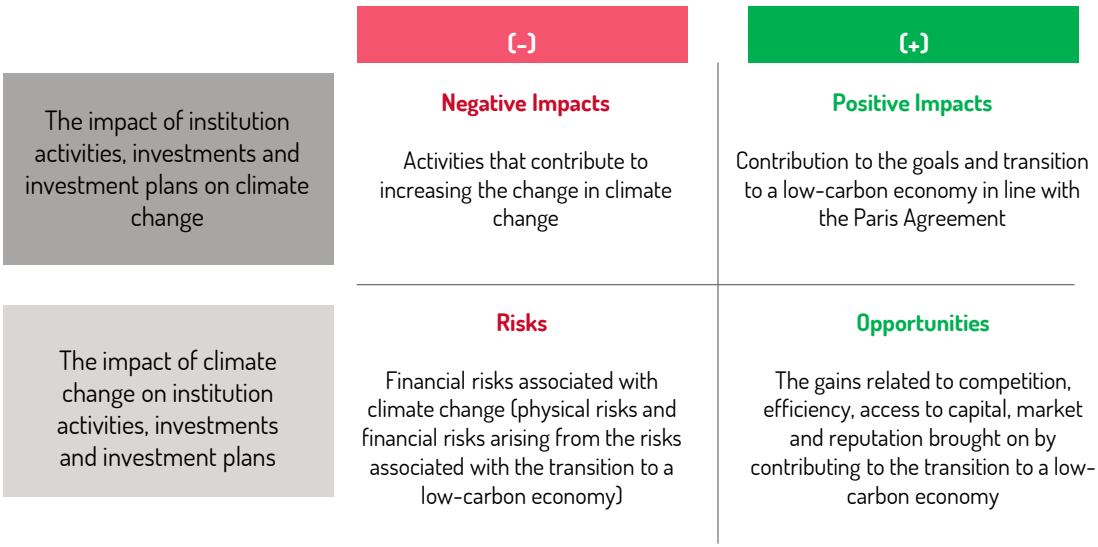


***Figure 11.*** *The new approach in the light of TCFD recommendations* [50]

It is known that the European Union has been developing and implementing new legislations regarding sustainability related risks. A concrete example of this is the obligation of retirement funds adding Environmental-Social-Governance (ESG) risks to their investment strategies.[48]

In the report titled "Are companies prepared for the TCFD recommendations" prepared by CDP, the steps taken regarding the risks related to climate change by 1,681 companies from 14 countries, 51 of which are from Turkey, are examined. Of the companies examined in the report, 83% are aware of the climate related physical risks, and 88% are aware of the risks associated with transitioning to a low carbon economy. However, it is understood that there is not enough momentum for the awareness to turn into action.[49] According to the findings, while companies focus on the past and the present especially within the framework of sustainability and carbon footprint disclosure, the impact of the activities, investments and investment plans of institutions on the climate and the effect of climate change on these are not analyzed and disclosed in detail. TCFD recommendations encourage all companies to present and paint a more realistic picture in the light of more future oriented and scientific data (**Figure 11**). The world of finance and economy does not just monitor these developments closely, it also steers these developments. The steps taken by almost all stakeholders regarding the financing of sustainability and green economy trigger other developments.

UNEP FI and an initiative that is composed of 16 banks are developing a methodology and a standardized approach to understand the impact of climate related risks and investment portfolios of especially financial institutions.[51] It would not be wrong to foresee that the output of these efforts will be adopted by other actors in economy.

## 3.d. Creating Balance Between Prosperity, Security and Sustainability in the Age of Constraints

The damage[52] inflicted on the limits of the planet by conventional economic and social systems and the impact of this damage is felt strongly by today's world. The increasing pressure on limited resources keep increasing despite all interventions.

[48] Guarascio, F. (November 24, 2016). *EU requires pension funds to assess climate change risks. Retrieved from* https://uk.reuters.com/article/us-eu-finance-climatechange-idUKKBN13J1SV.
[49] CDP & CDSB. (2018). *Ready or not: Are companies prepared for the TCFD recommendations? A geographical analysis of CDP 2017 responses.*
[50] French Sustainable Investment Forum. (October 2016). *Article 173-VI: Understanding the French regulation on investor climate reporting FIR Handbook No. 1 The ESG-Climate approach: from reporting to strategy, a tool for better investing. Retrieved from* https://www.frenchsif.org/isr-esg/wp-content/uploads/Understanding_article173-French_SIF_Handbook.pdf.
[51] UNEP Finance Initiative - Acclimatise (July, 2018). *Navigating a new climate Assessing credit risk and opportunity in a changing climate: Outputs of a working group of 16 banks piloting the TCFD Recommendations part 2: Physical risks and opportunities. Retrieved from* http://www.acclimatise.uk.com/wp-content/uploads/2018/07/NAVIGATING-A-NEW-CLIMATE_16072018.pdf.
[52] Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., ... & Folke, C. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science, 347*(6223), 1259855.

*"The demand pressure on natural resources is not sustainable and causes destruction. The negative impacts threaten development gains, and they increase incrementally. A more holistic and sustainable approach of development was created in the light of these problems. In this perspective, it is accepted that maximizing the use of economic opportunities and financing sustainable development are not contradictory goals, in fact, not choosing between the two but instead achieving both of them simultaneously is the option that generates the most added value for all actors and the society."*

According to the assessment carried out by the "Earth Overshoot Day", an initiative that monitors the traces of the whole humanity consuming natural resources of the planet faster than the capacity of the planet to replenish itself, if it goes on like this, by the end of 2018, a capacity that can be met by 1.7 Earths will have been used up. The history of world economies symbolically exceeding the capacity of natural resources to be replenished goes back year after year. The overshoot day for this year was determined as August 1, 2018 and it is the earliest Earth Overshoot Day to date (**Figure 12**).

### 3.d.1. Making Use of Multiple Benefits: Energy, Development and Human Development Goals

It would be useful to take a look at the status of underdeveloped and developing economies in order to explain the significance of financing sustainability and the green in terms of energy security, sustainable development and human development. The potential of this relatively new financing concept to create multidimensional added value is especially important in economies where constraints are the most obvious.[54] Diversification of energy supply portfolio and moving away from fossil fuel dependency,

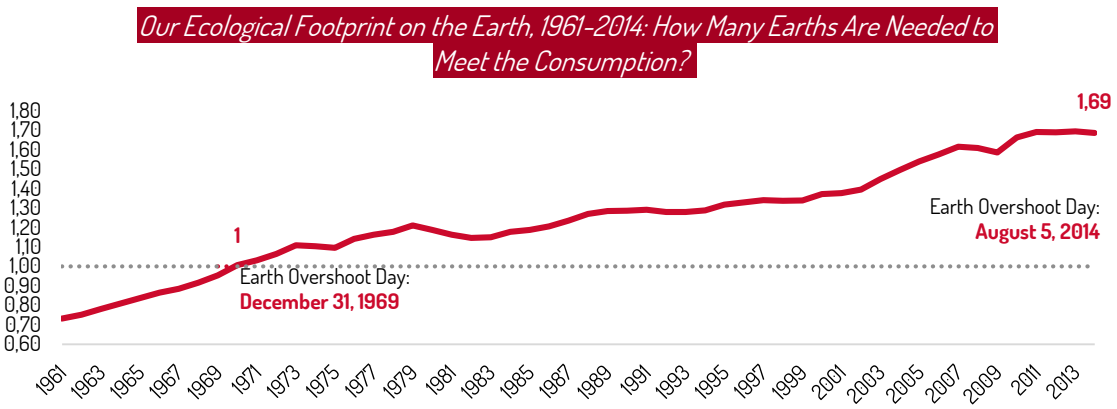


***Figure 12.*** *The historical development of Global Footprint Network Earth overshoot days*[53]

It is known that the global economy and international public have developed an approach in line with these constraints. The understanding of sustainable development that also takes into account the damages caused by the gains acquired by the development approach that used to be prevalent until recently, has started to enter the agendas of all actors, both globally and locally. This new perspective is guided by an approach that looks out for resource constraints and future generations while achieving human development goals. Channeling finances more in line with this new understanding means more economic opportunities in general, more inclusive growth, more sustainable development and more long-lasting human development gains. In this respect, financing of sustainability and green economy have ceased to be an alternative orientation and started to become mainstream worldwide. Threats become opportunities as side benefits and risks are included in the equation.

which usually has effects for increasing the current deficit, is even more important in economies that are more sensitive to the effects of the volatility in energy prices. The importance of energy access is obvious for human development and rising prosperity. Besides, almost all SDGs have close relationships with energy specific goals. Therefore, increasing both energy access and providing a sustainable model of power generation and consumption should be the main goals that contribute to several other development and human development goals, providing side benefits.[55] The global efforts for energy access, especially to electricity, have been yielding significant results in the recent years. The total world population not having access to electricity dropped 1.2 billion from 2000 to become 1.1 billion in 2016 (**Figure 13**).[56] However, the difficulty of this task increases in parallel with the increasing world population. For example, despite all efforts, more people still do not have access to electricity than those who gained access since 2000.

[53] Retrieved from Overshoot Day. https://www.footprintnetwork.org/our-work/ecological-footprint/.
[54] Nilsson, M., Lucas, P. & Yoshida, T. (2013). Towards an integrated framework for SDGs: Ultimate and enabling goals for the case of energy. *Sustainability, 5*(10), 4124-4151.
[55] Sen, S. & Ganguly, S. (2017). Opportunities, barriers and issues with renewable energy development–A discussion. *Renewable and Sustainable Energy Reviews, 69*, 1170-1181.
[56] IEA (October 19, 2017). *Energy Access Outlook 2017.* Retrieved from https://www.iea.org/access2017/ .

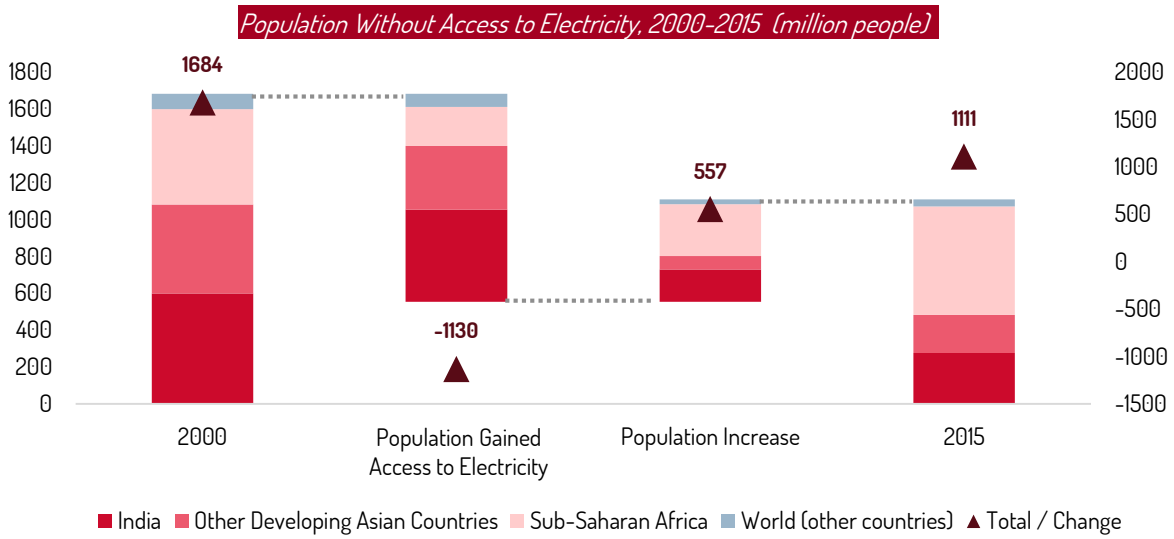


***Figure 13.*** *Total world population without access to electricity (2000-2015)*[57]

Since diversification of energy supply portfolio and making it more sustainable depends on relatively high initial investment costs, financing is a critical requirement at this point. In underdeveloped and developing economies that are relatively more risky, the added value to be created by the financing approach at which risks are shared and side benefits are considered in the investment decisions can be perceived more easily. Scientific studies provide important findings regarding this added value in the context of developing economies.[58]

### 3.d.2. Making Use of Economic Opportunities by Supporting Sustainable Development

The joint report titled "Turning Green Momentum Into Actions", prepared in 2017 by the United Kingdom centered City of London Green Finance Initiative (CoL GFI) and China Society for Finance and Banking (CSFB GFC) Green Finance Committee, were shared with the public.[59] The parties came together under the scope of China-United Kingdom Green Finance Task Force. In the recommendations section of the report, the most prominent item, which is also supported by the People's Bank of China, is the foundation of the Green Belt and Road Investor Alliance, which would gather such stakeholders as global infrastructure investors, financiers, insurers and project implementers. This alliance will work on the formation of financial structures and assessment processes that will qualify the development investments and projects as sustainable and green that are planned within the scope of the initiative "Belt and Road", which was first shared with the public in 2013 by China. China-United Kingdom Green Finance Task Force still maintains its contacts. Besides working for catching green finance opportunities, the Task Force carries out works in line with TCFD recommendations, such as realizing pilot implementations specific to the United Kingdom-China and conducting research regarding the relationship between ESG performance and financial performance.[60]

Both City of London Green Finance Initiative and the China Society for Finance and Banking Green Finance Committee act with the foresight that the investments to be realized by China will create new opportunities in the economic sense, besides contributing to economic prosperity and sustainable development goals in the countries of said investments. This foresight is not only shared by these two initiatives, but it is a common approach also adopted by the Chinese government.[61]

[57] IEA (October 19, 2017). *Energy Access Outlook 2017.* Retrieved from https://www.iea.org/access2017/ .
[58] Sovacool, B. K. (2016). *Co-benefits and Trade-Offs of Green and Clean Energy: Evidence from the Academic Literature and Asian Case Studies.*
[59] Green Finance report says sector is ready to scale up (November 1, 2017). Retrieved from https://news.cityoflondon.gov.uk/green-finance-report-says-sector-is-ready-to-scale-up/ .
[60] Green Finance Initiative Blog. *China-UK TCFD Pilot Group.* Retrieved from http://greenfinanceinitiative.org/china-uk-tcfd-pilot-group/.
[61] Belt and Road Portal (May 8, 2017). *Guidance on Promoting Green Belt and Road.* Retrieved from https://eng.yidaiyilu.gov.cn/zchj/qwfb/12479.htm .

The Road and Belt Action Plan of China also contains some expressions that support this vision.[62] These developments indicate that China, becoming the largest economy of the world in many aspects, has adopted on the national strategy level that maximizing the use of economic opportunities and financing sustainable development are not contradictory goals, in fact, not choosing between the two but instead achieving both of them simultaneously is the option that creates the most added value.

In 2017, China, which is estimated to have invested approximately USD 110 billion[63] in power generation, transportation and heating from renewable sources, is a global leader (**Figure 14**) in renewable energy capacity increase as well. It is understood that China looks at the issue of green finance as an opportunity for industrial development and policy of competitiveness as well as green development.

Besides developing countries, advanced economies (for example Norway and the United Kingdom) are making special efforts to develop low carbon technologies, especially renewable energy, and to export technology and know-how to the world. The countries that think that economic opportunities can be captured by supporting sustainable development is not limited to China. In this context, it would be useful to look at other developing economies. India declared in their Voluntary National Review on Sustainable Development Goals, which was presented at the United Nations High Level Political Forum in 2017, that it considers achieving sustainable development goals strategic in terms of the economic growth of the country, increasing competitiveness, industrial development, increasing the market share for the development of new low-carbon technologies, and reported on the developments in this regard.[65]

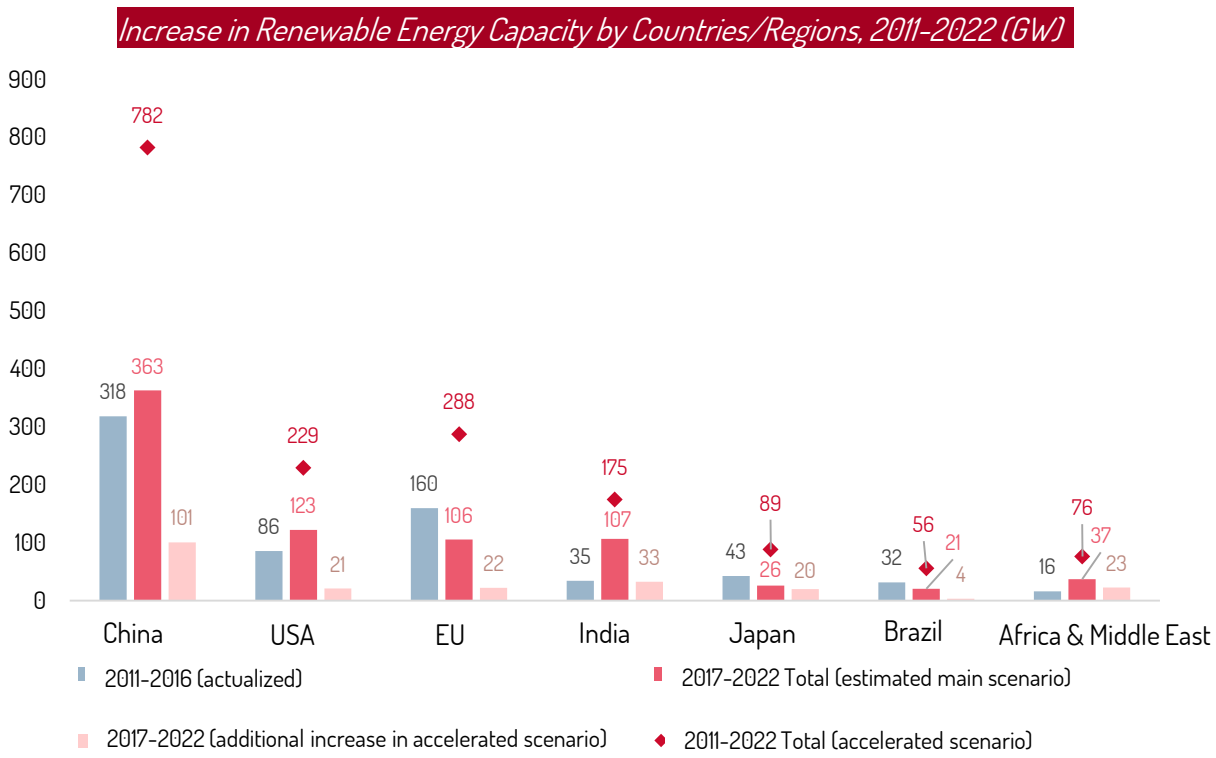


***Figure 14.*** *Renewable energy capacity increase of China compared to some other countries* [64]

[62] Belt and Road Portal (November 22, 2017). *Action Plan on Belt and Road Standard Connectivity (2015-17).* Retrieved from https://eng.yidaiyilu.gov.cn/zchj/qwfb/35977.htm.
[63] IEA. (2018). *Renewable Energy Investment 2018. Retrieved from* https://webstore.iea.org/download/direct/1242?filename=wei2018.pdf .
[64] ibid
[65] *India voluntary national review report on the implementation of sustainable development goals* (July, 2017). *Retrieved from* http://niti.gov.in/writereaddata/files/India%20VNR_Final.pdf .

### 3.d.3. Focusing on the Supply-Demand Equilibrium Gains Importance

There is a need for balance when considering both the public needs and the economic growth and production demands. Issues such as increasing population and exponentially growing consumption, decreasing resources that are insufficient and limited as well as the issues such as energy security, access to energy and energy related-emissions indicate that the relation between supply and demand should be balanced on a sustainable level in the long term, without hindering economic growth or production. In order to establish this balance, new ways of doing business and efficient practices should become the dominant trend.

Increasing the adequate financing resources and channeling them to fields associated with sustainable development will help promote the implementations in question. These financing instruments will support social inclusiveness while strengthening national economic development, and create economic value for the owner of the resource by the profits and new business opportunities that they create.

Therefore, financing of sustainability should not just be regarded as "*a social responsibility, a project of duty and good will*" as the popular saying goes, it should instead be regarded as a bunch of opportunities that provide a new and inclusive business model for the resource provider.

***"The financing of sustainability should not just be regarded as "a social responsibility, a project of duty and good will" as the popular saying goes, it should instead be regarded as an assemble of opportunities that provide a new and profitable business model for the resource provider."***

# CHAPTER 4:
## Introduction to Sustainable and Green Finance Universe: Which Instruments?

# 4. Introduction to Sustainable and Green Finance Universe: Which Instruments?

## 4.a. The Big Picture: A Glance to the Instrument Universe

After considering the undeniable necessity for sustainable finance, the results of examining the current sustainable finance universe suggest that in addition to the definitions, there is also diversity in the instruments.

Many different instruments today can be considered under this framework. In other words, sustainable finance universe is a quite vast universe where multiple mechanisms that differentiate from each other are already in use.

These instruments can change in time and it can be seen that different preferences may arise based on geography. One reason for this universe being vast is different needs while the another reason is the lack of standardization in definitions.

Today, there are no detailed and universally accepted definitions of green finance, sustainable finance and low-carbon economy terms. This lack of universal definition causes the concepts to be understood and interpreted differently. Similarly, there is not a taxonomy that is internationally accepted indicating under which criteria an investment is considered as "green" or "sustainable". This lack of standardization may cause sustainable finance to be interpreted differently considering the regional and cultural needs. According to the systematic of UNEP FI where sustainable finance is classified, sustainable finance can be categorized using the following basic concepts (**Figure 15**).

*Financing Sustainability and its Subsets*

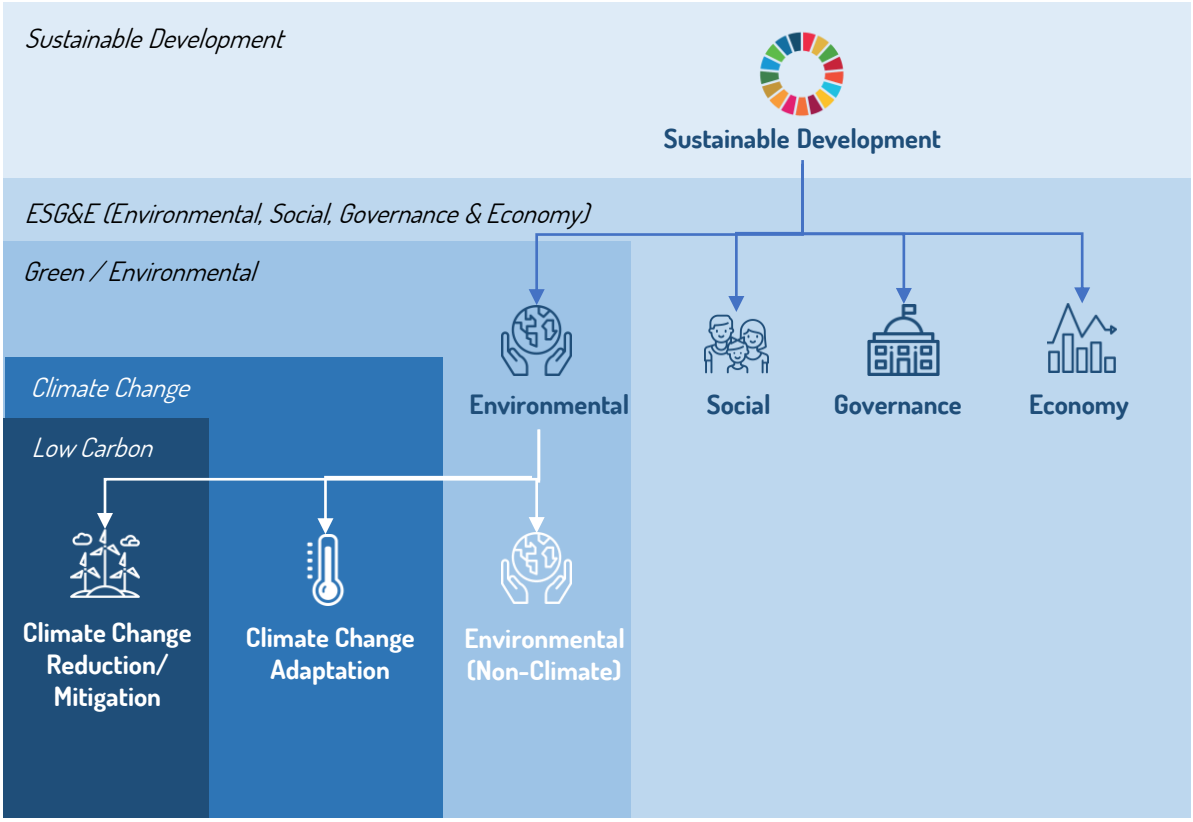


***Figure 15*** *Classification of sustainable finance* [66]

[66] EPSC Strategic Notes. (2007). Financing Sustainability: Triggering Investments for the Clean Economy.

From this point of view, it is seen that the range of products and services to be offered for the above scheme is quite wide. To summarize, it is possible to categorize different prominent product areas under certain topics:

### 4.a.1. Green Loans

The leading products of sustainable finance are green loans. Green loans have different practices in terms of development finance oriented and private sector practices. The development loans, which were firstly produced by the international development funds and extended for environment, renewable energy and energy efficiency areas, constitute the basis of green finance.. The green finance sector in Turkey has found the chance to develop and improve thanks to the different green-themed loan programs offered by international development and finance institutions.

**Loans with Special Concepts Encouraging Being "Green"**

One of the tools being developed for sustainable finance in private sector is green loans. Green loan is differentiated from other loans due to it being a fund provided for projects undertaking to reduce any of the environmental, social, cultural and economic deterioration, which are required to be paid attention to by the financial resource owner. Green loan practices provide different advantages to customers such as decrease in interest rates by assessing the green performance, namely the energy efficiency, energy conservation, etc. of the user, thereby creating an incentive mechanism for the customers. Green-themed loans as energy efficiency loans and green mortgages increase. Today, there are 41 green loan agreements with volume of over EUR 28 billion in total across the world. [67]

**TURSEFF**

*Established by EBRD in Turkey in 2010 as an innovative model for the financing of renewable energy and energy efficiency investments, TurSEFF program has ensured the financing of over a thousand projects to this date. The program is projected to continue until 2020.* [68]

### 4.a.2. Green/Social/Sustainable Bonds

Today, green/social/sustainable bonds are the products that come to mind the most when sustainable finance instruments are the matter. Although these bonds are regular bond issuances in terms of the process, with their proceeds they need to finance or re-finance projects and investments which provide green/social benefits in addition to conventional bonds. Considering the current impact areas of sustainable finance area, the green and social bonds are examined under a separate topic in Chapter 5 of the report.

### 4.a.3. Stocks and Index Funds

There are publicly held companies that conduct operations supporting clean energy, energy efficiency and low-carbon economy areas. Supporting sustainable and responsible investment by choosing to invest in the stocks of these companies is considered to be one of the sustainable finance instruments. In addition, the investors may not choose to limit their investments over a single company in line with their risk approach. In such cases, they prefer index funds that are prominent in this area. Clean index or green indices that started to emerge in international markets cover a wide geography and technology/operation area scale.

**Luxembourg Green Exchange**

*The first exchange for green securities is the Luxembourg Green Exchange (LGX) initiated by Luxembourg Stock Exchange in 2017. The issuers must provide additional information with regard to revenue use (Green Bond Principles, Climate Bond Standards, etc.), revenue management and impact reporting for their securities in order to access this platform.*

### 4.a.4. Green Securitization

Securitization is basically liquidating the long-term but installment-based receivables in stock that are listed under working assets section of the balance sheet. This process enables the collection of loans belonging to small-scale projects that cannot reach the required size for the bond markets on their own.

[67] Şirketlerin sürdürülebilirlik performanslarını arttırması için garanti'den bir ilk: "yeşil kredi". (July 25, 2018). Retrieved from https://surdurulebilirlik.garanti.com.tr/surdurulebilirlik-blog/sirketlerin-surdurulebilirlik-performanslarini-arttirmasi-icin-garanti-den-bir-ilk-yesil-kredi/.

[68] Turseff 1000. Projede. (April 19, 2018). Retrieved from http://www.turseff.org/haber/460

As for green securitization, the proceedings of the investors are withdrawn from the cash flows of underlying low-carbon assets. The same implementation can also be applicable for projects such as social housing, hospitals, or social/sustainability securitizations.

**Hawaii Green Energy Market Securitization Programme (GEMS)**

*GEMS program is a green financing model developed by the Hawaii government for improving the clean energy and green infrastructure in Hawaii. The fact that Hawaii is a state that is made up of islands leads to high energy production costs in the region. Moreover, the need for energy procurement to distant regions without access to the power grid is ongoing. In this model, financing models to facilitate the investments of low-income families and persons in green and renewable energy products are developed. The program has two components; (i) creating funds via green bonds for the development of green and clean energy technologies, and (ii) spending the created funds on photovoltaic (PV) and energy efficiency projects. The program was initiated with the issuance of a green GEMS bond of USD 150 million in 2014.*[69]

## 4.b. Regulations and Implementation Infrastructure

One of the most important elements for shaping and developing sustainable financial products and services is the legislation and regulation infrastructure in the relevant country/region. The regulation infrastructure is the basis for implementing the legal infrastructure of practices to be applied / in application regarding any subject in a country or region. In addition, the fact that there is a special regulation base for these practices indicates that these activities are also accepted and adopted by the state. The availability of relevant and sufficient legislative infrastructure may be an accelerating and facilitating factor for sustainable finance. Especially in emerging markets, where sustainable finance is a new issue, the presence of regulations that serve as guiding issues can also be regarded as an advantage that facilitates the process as it provides a standardization for the market players.

When the green finance regulation evolution across the world is examined, it is observed that it developed under two branches, namely;

- Standards,
- Incentive mechanisms.

Exercises conducted on standards aim to create a better practice guideline by introducing the more generally accepted values to the market in line with these frameworks. Today, especially the works on green bond standards stand out. Sustainable Finance: Commission's Action Plan published in March 2018 (**Figure 16**) projects various goals for the standardization of sustainable finance terms in the EU region. Of these;

- Establishing **a common taxonomy** for sustainable finance definitions,
- Creating **green finance product labels** according to this established taxonomy,

items are goals directly designed to establish a standardization in sustainable finance area.

The first action planned under developing green finance product labels is creating EU green bond standards. This green bond standard is expected to be operational within the second quarter of 2019.[70]

Standard and taxonomy goals under the EU Sustainable Finance Action Plan are quite concrete and detailed examples. However, it is not true that regulations on standardization are applied only in developed countries.

Today, there are standardization efforts for sustainable finance products also in developing economies. There are different countries in Asia and South America that can be exemplified. For instance, the Law No. 4327/2014 which entered into force in 2014 in Brazil acts as a guideline that determines the rules to be followed by the financial institutions under the Brazil Finance System in order to manage their environmental and social responsibilities.

[69] Sakuda, M. (2015). *Hawaii's Green Energy Market Securitization (GEMS) Program. Presentation, Hawaii. Retrieved from* https://naseo.org/Data/Sites/1/naseo-gems-update-2015-08-04.pdf.

[70] European Commission. (August 3, 2018). *Communication from the commission action plan: financing sustainable growth.* Brussels. *Retrieved from* https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52018DC0097.

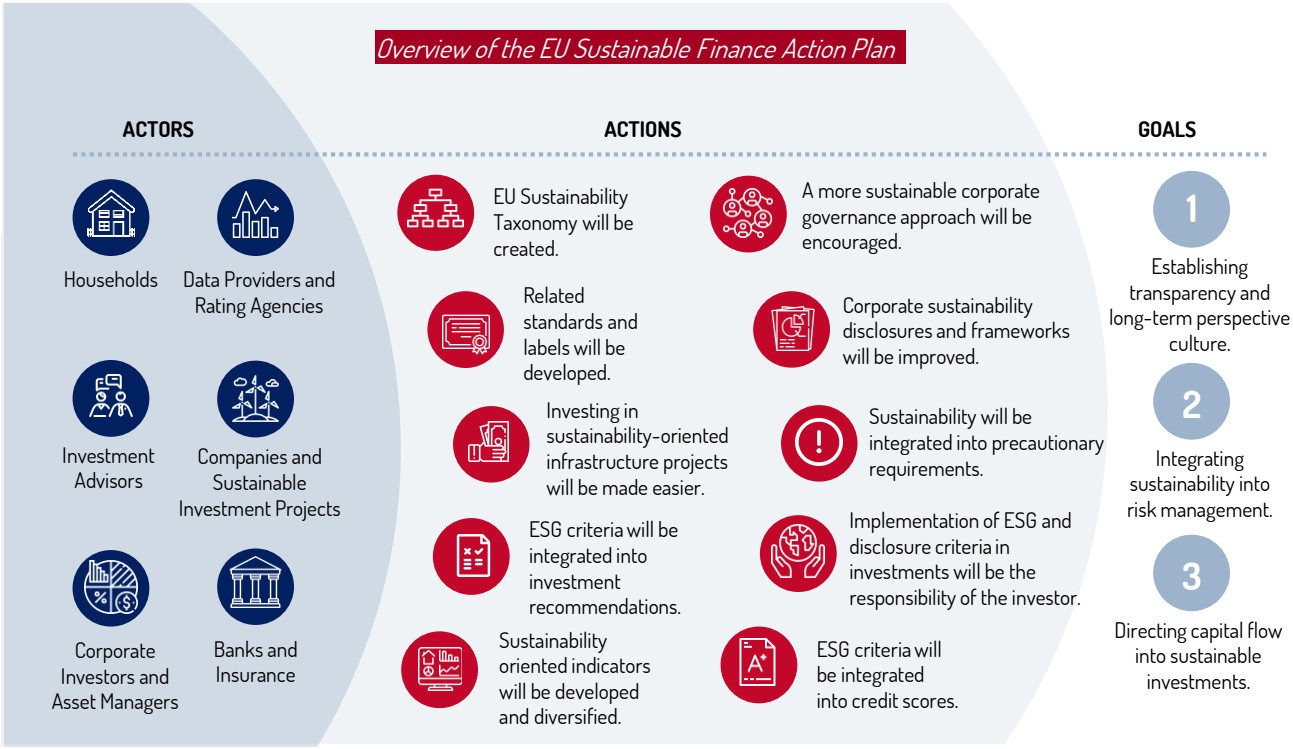


***Figure 16.*** *EU Sustainable Finance Action Plan overview*[71]

The said law provides the necessary guidance to local financial institutions for sustainable finance framework by stipulating that finance institutions publish environmental and social responsibility policy, establish related governance structure within the institution in order to monitor the goals in the policy, define and manage the environmental and social risks the institution is subject to and make an action plan with regard to this.[72] Different steps were taken in China towards publishing standards in order for the market to mature as the green/sustainable finance market was developing rapidly. Reducing waste and increasing environmental quality, managing climate change impacts by mitigating emissions, improving energy and water efficiency as well as resource efficiency were determined as national goals while publishing these standards. There are two national standards for green bonds in China:

1. People's Bank of China Green Bond Guidelines (2015): Green bonds prepared in line with the Central Bank's green bond guidelines cover 90% of all green bonds issued in the country.
2. National Development and Reform Commission (NDRC) Green Bond Guidelines (2017): Bonds covered by this guideline has less coverage; it covers 5% of the total bonds.

These three national goals are also reflected to the prepared standards. With this, having two standards for green bonds in the country may confuse issuers and investors.

Another example designed in developing economies is an effort between countries in region based like the EU. The Association of Southeast Asian Nations (ASEAN) also issued a green bond standard (ASEAN GBS) similar to that in EU and China. ASEAN GBS, published in 2017 by ASEAN Capital Markets Forum (ACMF), takes international Green Bond Principles as basis for its scope and put forth certain additional standards specific to Southeast Asia region such as project areas outside the scope, the right of uninterrupted access to information, etc.[73]

[71] Gündoğan, A.C. *Avrupa komisyonu, daha yeşil ve temiz ekonomi için finansman eylem planını açıkladı. Retrieved from* https://www.iklimhaber.org/avrupa-komsiyonu-daha-yesil-ve-temiz-ekonomi-icin-finansman-eylem-planini-acikladi/.
[72] Stuber, W. ( 2014, May 6). Brazil: The Social And Environmental Responsibility Policy Of The Brazilian Financial Institutions. Retrieved from http://www.mondaq.com/brazil/x/311440/Financial+Services/The+Social+And+Environmental+Responsibility+Policy+Of+The+Brazilian+Financial+Institutions.
[73] ASEAN Capital Markets Forum. (2017, November). ASEAN Green Bond Standards. Retrieved from http://www.theacmf.org/ACMF/upload/ASEAN_Green_Bond_Standards.pdf.

India also took a step towards green bond standards in 2017. Securities and Exchange Board of India (SEBI) published the final version of their green bond guidelines in May, after their consultation with the Ministries of Finance and New and Renewable Energy. The guideline covers subjects such as main sectors for appropriate green projects, verification prior to optional issuance or after mandatory issuance and semi-annual reporting.

Regulations on the second part focus on concretizing the material and technical support mechanisms in order to encourage sustainable finance practices becoming widespread. The wide range of practices from incentives of development agencies established for energy efficiency in SMEs to state aids provided to cover consultancy costs of green bonds can fall under these incentive mechanisms. The sequence of implementing these instruments and legislation differs from country to country. In some cases, the market develops by itself and then the standards are implemented.

In markets where the sustainable finance tools are desired to be developed, incentive mechanisms are implemented so that the market can start moving. Standards and incentive mechanisms are simultaneously implemented in examples such as Hong Kong and the regulation infrastructure for sustainable finance is based on sound foundation.

It can be said that financial incentive regulations are implemented more particularly in developing markets. For instance, Monetary Authority of Singapore, Singapore's central bank, announced a green bond grant program in March 2017 that will cover all costs of external review works for green bonds.

In Malaysia, tax incentive mechanisms were implemented for sukuk[76] issuances. Malaysia Securities Commission announced in July 2017 a tax incentive plan for socially responsible investment (SRI) sukuks, including green sukuk, that will be valid until 2020.

**Hong Kong Government Green Finance Regulations**

*Hong Kong Central Management creates mechanisms to encourage the development of green finance in Asia, and especially in Hong Kong. Legislative efforts for green bonds have a great share among these mechanisms.*

*Hong Kong designed a double structure for both standardization and incentive policies in order to establish the legislative infrastructure of green bonds. Under this design, Green Finance Certification Scheme was created in January 2018. The scheme assesses the effectiveness of the environmental methodology disclosure as well as the suitability of the green finance and the selected projects prior to and after the issuance.*

*The disclosure covers the method of the specified green finance instrument in reaching the targeted positive environmental impacts. Two types of certification services namely the Pre- and Post-Issuance Certification for Green Finance are offerred[75]. Following the certification scheme, the Green Bond Grant Scheme was also implemented in June same year.*

*Covering the incurred green bond second party external review costs is foreseen and up to HK$ 800,000 per bond issuance is provided as a grant under the green bond issuances of HK$ 500 million at minimum, which is issued in Hong Kong or listed on the Stock Exchange of Hong Kong and received the Hong Kong Green Finance Certificate.[77]*

[74] Climate Bonds Initiative. (February 2018). *Green Bonds Policy: Highlights from 2017. Retrieved from https://www.climatebonds.net/files/reports/cbi-policyroundup_2017_final_3.pdf.*
[75] Hong Kong Quality Assurance Agency. (January 3, 2018). HKQAA's Green Finance Certification Scheme Fostering a Green Economy in Hong Kong. Retrieved from http://www.hkqaa.org/cmsimg/1514953363HKQAA_Green%20Finance%20Certification%20Scheme%20Press%20Release_EN.pdf.
[76] Sukuk is generally defined as (non-interest) bonds in compliance with Islamic principles.
[77] Green Bond Grant Scheme. Retrieved from http://gia.info.gov.hk/general/201806/15/P2018061500373_286122_1_1529034245441.pdf.

Within the scope of this incentive scheme natural resources, renewable energy and energy efficiency are underlined as suitable project categories. The scheme encourages independent review for green bonds of sukuk.[78] Incentive mechanisms are not only shaped as financial aid practices, but also as mechanisms that will offer issuer some procedural conveniences. For instance, China developed a fast track in 2017 for the approval process of issuance for green bonds. Within the scope of this system, the approval process of green bonds are prioritized over vanilla bonds[79] in terms of local issuances and the process is accelerated. This brings in time advantages for green bond issuers[80].

## 4.c. The Carrot Effect: Incentivizing Power of Financing Sustainability and Green Economy

In addition to national incentive mechanisms, the instrument universe established under international programs for green finance also stands out as an important topic. Sustainable finance instruments have an encouraging impact on the users. Climate Investment Fund (CIF) is an investment fund that provides loans to developing countries in order to adapt to and mitigate the impacts of climate change. 14 countries contributing to the fund, which has been active since 2008, committed to provide support of USD 8.3 billion in total.[81]

Supports provided through CIF are offered under 4 different programs and the financial loans are distributed via international development banks. What makes CIF fund different is that its common finance feature is adopted by supporting finance resources. Investments made until this point show that for every USD 1 the CIF fund puts into a project, additional financing obtained from other resources reach USD 7.7.[82]

Clean Technology Fund (CTF) program that provides the majority of the resources for the Fund supports project that encourages use of low-carbon technologies in renewable energy, energy efficiency and sustainable transport. The Forest Investment Program supports activities for the prevention of deforestation and for re-forestation. The pilot program conducted on climate flexibility (the capacity of the ecosystem to adapt to changes caused by the climate change) is established in order for developing countries to integrate climate flexibility into their development plans and to provide additional resource to the private sector. The last program increases the scale of renewable energy use in developing countries, and increases societies' access to energy and supports economic development.

CTF is a great example to see the impact of instruments created for climate finance. As of June 2016, USD 5.8 billion CTF finance was allocated to projects and programs. For the term of CTF portfolio, it is foreseen that around 1.5 billion tons of carbon dioxide equivalent ($tCO_2e$) emissions will be reduced. This amount equals to taking 315 million cars off the road, providing co-financing equivalent to USD 45 billion and generating 22 GW renewable energy.[83]

Instruments such as CTF, or more broadly CIF, support the development of green and low-carbon economy through their direct impact on sustainable investments. They are also deemed advantageous by countries, which accelerates countries' transition into green structuring. Finance resources provided via sustainable finance instruments are considered as a carrot for transitioning into green new infrastructure and thanks to this support, development is accelerated and technology costs are lowered.

[78] Climate Bonds Initiative. (February 2018). *Green Bonds Policy: Highlights from 2017. Retrieved from* https://www.climatebonds.net/files/reports/cbi-policyroundup_2017_final_3.pdf.
[79] Vanilla bond is a term used for bonds with no special features. The plain bonds with fixed coupon and defined term are called vanilla bonds.
[80] Whiley, A. (February 15, 2018). *Chinese regulators introduce supervisory scheme for green bond verifiers - further step in building market frameworks*. Retrieved from https://www.climatebonds.net/2018/01/chinese-regulators-introduce-supervisory-scheme-green-bond-verifiers-further-step-building.
[81] As of June 30, 2016
[82] Bitlis, M. (February 2016). *İklim finansmanı: yeşil tahviller/karbon fiyatlandırma*. Retrieved from http://escarus.com/i/content/142_2_iklim-degisikligi-finansmani.pdf.
[83] UK Department for International Development (January 4, 2016). *Case study: How the Climate Investment Funds (CIFs) are providing finance to support developing and emerging economies*. Retrieved from https://www.gov.uk/government/case-studies/the-climate-investment-funds-cifs.

*“Finance assumes the role of "mobilizer" or "enabler" for transition to sustainable and green economy. According to an impact analysis conducted in which the impact of CTF in renewable energy and energy efficiency finance in Turkey is examined, the financing provided had a significant role in the developments in Turkey in the said areas as an “enabling” factor with especially its leverage effect, and it contributed to the capacity development in certain areas.”*

### 4.c.1. Clean Technology Fund (CTF) and Turkey Example

Financing assumes the role of "mobilizer" or "enabler" for transition to sustainable and green economy. In order to materialize this finding, it would be beneficial to take a look at CTF's impact in financing renewable energy and energy efficiency in Turkey. Within the scope of the fund, projects in Turkey has been supported since 2009.[84] The leverage effect of finance in the progress achieved in renewable energy and energy efficiency in Turkey is prominent in terms of CTF. As a result of the first investment program phase (2009-2012) implemented in order to overcome barriers in the market and create a driving force for investments, it is determined that USD 172 million of financing provided to over 430 projects via local finance institutions mobilized USD 1.8 billion as additional financing in the country. It is calculated that 902,000 tons of $CO_2$ equivalent greenhouse gas emissions and USD 568 million worth fossil fuel import were avoided through these projects.

CTF's impact specific to Turkey is more prominent in energy efficiency area. Thanks to the financing provided, it can be seen a market that has not formed before started to mature.[85]Impact analyses conducted showed that, although it is not possible to completely reveal the impact of CTF on the development of renewable energy and energy efficiency areas in Turkey, when the number of projects and volumes are considered, a leap was observed with the effect of other developments experienced in terms of corporate, legal and capacity in the country in CTF implementation period.[86]

Without denying the contributions CTF made in maturing the renewable energy and energy efficiency markets in Turkey, it should be noted that legislation, market development and other developments in terms of economy as well as loans extended by various international finance institutions are also essential elements with a significant share in the leap (**Figure 17**).[87] Turkey is one of the countries that benefited from the CTF finance at the earliest.

*The Leverage Effect of National Legislative Framework on International Finance Instruments: CTF Example*

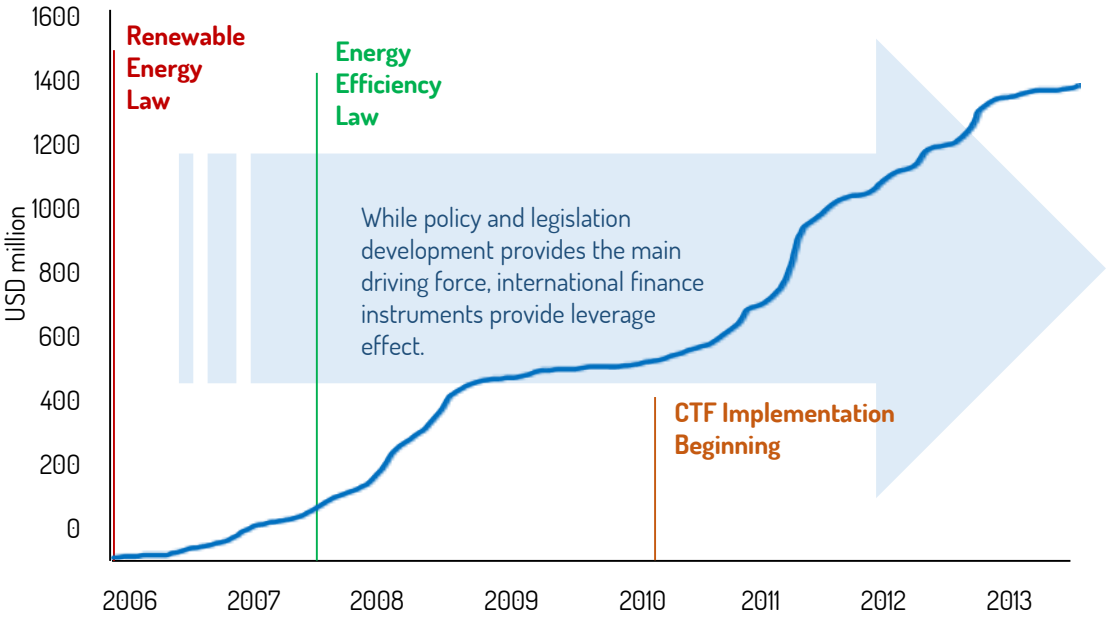


***Figure 17.*** *International finance instruments such as CTF provided additional power to the main driving force created by Turkey's policy and legislation development and played an important role in the development of renewable energy and energy efficiency market.*

[84] Climate Investment Funds. (January 2009). *Clean technology fund investment plan for Turkey.* Retrieved from https://www.climateinvestmentfunds.org/sites/cif_enc/files/CTF_Turkey_Investment_Plan_01_16_09_web.pdf.
[85] Turkey. Retrieved from https://www.climateinvestmentfunds.org/country/turkey.
[86] Econoler (January 2013). *Impact assessment report of clean technology fund in renewable energy and energy efficiency market in Turkey.* Retrieved from https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/ctf_impact_assessment_report_final_130528_0.pdf.
[87] Adapted from Econoler, 2013.

The aim under the CTF program is to channel development finance institutions and private sector investments into renewable energy and energy efficiency through resources provided via loans and technical assistance.[88]

CTF has provided support to the efforts towards overcoming the bottlenecks within the scope of the programs. This support are summarized in **Table 1**.

In light of this information, it can be noted that CTF example signifies an important experience specific to Turkey with regard to the leverage effect of finance for transitioning to sustainable and green economy and reflects the encouraging and enabling aspects of sustainable and green finance.

The incentive power of such international funds and finance mechanisms can assume a role of encouraging new investments, increase the technical capacity and have a cost lowering effect in time in the developing economies, thereby may act as a double-sided lever.

***Table 1.*** *Programs implemented and assistance provided in Turkey in 2009-2018 under CTF.*

| Name of the Program | Provided Fund (USD million) |
|---|---|
| Commercializing Sustainable Energy Finance Program - Phase II (CSEF II) | 38.73 |
| Commercializing Sustainable Energy Finance - Phase I (CSEF) | 21.20 |
| Finance Innovation for Renewable Energy (FIRE) | 8.48 |
| Geothermal Development Lending Facility (GeoDELF) | 24.09 |
| Geothermal Development Program | 39.8 |
| Assessment of CTF's Impact on Renewable Energy and Energy Efficiency Market in Turkey (Technical Assistance Support) | 0.09 |
| Private Sector Renewable Energy and Energy Efficiency Project | 100.00 |
| Turkey Sustainable Energy Finance Facility (TurSEFF) | 49.15 |
| Renewable Energy Integration Project | 50.00 |
| Energy Efficiency in Buildings Finance Program (TuREEFF) | 69.79 |
| Energy Efficiency in SMEs Project/Renewable Energy Integration Technical Assistance Project | 1.00 |

[88] Turkey. Retrieved from https://www.climateinvestmentfunds.org/country/turkey.

# CHAPTER 5:

## In Focus in 2018: Green Bonds and Social Bonds

# 5. In Focus in 2018: Green Bonds and Social Bonds

## 5.a. Trends from Past to Present

Green and social bonds are the most popular products that come to mind today when sustainable finance mechanisms are mentioned. Green and social bonds have similar bond issuance processes as the conventional bonds. What makes green/social bonds different is that the bond proceeds are used to finance or re-finance projects or investments that create green or social benefits.

Green bonds were created to finance projects that have positive environmental and/or climate benefits. Most green bonds are bonds based on green "use of proceeds" or assets. The revenue from these bonds are allocated for green projects, but they are supported by the whole balance sheet of the issuer. Moreover, under the scope of green "use of proceeds", green project bonds and green securitized bonds were formed over time. The green bond market was initiated with the issuances of multilateral financial institutions, namely the European Investment Bank (EIB) and the World Bank in 2007. World Bank's green bond was designed in cooperation with Swedish SEB Bank to meet the special investor demand for AAA-tier products which support projects that tackle the climate problem. The market grew by reacting positively to the green bond issuance of IFC, a World Bank organization, realized within an hour. The first corporate green bond issued by Vasakronan, a Sweden-based property company, in November of the same year was a milestone in the market. Today there are companies such as SNCF, Berlin Hyp, Apple, Engie, ICBC and Credit Agricole among the large scale corporate issuers.

In addition to international financial institutions and the private sector, municipalities and regional governments also issue green bonds. The first municipality green bond was issued in Massachusetts in June 2013. Göteborg issued the first green city bond in October 2013. There are different US states, Ontario state (Canada), Johannesburg city (South Africa) and La Rioja state (Argentina) among the large scale green bond issuers. The green bond issuance of regional governments is also ongoing. Green bond market has followed an upward trend in growth since the first issuance in 2007 (**Figure 18**). Issuance amount of USD 15.4 billion in 2013 doubled to reach USD 37.8 billion in 2014. Green bond issuance reached USD 157 billion in 2017. The realizations in 2018 indicate that the figures have reached USD 74.6 billion for first half of the year.[89] Estimations foresee that the issuance will reach USD 250 to 300 billion by the end of 2018.

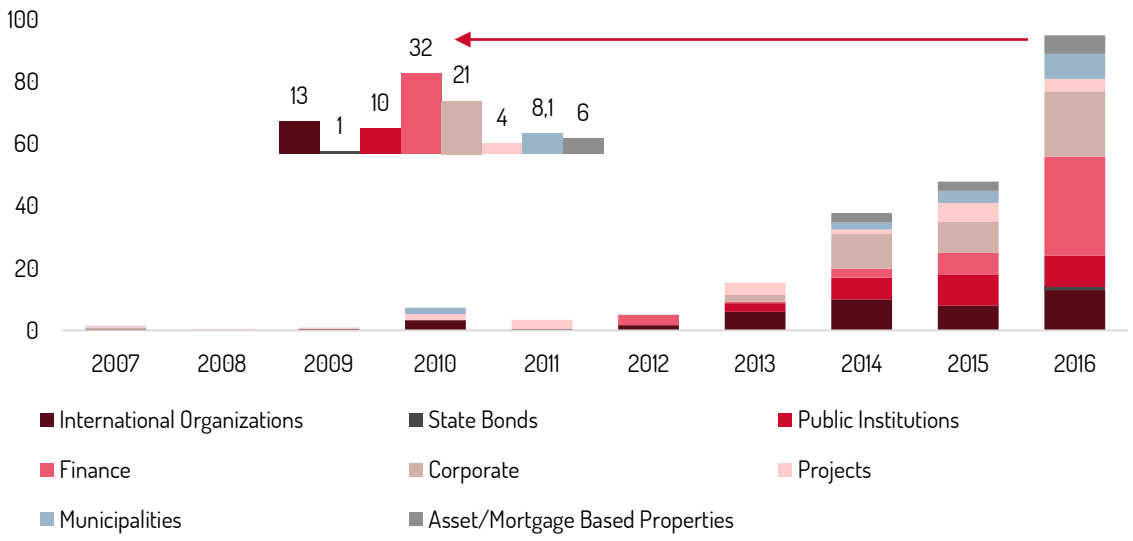


***Figure 18**. Development of green bonds*[90]

[89] Climate Bonds Initiative. (2018, July). *Green Bonds Market Summary H1.* Retrieved from https://www.climatebonds.net/files/files/H1%202018%20Highlights_12072018.pdf .
[90] Bloomberg New Energy Finance. (2017, 19 January). *Green bonds: 2016 in review.* Retrieved from https://data.bloomberglp.com/bnef/sites/14/2017/08/BNEF_RN_Green-Bonds-2016.pdf .

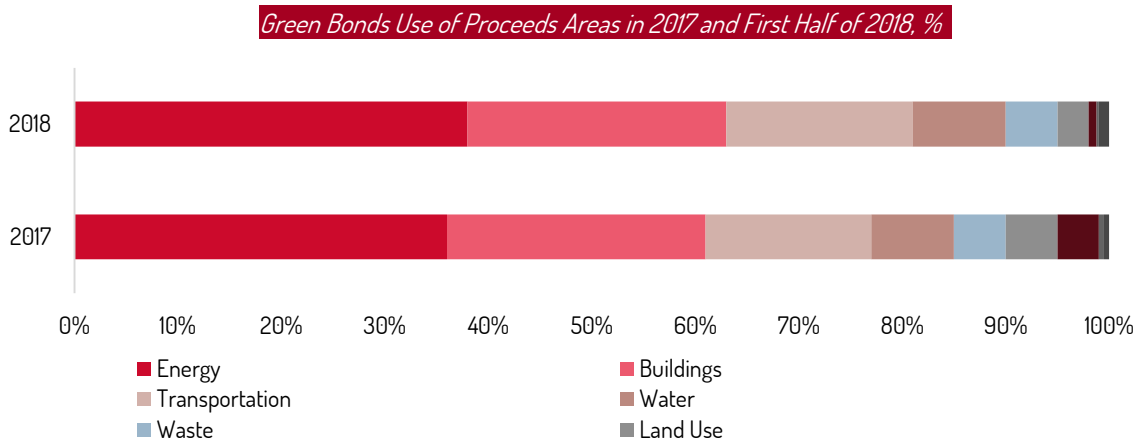


***Figure 19.*** *Green bonds use of proceeds areas in 2017 and first half of 2018 (%)* [92]

Social bonds, on the other hand, are bonds that are used to finance projects about social issues and/or that are expected to yield positive social results for the disadvantaged population. Although it is assumed that social bonds came into existence after green bonds in the world of sustainable finance, development of social bonds predates the issuance of the first green bond. The vaccination bond issued by the International Finance Facility for Immunization in 2006 can be regarded as the first social bond. The subject was expanded later on with examples such as the social bond program of the African Development Bank regarding food safety, water and information technologies and the sustainable bond framework of Paris. However, progress speed of social bonds is still behind that of green bonds.

Currently, there are 23 social bonds registered in the social bonds database of the International Capital Markets Association (ICMA).[91] The reason for the speed and volume of social bonds not catching up with green bonds is thought to be the lack of information concerning social bonds. Issuers and investors think that social bonds do not yield concrete outcomes as green bonds do, and that this may cause problems for impact evaluation or forming a framework for social bonds. This case hinders the diversification of social bonds worldwide. Sustainable bonds can be regarded as the hybrid of green and social bonds, and they target the financing or re-financing of projects that can bring on green and social benefits.

Therefore, sustainable bonds incorporate green and social elements that can provide benefits both for the environment and the society simultaneously. While the development of sustainable bonds is not as rapid as green bonds, as it is the case with social bonds, recent years have witnessed an increase in the issuance of sustainability bonds. When looking at the trends and sectoral breakdown of areas of green and social bonds use of proceeds (**Figure 19**), it is seen that green bonds have shifted from transportation to energy and buildings over the past few years. It is also observed that issuers are moving from international financial institutions to financial institutions, asset backed securities, and the real sector.

Financing provided for SMEs and local establishments as well as microfinance fields are observed to be prominent when the current use of proceeds areas for social bonds are examined. These are followed by projects for increasing employment and housing. Practices for gender equality such as empowering female business owners as well as projects for access to basic services as education and health also fall under the fields supported through social/sustainable bonds (**Figure 20**). Sustainable bonds focus on fields such as renewable energy, clean transportation, mitigating emissions as well as energy and resource efficiency under the topic of environment, whereas increasing social inclusion, improving infrastructure services and access to basic services are prominent within the scope of social/economic field (**Figure 21**).

[91] Compiled from the data on the ICMA Social Bonds Database as of July 2, 2018.
[92] Climate Bonds Initiative. (July, 2018). *Green Bonds Market Summary H1.* Retrieved from https://www.climatebonds.net/files/files/H1%202018%20Highlights_12072018.pdf .

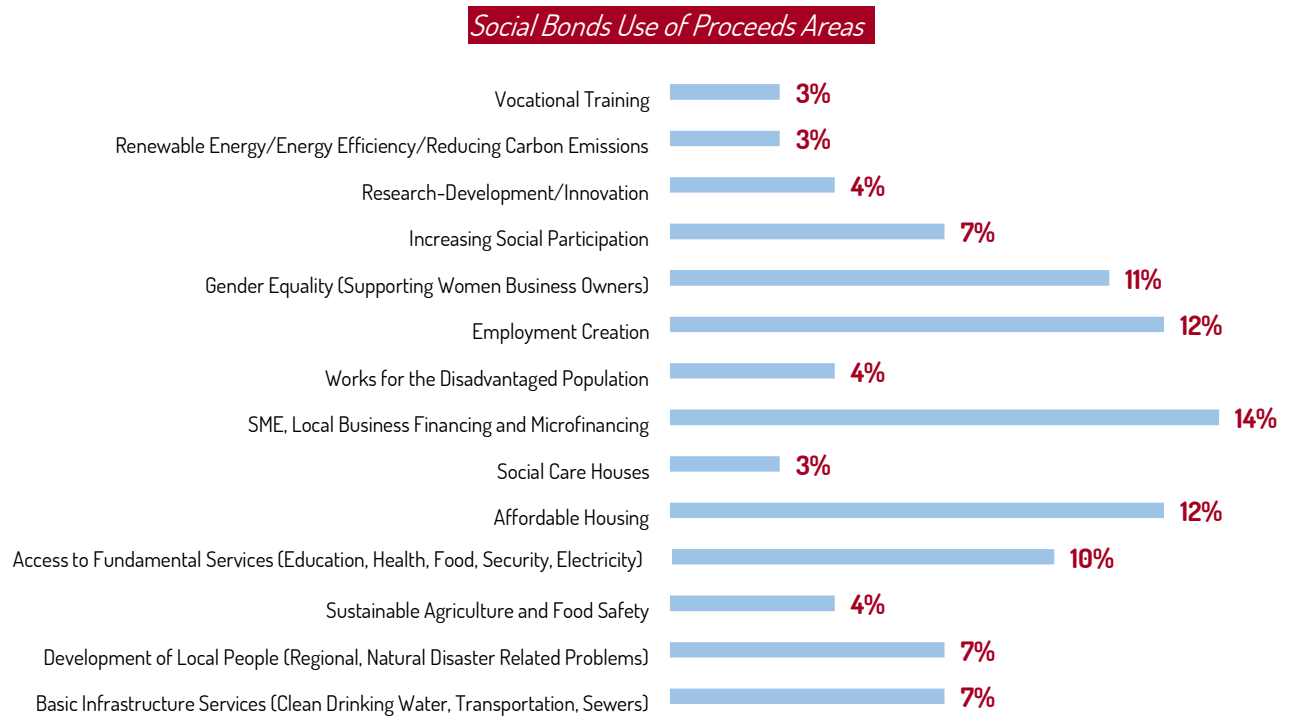


***Figure 20.*** *Social bonds use of proceeds areas (for the first half of 2018) (%)* [93]

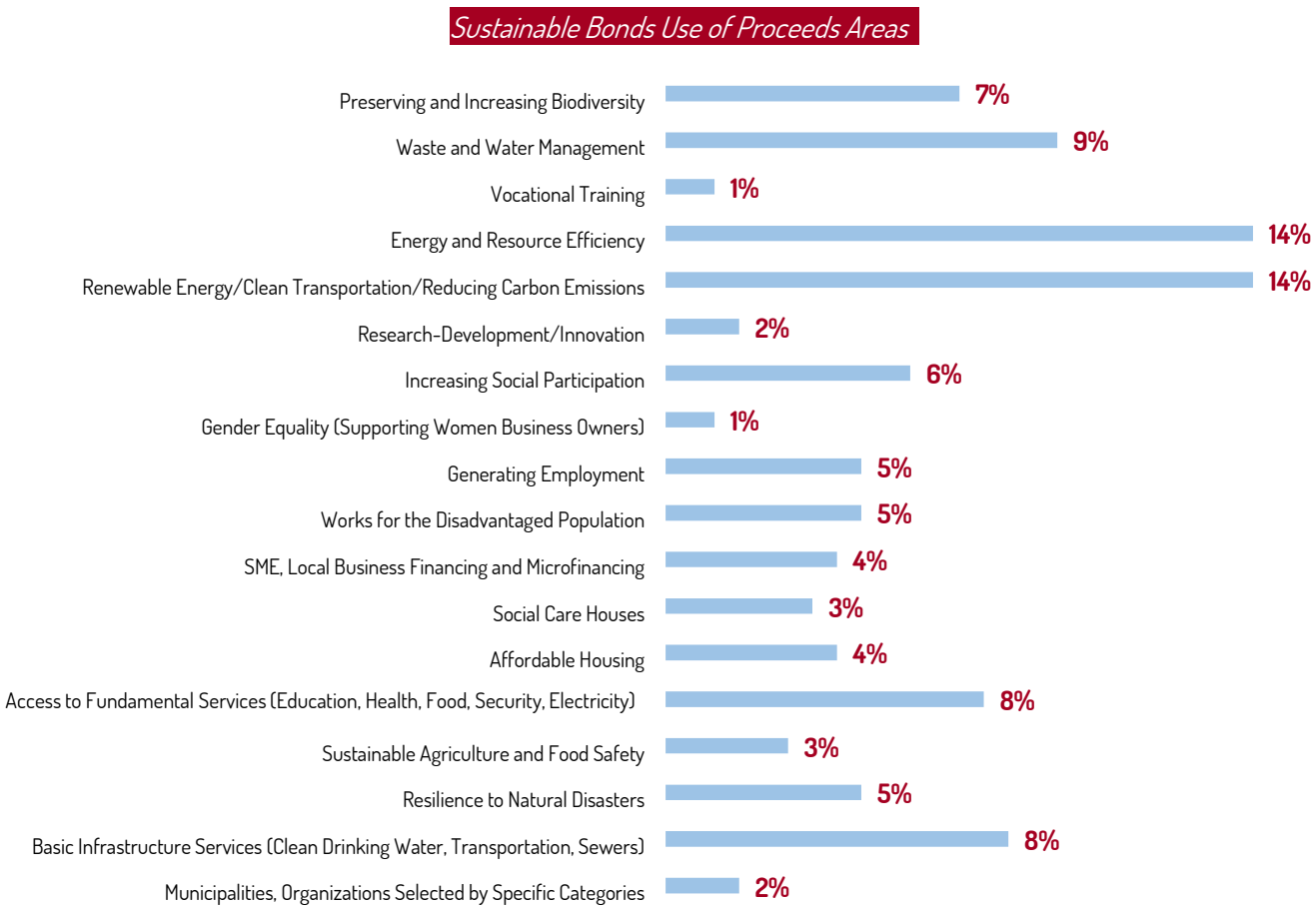


***Figure 21.*** *Sustainable bonds use of proceeds areas (for the first half of 2018) (%)* [94]

[93] Compiled from the data on the ICMA Green Bonds Database as of July 2018.
[94] Compiled from the data on the ICMA Sustainable Bonds Database as of July 2, 2018.

## 5.b. Green Bonds from Investor's Perspective

Green and social bonds are considered as a new and alternative business strategy for investors. In international financial markets, investors are increasingly focusing on integrating ESG issues into their investment processes. In this context, green and social bonds contribute to the investors to achieve their environmental and social goals. Investors who currently manage assets worth USD 45 billion have publicly announced their commitment to climate-friendly and responsible investments.[95]

From investors' perspective, green bonds provide the following opportunities:

- The means to finance green projects without additional risks or costs,
- More transparent processes regarding the use of proceeds in bonds,
- The means for the investors who are signatory to internationally responsible investment initiatives (such as UN Principles for Responsible Investment (PRI) and Institutional Investors Group for Climate Change (IIGCC)) to meet the commitments of these initiatives,
- Reporting on the climate effects of fixed-income investments on asset owners.

Green/social bonds offer investors both a chance to fulfill their commitments and a new investment area within the scope of responsible investment. In parallel with this trend by investors, stock exchanges and companies providing investment services started to launch green bond indices where green bonds are offered as an investment product. It is observed that the implementations of these green bond indices are increasing in the international markets.

However, in order for the investors to use green and social bonds as a mechanism of advantage, it is important that the green and social criteria of the bonds are set up in accordance with certain rules. Therefore, as recommended by the Green Bond Principles (GBP), the bond frameworks of the issuers are expected to be reviewed by an independent organization. This process, called an external or second-party opinion, provides investors with information on the bond based on the principles of impartial evaluation and transparency. Similarly, periodic monitoring of the bonds' impact based on certain performance criteria is among the expectations of investors.

This expectation of investors are met by impact reporting, which are reports that periodically (usually annually) monitor the environmental, social, sustainability impacts of the bond based on the criteria and key performance indicators defined within the framework of the bond. Impact reports are expected to be publicly disclosed continuously in a timely fashion by the issuers for easy access by the investor and the relevant parties.

The new trend in interpreting the impacts of green and sustainable bonds is examining the relationship between the bonds and SDGs. SDGs are a set of goals that have been rapidly recognized by both public and private sector institutions since their issuance in 2015. Since they aim for inclusive and sustainable development, SDGs have also become the focus of attention in the financial world as well. As paying attention to ESG issues in financial markets has become mainstream, doing this through SDGs is considered a more result-oriented approach.

### S&P Green Bond Index

*The index under S&P Dow Jones, launched in July 2014, only covers;*

- *The bonds for which clear information is disclosed by the issuers regarding their use of proceeds, or*
- *The bonds that are externally verified to be compatible with the Green Bond Principles and thus labeled as green.*

*Thus, higher standards of transparency and accountability are encouraged in the green bond market. The index covers green bonds from all around the world, and it contains bonds that are of multilateral institutions, state issuances and corporate issuances. The index was designed to be used by corporate investment managers, investment fund managers, exchange traded funders (portfolio management firms etc.) and professional consultants.*[96]

[95] Climate Bonds Initiative. Investor Appetite. Retrieved from https://www.climatebonds.net/market/investor-appetite.
[96] S&P Green Bond Index. Retrieved from https://us.spindices.com/indices/fixed-income/sp-green-bond-index.

***"Green/sustainable bonds, which constitute an important portion of sustainable finance products, can also be instruments that directly contribute to the Sustainable Development Goals with regard to the project sectors they finance."***

The relationship between the SDGs and sustainable finance is established by structuring the activities for these internationally accepted goals and objectives and by analyzing the impact of the current financing on these goals. Green/sustainable bonds, which constitute an important portion of sustainable finance products, can also be instruments that directly contribute the SDGs with regard to the project sectors they finance. In fact, as of the previous year, issuance of SDG bonds which are structured specifically for SDGs have started to emerge.

Investors started adopting the SDGs and setting investment goals that are compliant with the SDGs. According to the Global Impact Investing Network, 60% of impact investors actively monitor or plan to monitor the financial performance of their investment in terms of the SDGs.

A survey of the international index provider MSCI for investors shows that the SDGs are clearly emerging as a dominant framework in which they can organize the impact investment. Many respondents stated that stakeholders have requested to consider SDGs during the investment process.[97] Investors investing for impact prior to the SDGs report state that there is an increasing necessity of reporting and framing their activities around the SDGs.

In order to meet the increasing trend towards these expectations and SDGs, the Green Bond Principles[98] published an SDG mapping study in June. This study presents which SDGs and targets are related to the Green Bond Principles and the key performance indicator recommendations.[99] According to this study, 15 SDGs and 44 targets are considered as goals that are investable with green/sustainable bonds compliant with Green Bond and Social Bond Principles.

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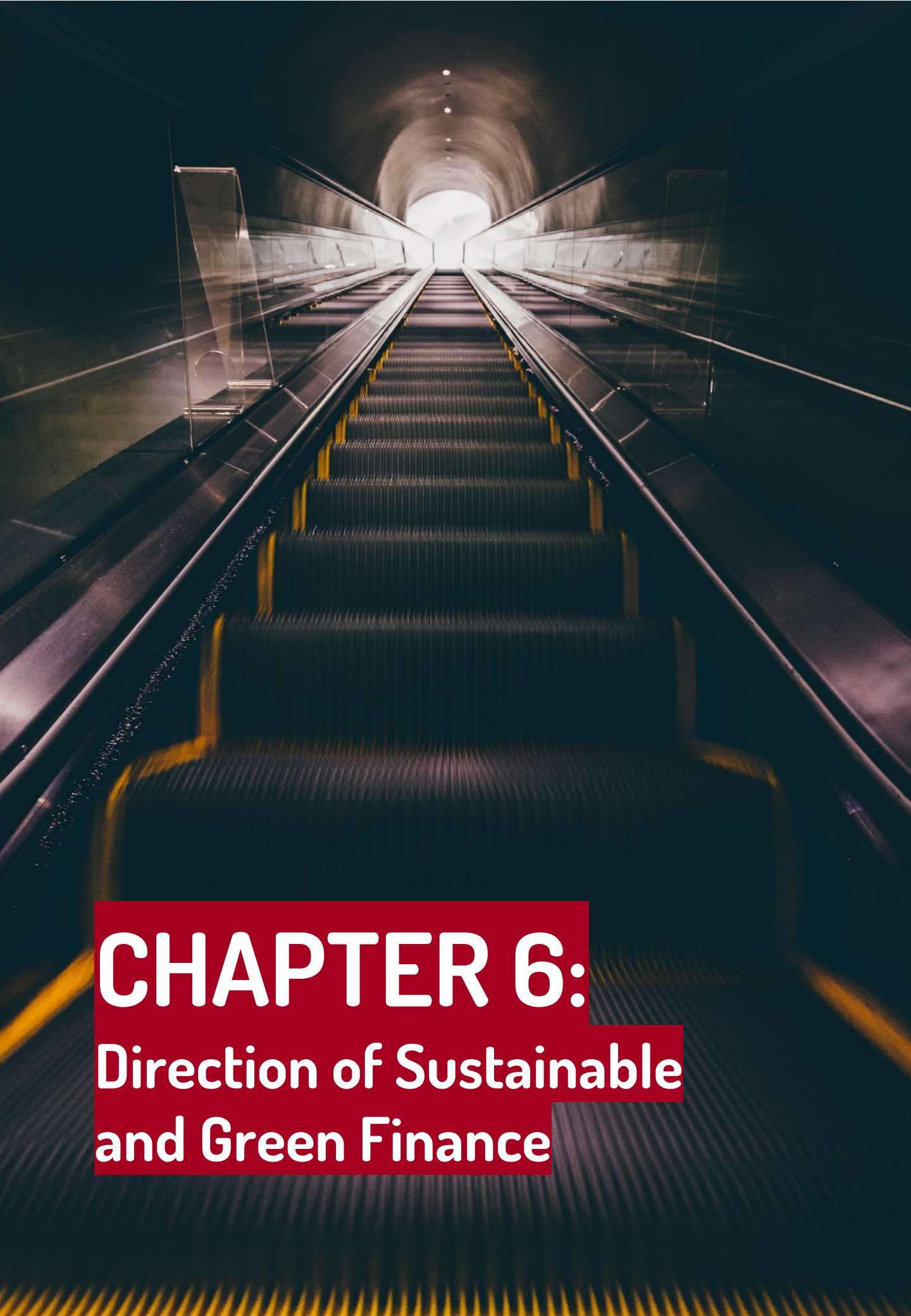
[97] Climate Bonds Initiative. Investor Appetite. Retrieved from https://www.climatebonds.net/market/investor-appetite .

[98] Green Bond Principles (GBP) is a voluntary organization that was founded in 2014 under the roof of International Capital Markets Association (ICMA) that aims to bring implementation standards and norms to the green bond market. Members of the GBP are issuer banks and firms, investment companies and intermediary institutions.

[99] Icma Group (2018, June). *Green and social bonds: a high-level mapping to the sustainable development goals.* Retrieved from https://www.icmagroup.org/green-social-and-sustainability-bonds/mapping-to-the-sustainable-development-goals/ .



# CHAPTER 6:
## Direction of Sustainable and Green Finance

# 6. Direction of Sustainable and Green Finance

The answers to the question of where sustainable and green economy finance is headed as of 2018 can be found in the progress in the previous years. All-time-highs and events experienced in meteorology and climate in 2017[100] interrupted development and human development (**Figure 22**). The rapid increase rate of green bond issuance reaching a record high by the end of 2017 was recorded as a positive development in terms of financing the transition of low-carbon economy (expected to reach USD 300 billion by the end of 2018).[101]

2017 also became the year where efforts towards climate change still fell short. Scientists are worried that the global greenhouse gas emissions started to increase following a year of lull.[102]

Just before these developments, in 2016, which is another year where temperatures were all-time high, a concrete call was made for increasing the climate finance for the first time at G20 summit organized in Hangzhou, China.[103]

According to a report published in the same year[104], number of regulations with regard to sustainability finance increased rapidly on a global scale (**Figure 23**). In addition, recommendations developed for climate-related risks highly resonated in the finance and economy world.

*Climate-Related Extreme Weather Events and Certain Impacts Thereof in 2017*

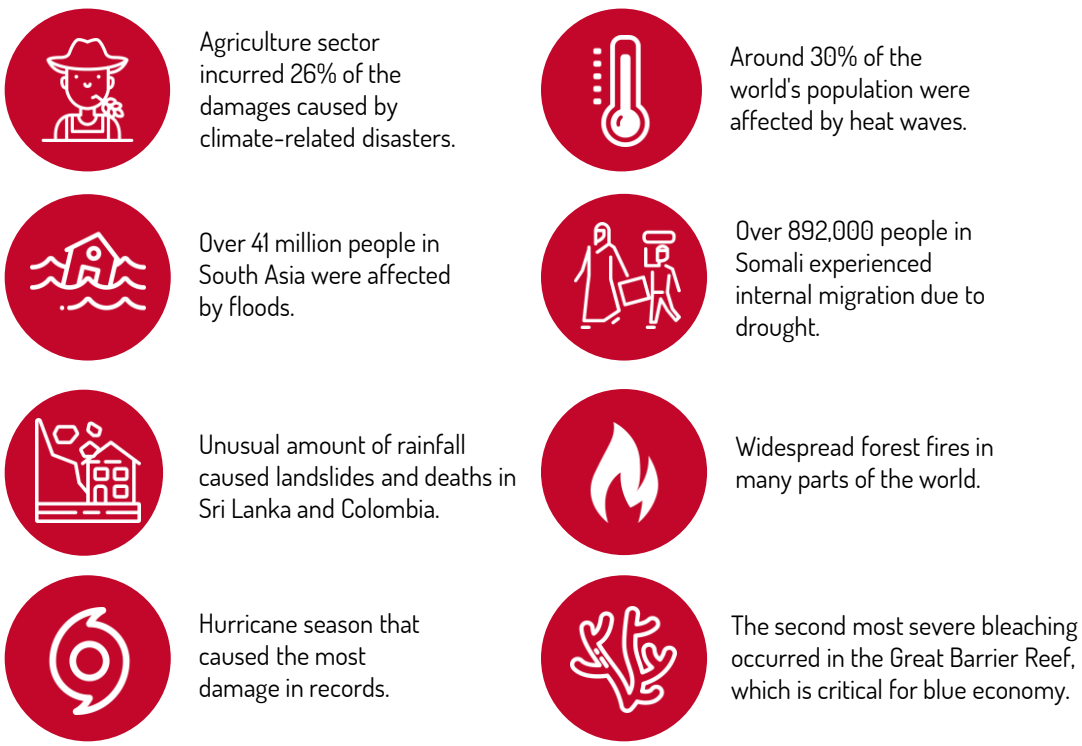



***Figure 22.*** *World Meteorological Organization 2017 climate and climate-related impacts assessment overview*

[100] WMO. (2018). *Statement on the state of the global climate in 2017*. Retrieved from https://library.wmo.int/doc_num.php?explnum_id=4453.
[101] Climate Bonds Initiative. (January 2018, ). Green bond highlights 2017. Retrieved from https://www.climatebonds.net/resources/reports/green-bond-highlights-2017.
[102] Jackson, R. B., Le Quéré, C., Andrew, R. M., Canadell, J. G., Peters, G. P., Roy, J. & Wu, L. (2017). Warning signs for stabilizing global CO2 emissions. Environmental Research Letters, 12(11), 110202.
[103] G20 Leaders' Communique (September 4-5, 2016). Retrieved from http://unepinquiry.org/wp-content/uploads/2017/01/2016-09-04-g20-communique-en.pdf.
[104] UNEP Inquiry. (2016). Measure to Measure: The Global Progress of Measures to Align Financial Systems with Sustainable Development.

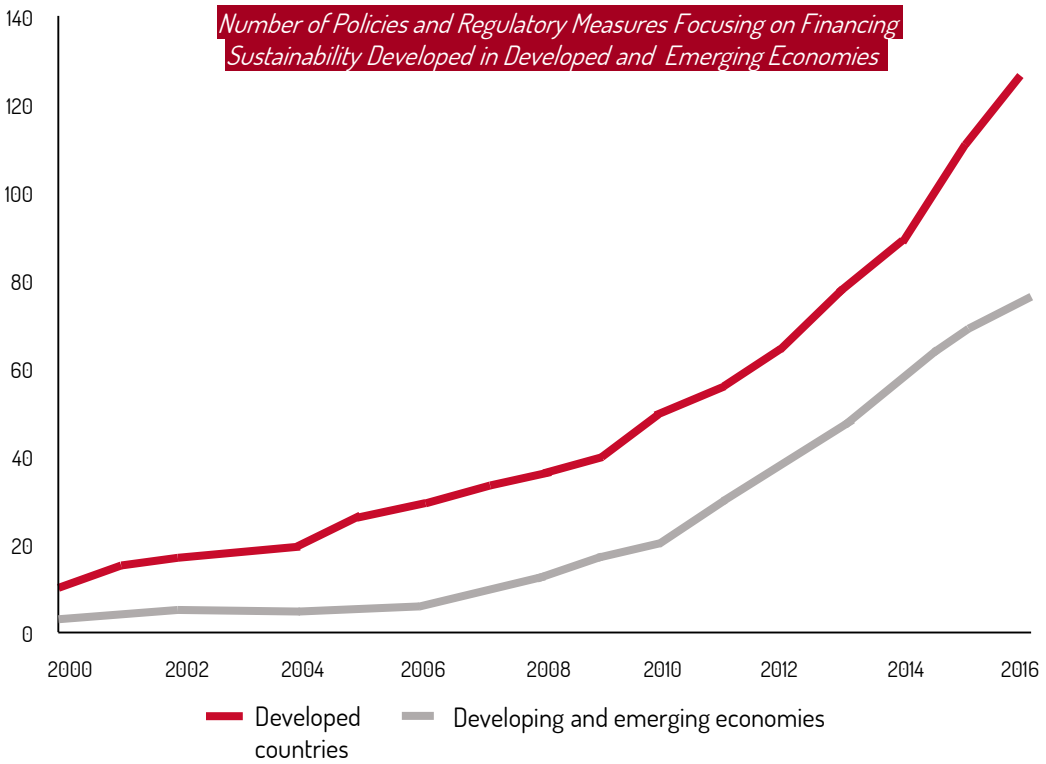



***Figure 23.*** *Number of policies and regulatory measures focusing on financing sustainability developed in developed and emerging economies, 2000-2016*[105]

To this end, receiving support from real sector in addition to investors and financial institutions is a noteworthy improvement.[106] One of the most triggering developments in terms of financing sustainability and green economy is, without a doubt, that the global agendas and their relation among each other were widely adopted in 2015. The interaction between these agendas allow sustainable finance to spread to areas outside the limits of renewable energy, energy efficiency and resource efficiency, and new financial instruments to be implemented in various areas. Certain prominent areas are mentioned in **Chapter 6.b**.

## 6.a. Some Milestones and the Upcoming Wave in Turkey

The finance movement that started with investments with environmental aspects in the 1960s in Turkey, when industrialization was intensely initiating, increased in volume in the 1970s through resources transferred to renewable energy investments especially through hydroelectric plants.

Public investments are pioneers of this era. The release of Environmental Impact Assessment regulation in 1993 became a driving force in Turkey in terms of systematically and comprehensively handling environmental impacts of investments.

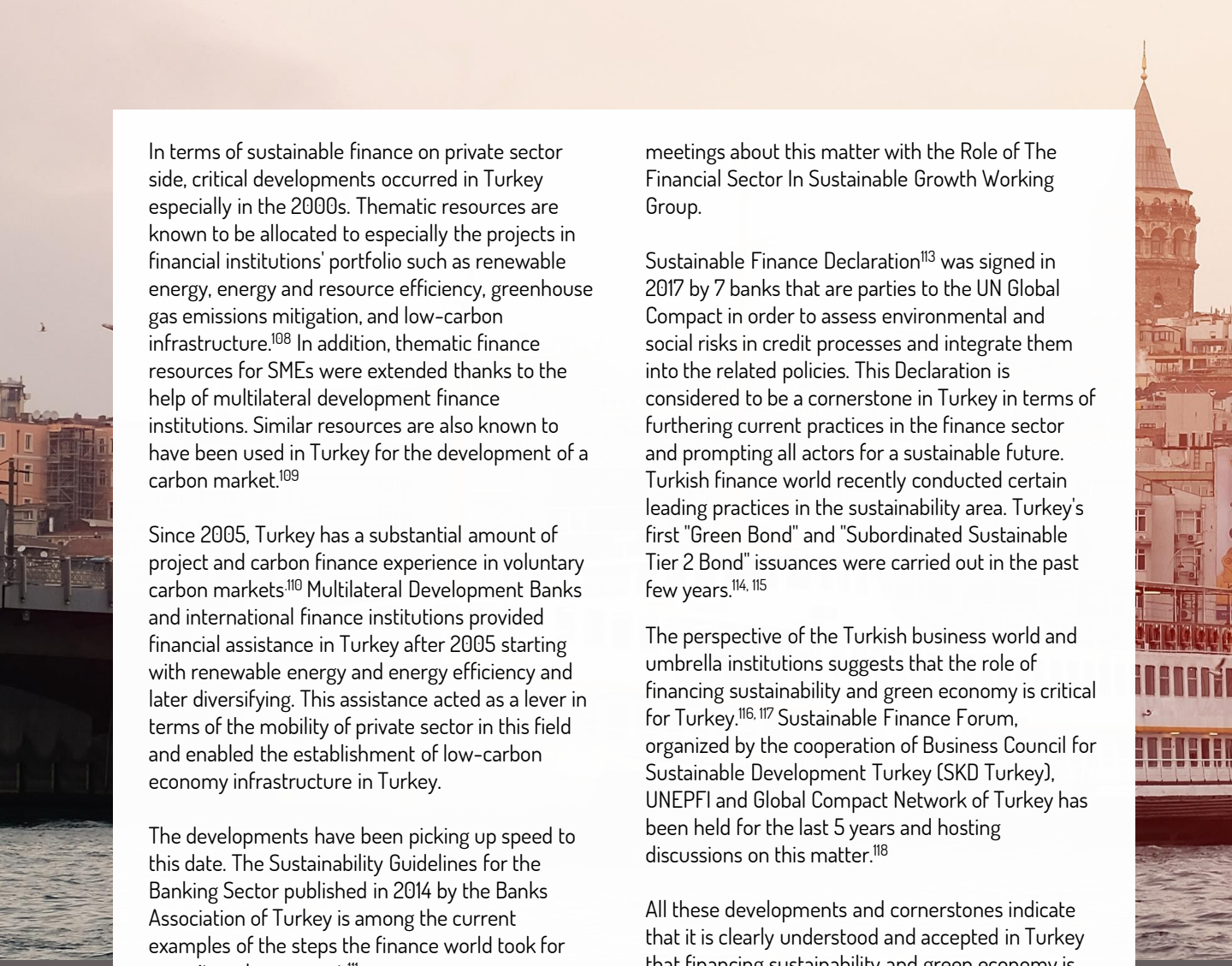
In parallel with the global developments, the public and private sector financial resources that Turkey can access have been diversified, and financing not only renewable energy but also energy and resource efficiency has gained importance starting from the 2000s.

Renewable Energy Law enforced in 2005, Energy Efficiency Law in 2007, Electricity Energy Market and Security of Supply Strategy Document issued in 2009, Climate Change Strategy Paper approved in 2010, Energy Efficiency Strategy Paper in 2012 and National Energy Efficiency Action Plan in 2018 became the key developments in terms of establishing the enabling and encouraging legal infrastructure needed for sustainability and green economy finance in Turkey (**Figure 24**).

[105] UNEP Inquiry. (2016). *The Financial System We Need: From Momentum to Transformation.* Retrieved from http://unepinquiry.org/wp-content/uploads/2016/09/The_Financial_System_We_Need_From_Momentum_to_Transformation.pdf.
[106] TCFD Supporters as of August 2018. Retrieved from https://www.fsb-tcfd.org/tcfd-supporters-august-2018/.

***Figure 24.*** *Certain critical developments in energy and climate areas in Turkey, 2000-2020*[107]

[107] Escarus



In terms of sustainable finance on private sector side, critical developments occurred in Turkey especially in the 2000s. Thematic resources are known to be allocated to especially the projects in financial institutions' portfolio such as renewable energy, energy and resource efficiency, greenhouse gas emissions mitigation, and low-carbon infrastructure.[108] In addition, thematic finance resources for SMEs were extended thanks to the help of multilateral development finance institutions. Similar resources are also known to have been used in Turkey for the development of a carbon market.[109]

Since 2005, Turkey has a substantial amount of project and carbon finance experience in voluntary carbon markets.[110] Multilateral Development Banks and international finance institutions provided financial assistance in Turkey after 2005 starting with renewable energy and energy efficiency and later diversifying. This assistance acted as a lever in terms of the mobility of private sector in this field and enabled the establishment of low-carbon economy infrastructure in Turkey.

The developments have been picking up speed to this date. The Sustainability Guidelines for the Banking Sector published in 2014 by the Banks Association of Turkey is among the current examples of the steps the finance world took for capacity enhancement.[111]

Borsa Istanbul Sustainability Index, published since 2014, offered investors a new resource to meet the systematic data gap that would be needed for the financing of sustainability.[112] The Banks Association of Turkey is among the pioneer umbrella organizations that are regularly concerned with and systematically organize meetings about this matter with the Role of The Financial Sector In Sustainable Growth Working Group.

Sustainable Finance Declaration[113] was signed in 2017 by 7 banks that are parties to the UN Global Compact in order to assess environmental and social risks in credit processes and integrate them into the related policies. This Declaration is considered to be a cornerstone in Turkey in terms of furthering current practices in the finance sector and prompting all actors for a sustainable future. Turkish finance world recently conducted certain leading practices in the sustainability area. Turkey's first "Green Bond" and "Subordinated Sustainable Tier 2 Bond" issuances were carried out in the past few years.[114, 115]

The perspective of the Turkish business world and umbrella institutions suggests that the role of financing sustainability and green economy is critical for Turkey.[116, 117] Sustainable Finance Forum, organized by the cooperation of Business Council for Sustainable Development Turkey (SKD Turkey), UNEPFI and Global Compact Network of Turkey has been held for the last 5 years and hosting discussions on this matter.[118]

All these developments and cornerstones indicate that it is clearly understood and accepted in Turkey that financing sustainability and green economy is an opportunity, competition advantage and a risk management element. The fact that this understanding started to transform into action can be considered as a sign of the wave approaching Turkey in parallel with the global developments. Sustainable and green economy finance is the new driving wind and a non-return route for the economy.

[108] TSKB. Sürdürülebilirliğin Finansmanı. Retrieved from http://www.tskb.com.tr/tr/surdurulebilir-bankacilik/surdurulebilirligin-finansmani.
[109] MIDSEFF. Carbon Finance. Retrieved from http://www.midseff.com/tr/carbon_finance.php.
[110] Republic of Turkey, Ministry of Environment and Urbanization Voluntary Carbon Markets. Retrieved from http://iklim.csb.gov.tr/gonullu-karbon-piyasalari-i-4391.
[111] Banks Association of Turkey. (November 20, 2014). *Sustainability Guidelines for The Banking Sector*. Retrieved from https://www.tbb.org.tr/surdurulebilirlik/tbb-surdurulebilirlik-kilavuzu.html.
112 BIST Sustainability Index. Retrieved from http://www.borsaistanbul.com/endeksler/bist-pay-endeksleri/surdurulebilirlik-endeksi.
113 Global Compact Network Turkey. *Global Compact Turkey Declaration of Sustainable Finance*. Retrieved from http://www.globalcompactturkiye.org/wp-content/uploads/2017/09/S%C3%BCrd%C3%BCr%C3%BClebilir-Finansman-Bildirgesi.pdf.
114 TSKB dünyada bir ilke imza attı (March 28, 2017). Retrieved from http://www.tskb.com.tr/web/101-3100-1-1/tskb-site-tr/tr-hakkimizda/tskbden-haberler/tskb-dunyada-bir-ilke-imza-atti.
115 TSKB issues the first ever green bond out of Turkey (May 17, 2016). Retrieved from http://www.tskb.com.tr/web/307-2976-1-1/tskb-site-en/en-hakkimizda/tskbden-haberler-en/tskb-issues-the-first-ever-green-bond-out-of-turkey.
116 TÜSİAD. *İklim değişikliğiyle mücadele alanında TÜSİAD tutum belgesi tanıtım dokümanı*. Retrieved from https://tusiad.org/tr/tum/item/download/8764_a51cd700f2ad2ec6398c6cd92f201f8e.
117 REC Türkiye. (February 22, 2017). *Türk iş dünyası liderlerinin iklim değişikliğine yanıtı: CEO algı araştırması sonuç raporu*. Retrieved from https://rec.org.tr/2017/02/22/ceosurvey2016/.
118 V. Sürdürülebilir Finans Forumu Gerçekleşti: İklim Değişikliğiyle Mücadelede Kilit Sektör: Finans (October 4, 2017). Retrieved from http://www.skdturkiye.org/haber/v-surdurulebilir-finans-forumu-gerceklestiiklim-degisikligiyle-mucadelede-kilit-sektor-finans.

*"Certain themes such as adaptation to climate change, increasing urban resilience to change and disasters resulting from climate change, ensuring continuity and improving ecosystem services started to be priorities in terms of sustainable and green economy finance under today's conditions."*

## 6.b. Prominent Themes of the Near Future

### 6.b.1. Climate Change Adaptation Finance

According to climate finance assessment regularly conducted by Climate Policy Initiative (CPI), global climate finance amount stood around USD 383 billion in 2016.[119] It should be noted that this figure is lower than that of the previous year (USD 437 billion). A striking point according to the report is that only 16% of the climate finance provided by especially the public sector consists of activities towards funding adaptation to climate change (**Figure 25**).

*Public Finance Provided for Climate Adaptation, 2013-2016*

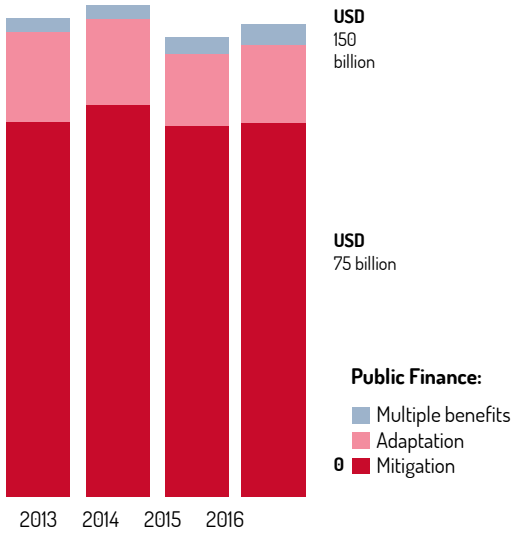



***Figure 25.*** *Public finance provided for adaptation to climate change, 2013-2016*[120]

Another study verifying this matter is the 2017 Joint Report On Multilateral Development Banks' Climate Finance.

Accordingly, the share of the finance and co-finance allocated for adaptation to climate change was stuck around 19% (**Figure 26**).[121] When sectoral distribution adaptation finance is analyzed, infrastructure investments focusing on water, wastewater, energy and transportation stand out (**Figure 27**).[122]

Developing countries are especially expected to be affected the most by the negative impacts of climate change.[123] The cost of adaptation to climate change is higher while the capacity to meet this possible cost is relatively lower in these countries. Almost all of the resources, from which projects on adaptation to climate change within the scope of international climate regime can be financed, are funded way below the level that is needed.[124] In climate change finance provided within the scope of mechanisms namely the Pilot Program for Climate Resilience (PPCR) by the World Bank and the Least Developed Countries Fund under Global Environment Fund (GEF), focus was given to mitigation to this date whereas the attention provided to adaptation finance was limited (**Figure 28**).[125]

Adaptation finance (**Figure 29**), which has relatively more weight compared to the shares of other finance resources within the scope of Green Climate Fund (GCF), focal point of Paris Agreement, is one of the most critical areas that will quickly become prominent in the near future, considering the inevitable short- and long-term negative impacts of climate change. Research is being conducted on needs in climate change adaptation finance. According to the calculations based on current and conservative estimations, adaptation finance needs will reach USD 280-500 billion by 2050.[126] This perspective shows how much way there is to meet the need for adaptation finance. On the other hand, it is of utmost importance to effectively adapt to climate change in terms of its negative impacts in cities.[127]

[119] Global investment to address climate change reached a record high in 2015. Retrieved from http://www.climatefinancelandscape.org/.
[120] ibid.
[121] ODI. (2017). *Climate Finance Thematic Briefing: Adaptation Finance 2017.* Overseas Development Institute, UK.
[122] ibid.
[123] Notre Dame Global Adaptation Initiative Country Index. Retrieved from https://gain.nd.edu/our-work/country-index/.
[124] ODI. (2017). *Climate Finance Thematic Briefing: Adaptation Finance 2017.* Overseas Development Institute, UK.
[125] ibid.
[126] UNEP. (2016). *The Adaptation Finance Gap Report.* Nairobi, Kenya: United Nations Environment Programme
[127] The Global Covenant of Mayors for Climate & Energy. (June 19, 2018). *The Future We Don't Want: Billions of urban citizens at risk of climate-related heatwaves, drought, flooding, food shortages and blackouts by 2050.*Retrieved from https://www.globalcovenantofmayors.org/wp content/uploads/2018/06/The-Future-We-Dont-Want-Press-release_Final.pdf.

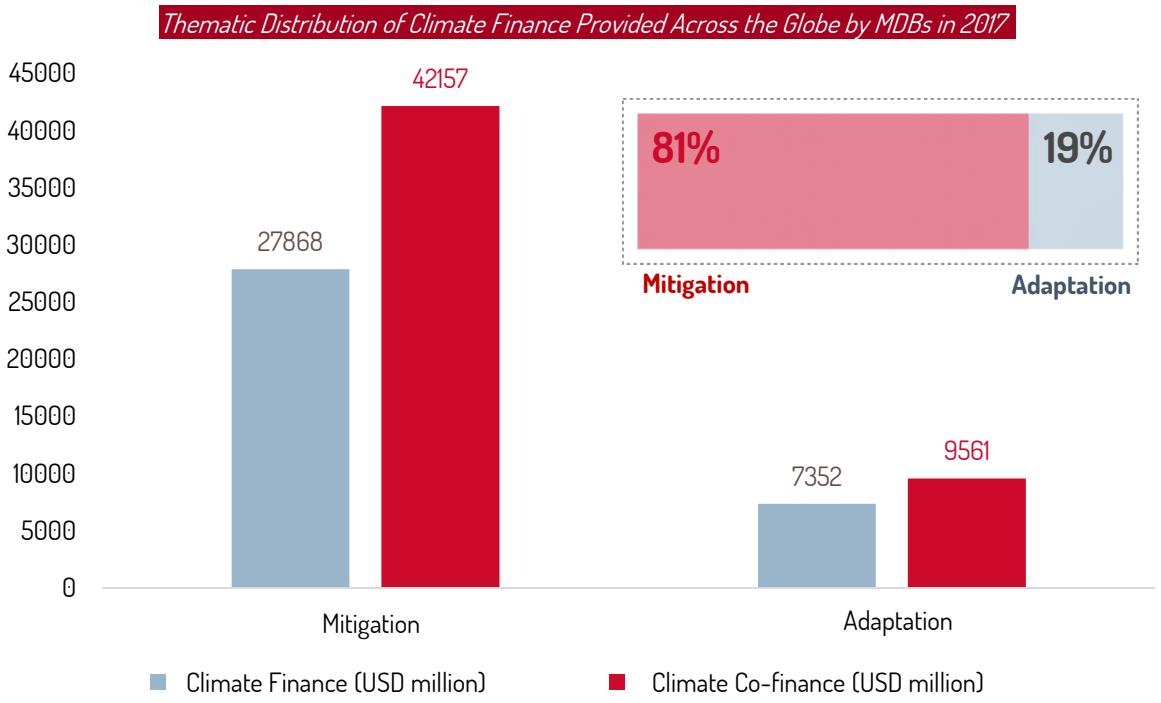



***Figure 26.*** *Thematic distribution of climate finance and co-finance provided across the globe by multilateral development banks in 2017*

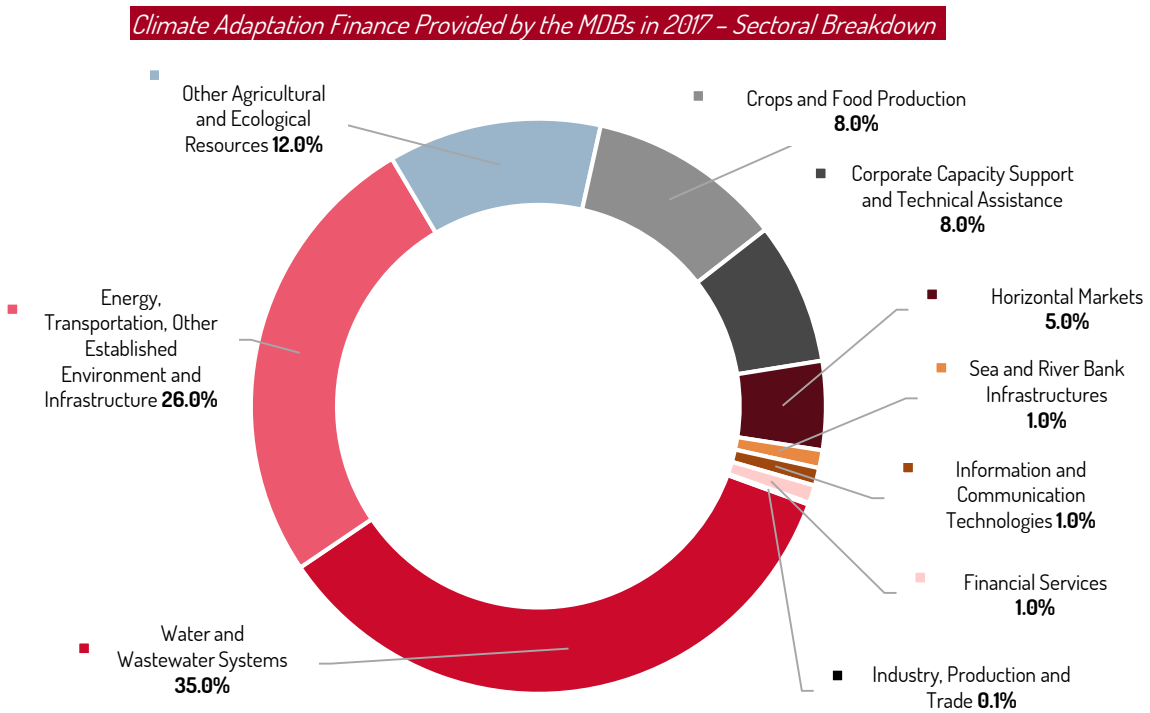



***Figure 27.*** *Adaptation finance provided by multilateral development banks in 2017 - sectoral breakdown*

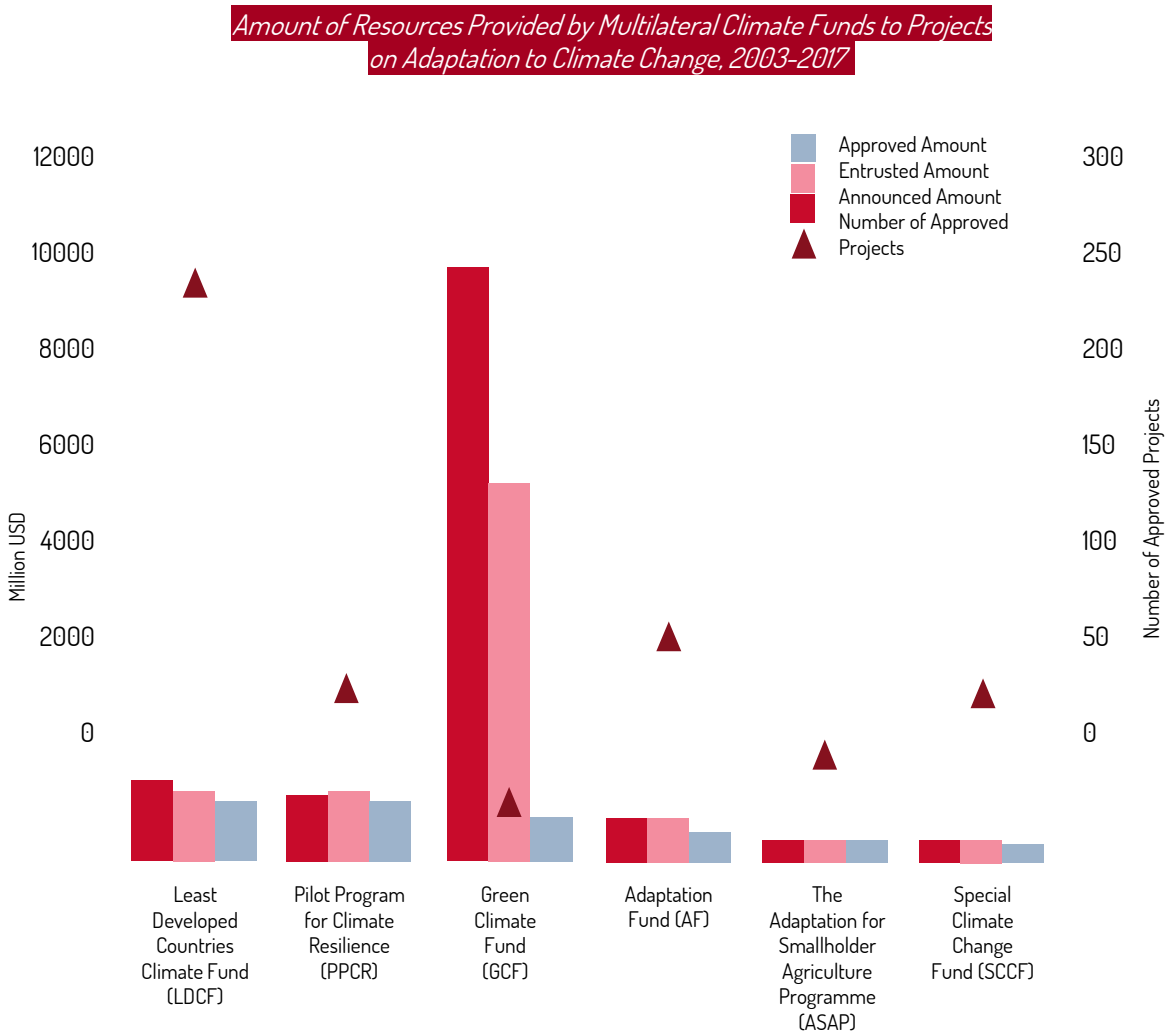



***Figure 28.*** *Amount of resources provided by multilateral climate funds to projects on adaptation to climate change, 2003-2017*

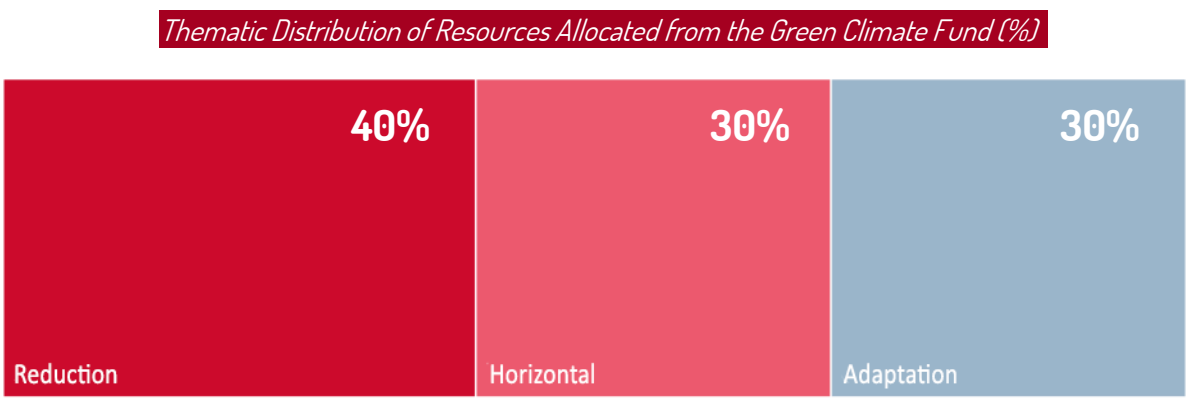



***Figure 29.*** *Project portfolio financed within the scope of the Green Climate Fund as of August 6, 2018*

Deficiencies with regard to adaptation can be felt not only in terms of finance, but also of the capacity for developing, implementing and assessing adaptation-based projects.[128] It is safe to say that almost every country in the world must improve capacity.

Although Turkey possesses trained human resources in finance world that could assess mitigation projects, it is observed that the number of trained personnel to assess adaptation projects is limited. It would not be wrong to assume that in the near future, international resources will lean more on this area and expertise in sustainability finance will be needed.

### 6.b.2. Financing Climate Resilience in Cities

As of 2015, at least half of the population lives in the cities which make up around 80% of the gross world product. Cities are responsible for approximately three fourths of primary energy consumption and greenhouse emissions.[129] It is expected that as of 2030, the date determined to achieve the SDGs, the world population in the cities will increase by one billion persons.[130] This means that the pressure in terms of climate change and sustainability will increase.

The importance of climate action in cities is becoming more and more prominent. Although further steps are taken for mitigation, efforts towards adaptation and resilience are in their early stages.[131] Considering human development and sustainable development goals, the finance needed for infrastructure is foreseen to reach USD 5-6 trillion in the upcoming decades.[132] These investments are crucial for providing resilience against climate changes and may possibly generate net economic returns.[133] According to a study, it is possible to obtain USD 17 trillion net present value (NPV) as of 2050 through investments to be made in urban infrastructure sustainability and green infrastructures.[134] Side benefits of these investments also have the potential to generate great added values without any additional costs.

Creating resilience against climate change in cities is a limited area, in terms of limited financial flows and institutional capacities, just as adaptation to climate change. The importance of increasing investment appetite of the investors and the finance world can be more clearly understood when considering that only 4% of the 500 largest cities in the developing economies across the world had access to international loan markets merely five years ago (2013)[135].

[128] Stadelmann, M., Michaelowa, A., Butzengeiger-Geyer, S., & Köhler, M. (2015). *Universal metrics to compare the effectiveness of climate change adaptation projects. In Handbook of Climate Change Adaptation* (pp. 2143-2160). Springer, Berlin, Heidelberg.
[129] IPCC .(2014). *Climate Change 2014: Mitigation of Climate Change*. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.
[130] UN DESA. (2015). *World Urbanization Prospects*
[131] Reckien, D., Salvia, M., Heidrich, O., Church, J. M., Pietrapertosa, F., De Gregorio-Hurtado, S., & Orru, H. (2018). How are cities planning to respond to climate change? Assessment of local climate plans from 885 cities in the EU-28. *Journal of cleaner production, 191*, 207-219.
[132] Bhattacharya, A, Meltzer, JP, Oppenheim, J, Qureshi, Z, Stern, N. (2016). *Delivering on sustainable infrastructure for better development and better climate*. Brookings Institute,New Climate Economy and the Grantham Institute for Climate Change and the Environment.
[133] Bouton, S, Newsome, D and Woetzel, J. (2015). *Building the cities of the future with green districts*. McKinsey & Company.
[134] Sudmant, A, Millward-Hopkins, J, Colenbrander, S and Gouldson, A. (2016). Low carbon cities: is ambitious action affordable? Climatic *Change. 138*(3-4) 681-688.
[135] Infographic: Building Low-Carbon Cities. (October 24, 2013.). Retrieved from http://www.worldbank.org/en/news/feature/2013/10/24/infographic-creditworthy-cities.


In light of the finding that within the next 15 years, more infrastructure investment will be done than all infrastructure investments realized to this date[136], it is inevitable to engage new financial approaches and instruments in order to ensure financing of resilience in cities. Mexico City issuing green bonds and providing technical assistance and capacity support within the scope of "C40 Cities Finance Facility" is among the examples of these new approaches. It is mentioned in various studies that Green Investment Bank model may be an effective model in this sense.[137] Developing resilience is also related to effective management of risks and effective risk sharing. The roles of investors, insurance and reassurance companies in finance world are getting more prominent as much as that of the banks. It should also be noted that public and private sector started to experience new risk sharing models in the cities and with regard to infrastructure.[138] At this point, the importance of participation and bottom-up approaches for effectiveness and creating impact should be underlined.[139]

### 6.b.3. Increasing Role of Entrepreneurship and Technology in Financing Sustainability

It is an established fact that the number and effectiveness of new climate technologies and services should increase rapidly considering the challenges with regard to climate change and achieving the SDGs.

The idea of entrepreneurship incubators and accelerators coming into the equation at this point is accepted more and more with each passing day.[140] UN Framework Convention on Climate Change (UNFCCC) Technology Executive Committee (TEC), GCF and Climate Technology Center and Network (CTCN) have joint efforts on the matter. Every day, new technologies and services are developed on the fight against climate change and sustainability. Almost every day new and internationally acclaimed ventures emerge in this area.

Examples of such initiatives have been seen also in Turkey in recent years. For instance tarla.io, which is one of Turkey-based initiatives, won the data visualization award among 450 teams from 67 countries that participated in the "Data for Climate Action" competition organized under climate negotiations.[141] There are examples where entrepreneurship and innovation were utilized similarly in order to achieve the SDGs.

It is found that in recent years, technological developments and finance instruments have been increasingly interlinked. An interesting example to these can be the "Climate Coin", where cryptocurrencies are considered under the fight against climate change.[142] The essential asset, on which this cryptocurrency using Ethereum infrastructure is based, is greenhouse gas reduction offsetting loans. For every Climate Coin the customers purchase, they essentially purchase carbon loan.

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[136] Bhattacharya, A, Meltzer, JP, Oppenheim, J, Qureshi, Z, Stern, N. (2016). *Delivering on sustainable infrastructure for better development and better climate.* Brookings Institute,New Climate Economy and the Grantham Institute for Climate Change and the Environment.
[137] Natural Resources Defence Council, Coalition for Green Capital, Climate Finance Advisors. (2016, November*). Green & Resilience Banks How the green investment bank model can play a role in scaling up climate finance in emerging markets. Retrieved from* http://greenbanknetwork.org/wp-content/uploads/2016/11/Green_Investment_Bank_Model_Emerging_Markets.pdf.
[138] Marsh&McLennan Companies. (2017). *Financing for climate resilience. Retrieved from* https://www.mmc.com/content/dam/mmc-web/Global-Risk-Center/Files/2018-climate-resilience-handbook-financing-for-climate-resilience.pdf.
[139] Barry Smith, Donald Brown ve David Dodman. (2014). *Reconfiguring Urban Adaptation Finance. IIED Working Paper.* IIED, London.
[140] Gündoğan, A. *Yeni İklim Teknolojileri ve Servisleri için Hızlandırıcıların ve Kuluçkaların Rolü.* Retrieved from *https://www.iklimhaber.org/yeni-iklim-teknolojileri-servisleri-icin-hizlandiricilarin-kuluckalarin-rolu/.*
[141] Data for Climate Action. Retrieved from *http://dataforclimateaction.org/.*
[142] Climate Coin. Retrieved from *https://climatecoin.io/.*

There is a significant increase in the number of platforms and events where similar examples are developed. "Climate FinTech Hackathon"[143] organized in Switzerland, "DataThon"[144] held by Munich Re and "Innovate for Climate"[145] organized in Germany are only a few of these. Assessing initiatives, innovation and technology in sustainability and green economy finance is critical in terms of the following:[146]

1. Increasing access to local and international finance and inclusion, reducing expenses and costs with regard to access,

2. Increasing local savings and therefore creating new finance flows to more long-term, sustainability-driven investments especially in the real sector,

3. Developing game changer tools and approaches for financial protection, risk management, risk transfer and risk diversification especially for fragile segments, ecosystems and reel economy,

4. Eliminating the data gap and sharing deficiency in order to make more meaningful decisions, develop legislation and risk management in the financial system and real economy,

5. Creating new areas to ensure the effectiveness of financial markets in sustainable development and fight against climate change.

Initiatives, innovation and technological developments provide new tools and methods that can fill the gap between finance world and real sector, increase inclusivity and accelerate development. It is known that the weight of these terms increased in sustainable and green economy finance, and the financial instruments and approaches to be prominent in the near future are expected to be realized within this perspective.[147]

[143] Sustainable Fintech. Retrieved from https://sustainablefintech.ch/.
[144] MRDataThon - A DataThon by Munich Re. Retrieved from https://www.munichre.com/datathon.
[145] Innovate 4 Climate. Retrieved from http://www.innovate4climate.com/.
[146] UNEP. (2016). *Fintech and sustainable development: assessing the implications.*
[147] University of Cambridge Institute for Sustainability Leadership (CISL). (2017). *Catalysing Fintech for Sustainability: Lessons from multi-sector innovation.* Cambridge, UK.

### 6.b.4. Financing Ecosystem Services

Ecosystems[148] provide economically valuable services.[149] Drinking water sources, irrigation and energy generation, protection against extreme weather conditions can be examples to these services. Ecosystem services can be summarized under 4 categories as per their functions:[150]

**1.Formation functions:** Ecosystems' capacity of forming necessary life support systems through biological, geological or chemical cycles and processes.

**2.Habitat functions:** Ecosystems provide plants and animals shelter and reproduction areas and contribute to the protection of biological and genetic diversity.

**3.Production functions:** Ecosystems constitute the building blocks of many products needed by humans by utilizing energy, carbon dioxide, water and various minerals through photosynthesis or inorganic chemical reactions.

**4.Cultural functions:** As most of the human evolution occurred at pre-literacy ages, these functions provide a significant reference point for our understanding of the past of natural ecosystems. In addition, they provide moral enrichment, cognitive development, recreation and aesthetic experience and contribute to the health of people.

In brief, financing of ecosystem services or payment for ecosystem services (PES) is a concept used to explain the payment a stakeholder directly or indirectly makes to the service provider using an ecosystem service. Payments made to those protecting the ecosystem for the protection are also considered under this topic.[151]

Environmental protection projects are known to struggle in terms of financing.[152] It is estimated that the global annual finance need for protection and restoration of ecosystem services is USD 300 to 400 billion. However, the resources annually transferred to protection projects are calculated to be around USD 52 billion.

On the other hand, it is found that the demand for ecosystem services did not exceed USD 18 billion in 2015 but it has an upward trend.[153] This trend has been confirmed in a 2018 study and the transaction volume rose and reached USD 42 billion.[154]

Perceiving more and more the environmental changes, global limitations and climate changes in today's world increases the need for financing ecosystem services under sustainable and green economy finance and indicates that in addition to public sector, the investment appetite of the private sector may also grow for the sustainability of these services.[155]

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[148] Ecosystem concept can be summarized as the systems that emerge with mutual relations of living beings at a certain place and the non-living environment that encompasses them and that require sustainability.
[149] UNEP. (2008). *Payments for ecosystem services: Getting started.* Retrieved from https://wedocs.unep.org/bitstream/handle/20.500.11822/9150/payment_ecosystem.pdf?sequence=1&isAllowed=y.
[150] SKD Turkey. *100 Maddede Sürdürülebilirlik Rehberi. Retrieved from* http://www.skdturkiye.org/files/yayin/100-Maddede-Surdurulebilirlik-Rehberi.pdf.
[151] Payment for Ecosystem Services. Retrieved from http://www.undp.org/content/sdfinance/en/home/solutions/payments-for-ecosystem-services.html.
[152] Drutschinin, A. ve S. Ockenden. (2015). *Financing for development in support of biodiversity and ecosystem services.* OECD Development Co-operation Working Papers, No. 23. OECD Publishing, Paris. Retrieved from https://doi.org/10.1787/5js03h0nwxmq-en.
[153] Forest Trends Ecosystem Marketplace. (May 2015,). *Ecosystem markets and finance: A global primer.* Retrieved from http://www.ecosystemmarketplace.com/wp-content/uploads/2016/01/Ecosystem-Marketplace-Market-Primer-2015-Final.pdf.
[154] Salzman, J., Bennett, G., Carroll, N., Goldstein, A., & Jenkins, M. (2018). *The global status and trends of payments for ecosystem services.* Nature Sustainability, 1(3), 136.
[155] Credit Suisse, World Wildlife Fund and McKinsey & Company. (2014). *Conservation finance: Moving beyond donor funding toward an investor-driven approach.*

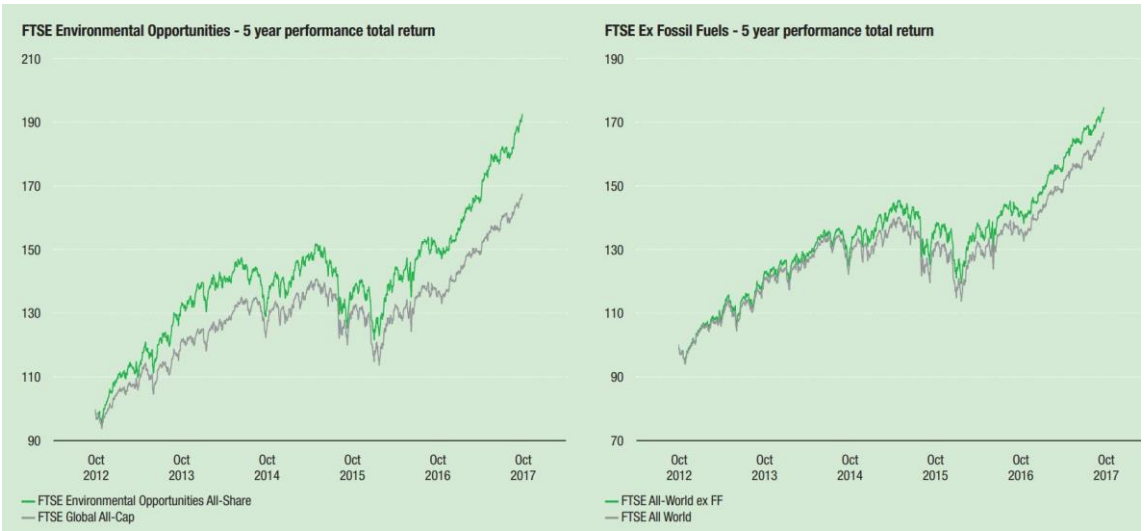


***Figure 30.*** *Revenue graphics for FTSE environmental opportunities and FTSE Ex fossil fuel indices, 2012-2017*

### 6.b.5. Impact of ESG Parameters and Indices on Finance World

It is known that the environmental, social and governance related parameters and related data are monitored in finance world for investment and risk monitoring purposes. The relation between ESG performance and produced economic added value is monitored in line with the established indices. There are studies suggesting that certain ESG-oriented indices become more attractive to investors in time (**Figure 30**).[156] In addition to indices, information to guide investors are also generated over ratings, rankings and ESG parameters. Findings of a recent research put forth striking results with regard to the estimation of risks via these parameters.

The study indicates that ESG parameters can give primary signals before risks emerge, especially in the insurance sector.[157] Conducted globally on the data set collected from 6,000 companies for 12 years, the study[158] provides significant reasons with regard to rapidly closing the data gap in terms of ESG.

In the upcoming years, the data related to ESG parameters are expected to gain more and more importance in terms of sustainable and green economy finance and the analyses produced over this data are projected to have significant impact on risk management and investment revenues. It is critical in Turkey to strengthen the local capacity in this field, close the data gap and create added value from these data with analytical approaches.

[156] Sustainable Stock Exchanges Initiative. (November, 2017,). *How exchanges can grow green finance. A voluntary action plan. Retrieved from* http://www.sseinitiative.org/wp-content/uploads/2017/11/SSE-Green-Finance-Guidance-.pdf.
[157] AGCS research study: "The predictive power of ESG for insurance". Retrieved from https://www.agcs.allianz.com/insights/expert-risk-articles/agcs-research-study-the-predictive-power-of-esg-for-insurance/#.W2wk83ISBW4.linkedin.
[158] Allianz Global Corporate, Specialty, The Value Group. (August, 2018). *The predictive power of ESG for insurance.* Retrieved from https://www.agcs.allianz.com/assets/PDFs/AGCS_RelevanceOfESGForIndustrialInsurance2018.pdf.

# CHAPTER 7:
## Making the Most of New Driving Wind for Growth

# 7. Making the Most of New Driving Wind for Growth

## 7.a. From Macro to Micro: New Opportunities, New Risks and New Roles for Stakeholders

When the sustainable finance universe from the past to this date is examined, the essential and maybe the most important conclusion drawn is that this issue is not a seasonal, temporary trend.

Sustainable finance is expected to become a popular concept in the next 50 years for finance and infrastructure projects. The concept will continue to be adopted and implemented in both developed countries, with the role of trend setter, and in developing countries with the appetite to become a pioneer with the needs and developing capacity. Turkey will become an important market for sustainable finance and a market with potential for investors through both the perspective of growing infrastructure need and the aim for green economic growth.

To this end, what needs to be paid attention to is how the stakeholders will be affected from the developments in sustainable finance world. Each stakeholder group may carry different risks and opportunities along with them. Below, we share our most distinct findings for the next period. The conclusion drawn in light of these information is that institutions should adopt a proactive attitude rather than reactive. Institutions that do not wait for being affected by the developments, but rather actively take action towards the issue and create strategies for turning this into an advantage will continue to survive in the long-term.

### 7.a.1. What Can/Should Be Done On Corporate Scale?: Developing Innovative Products and Instruments for Financing Sustainable and Green Economy

The most significant opportunity created for an institution by sustainable finance is developing innovative products and services in line with this approach. Companies will have to design a business strategy that can develop suitable products and services by perceiving the new and rapidly-changing trends in the market. As an emerging market economy, Turkey exhibits a structural dichotomy, as a "mid-high income Turkey" that is trying to accumulate wealth and a "low income Turkey" in the poverty trap. This dichotomy often results in regional inequalities. Another output of this strategy should be sustainable/innovative product development model. This model should be a way of doing business that:

- Identifies potential areas by considering the needs and dynamics of the market it is in,
- Assesses national strategies simultaneously by taking into consideration the local regulations and legislation structuring,
- Lists risks and opportunities which the potential areas determined accordingly can bring along to the institutions in terms of both the market and regulation,
- Analyses corporate capacity to improve new products/services emerged as a result of the assessment, and makes long-term investments if necessary by enriching technical and intellectual capacity, and thereby
- Offers innovation and novelty to the market through the new products created and services provided (**Figure 31**).

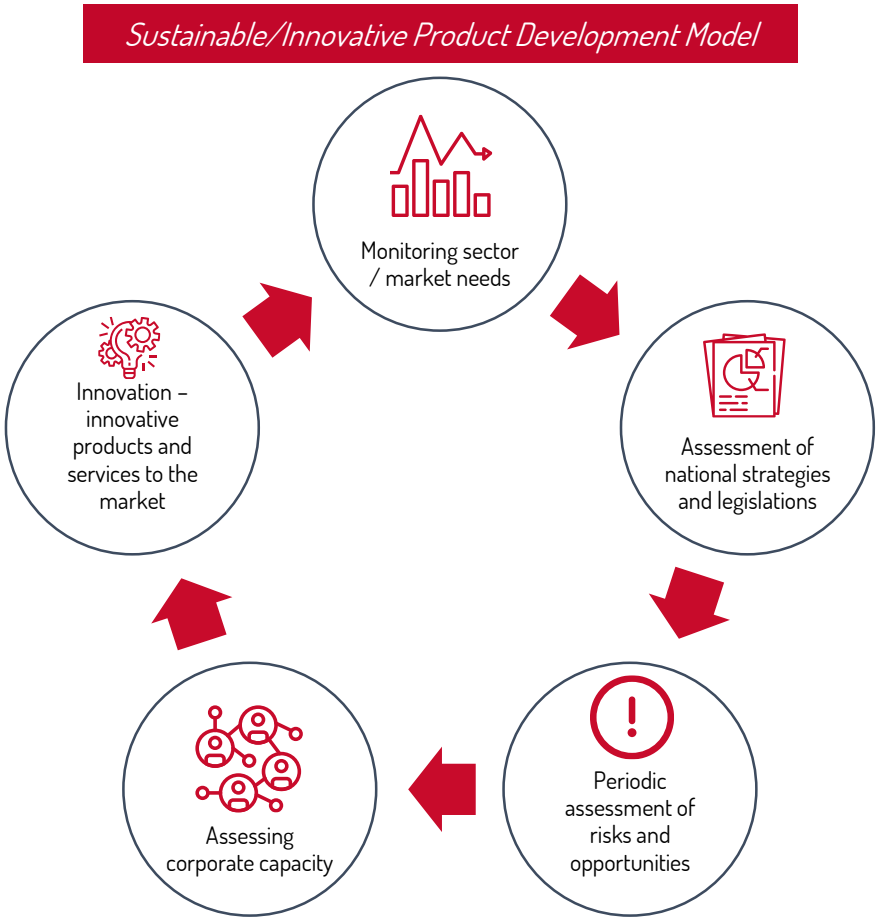


***Figure 31.*** *Sustainable / innovative product development model*

The matters that companies should pay attention to while constructing this model are listed below:

Following and analyzing **international developments and new practices** will support the innovation-focused product development process.

Ensuring **conformance with legal expectations** by monitoring regulations and standards that are or planned to be in effect in the future will enable developing future-oriented and long-term product strategies.

Considering the **local dynamics** in addition to international developments and legal legislations is equally important in product development process. Successful business model will be constructed only when the sustainable finance products are developed in a way to meet the need, demand and expectations of the country and regions where they will be utilized and/or in which investment will be made. Therefore, it will be beneficial to conduct the process through a view encompassing local dynamics and sectoral priorities.

In short, sustainable finance area that create an opportunity to develop a new business model for companies requires a complex and multi-directional assessment process that needs to be handled from different perspectives. At this point, the support from expert teams that mastered the subject and local dynamics may be opted for.

## 7.a.2. What Can Be Done Across Country?

The concept of effectively ensuring the financing sustainability and green economy developing across the globe emerged as a need in terms of proper management of the new risks and seizure the new opportunities. This new finance approach that can be characterized as the new wind in terms of economic growth, welfare increase, sustainable development and development of humans across the globe offer the chance of new economic opportunities to the countries that actively conduct assessment especially based on this approach, develop products and processes and strive for being the pioneer. The potential brought by this wind for the rising economies is important.

*"Utilizing new opportunities coming to existence with financing sustainability and green economy, and effectively managing the new risks depend on the new roles of all stakeholders, new cooperation and working through new modalities."*

When all developments and prominent matters stated in the report are considered, new responsibility areas arise for the actors in the economy. Different suggestions can be applied for different actors in line with these responsibilities. Utilizing new opportunities coming to existence with financing of sustainability and green economy, and effectively managing the new risks depend on the new roles of all stakeholders, new cooperation and working through new modalities. Turkey has the necessary experience, capacity, organizational network and political will to take this wind behind its back.

If this capacity and will are re-designed and implemented within the framework of financing sustainability and green economy, the opportunities and added value to be created can reach the highest levels. Suggestions in this chapter should be considered as recommendations complied over the examples across the world in terms of putting the said potential in use. What can be done for financing of sustainability and green economy from global to local, and some practice suggestions that can be implemented from international developments are as follows:

## Examples of Actions that Can Be Implemented in Turkey in the context of Sustainability and Green Economy Finance

1. **A national road map is needed for financing sustainability and green economy.** Such road map and action plan will strengthen the relation between country's long-term economic and development goals and its financial system, increase cooperation, and enable the risks and opportunities to be assessed in an inclusive, encompassing and systematic manner. The framework to be drawn up should be designed based on the country's local dynamics and priorities, drawing inspiration from international examples.

2. **Sectoral risk assessments and resilience plans should be created in line with the climate change adaptation plan.** Such assessments and plans can guide new investments and finance. Similar assessments and plans may also be done on a regional and local level in terms of urbanization agenda, and may be guidance for financing of urbanization. It would be beneficial for closing the data gap[160] to update and elaborate the previous studies.[159]

3. **The obstacles hindering ESG parameters to guide investors should be removed.** The data gap should be met and local assessment capacity should be strengthened in order for ESG parameters to guide investors and to correctly identify and manage risks. It would be beneficial to prepare national handbooks and guides on this topic.

4. **Reporting and monitoring the contributions of financial institutions to the agenda is important in terms of making the created added value visible.** Financial institutions reporting in their annual reports on global development agenda goals , primarily the Sustainable Development Goals and climate change, are significant in terms of monitoring financing sustainability and green economy on the country level and making it visible.

[159] Financing Europe's low carbon, climate resilient future. (2017, 26 July). Retrieved from https://www.eea.europa.eu/themes/climate/financing-europe2019s-low-carbon-climate.
[160] International Finance Corporation and European Bank for Reconstruction and Development. (2013). Climate risk case study: Pilot climate change adaptation market study: Turkey. Retrieved from https://www.ebrd.com/downloads/sector/sei/turkey-adaptation-study.pdf .

5. **Developing awareness with regard to ESG risks across finance world and the added value of ESG performance, especially in long-term investments, is a general need.** To this end, all actors in Turkey should cooperate and take new initiative, while existing initiatives should be further developed. Structures that will strengthen public-private sector-academy cooperation such as units, advisory committees or centers that will be established in this field will underline the fact that the issue is handled in the country and there is a will to take it one step further.

6. **An innovative attitude should be adopted in financial policies in order to increase green finance.** Green finance centers, competitions and "fintech" programs in certain developed and developing countries create value in terms of bringing different actors together, developing new finance methods and quickly commercializing these methods.

7. **Integration of non-financial risk and impact reporting (such as climate, ESG) recommendations into legislation and practice is important.** Taking steps for all actors in finance and economy to understand, assess and share with public the sustainability-related risks, primarily climate risks, that have been getting recognized in legislation across the world, especially in France, United Kingdom, United States of America and throughout the EU is critical in terms of ridding economy of the systemic shocks and establishing stability. Preparing guides for public and private sector to effectively report these risks, increasing capacity and developing a system to monitor these can be considered as practical progression areas.

In this sense, a more comprehensive risk notice and management measures can be developed and the related supervising and regulatory institutions can develop reporting frameworks for long-term sustainability risks and managing these risks for actors in finance and insurance sectors.

8. **Standardization should be developed for "Green Finance" concept.** Defining as a standard what the term means specifically for Turkey considering the different international definitions used for green finance and local efforts in this sense is significant for developing the related metrics in a standard framework. This will make easier for private sector to adopt and improve green finance instruments in the future, and constitute a solid infrastructure for international investors and resource providers.

9. **Incentives can be offered to institutions developing, using and implementing sustainable and green finance products.** Incentive support such as tax reduction, technical assistance support or exemption from certain taxes can be implemented in order for new financial instruments such as green bonds, green loans and project loans with social criteria to be developed and prevalent. These incentives should be devised in a way to encourage stakeholders that develop, use and invest in this product. Therefore, incentive mechanisms that will ensure the adoption of green and sustainable finance products in the long-term should be preferred.

10. **Developing a Green/Sustainable Finance Labelling System would be a driving incentive for financing green economy.** Developing "green/sustainable finance" labels that can be attributed to the new financial products to be designed in line with the green and sustainable finance standards to be developed would be a driving force for encouraging innovative finance product/service development and popularizing the existing products.

11. **Issuing green sovereign bonds in Turkey may create additional driving force for the economy under current conditions**. The appetite of international finance institutions and investors for financing sustainability and green economy is an advantage in terms of creating new financing and investment opportunities for the country economy through green sovereign bonds that can be issued by Turkey. To this end, preparing green sovereign bonds within the scope of these priorities considering Turkey's development model and primary sectors in the economy will be important.

12. **Contribution to the development agenda and the ESG risks can be more clearly assessed in the investment decisions and tenders with regard to infrastructure projects**. Considering the contribution of the long term projects such as infrastructure projects to sustainable development and green economy as investment criteria will holistically demonstrate the effect such projects accomodate to our country. This holistic sustainability risk assessment approach may also be an encouraging element for international finance resources. In this sense, developing a system and an action plan for assessment and processing of ESG risks in investments and tenders will have importance.

13. **Sustainability and green economy finance in Turkey's international investments and export loans can be considered as an additional dimension.** Within the scope of sustainable development and humanitarian development, "green finance" and "sustainable finance" perspectives can be applied to the export credits provided to investments especially in underdeveloped countries with regard to seizing the economic opportunities emerging across the world. It would be beneficial to conduct a database analysis study in order to assess and scan the existing loans and investments through this perspective and to sturdily analyze the ESG impacts provided with international investments in the future.

14. **The precise assessment of the investment risks related to ESG and climate, alongside of the opportunities, in Turkey's abroad investments and export credits is critical for the sustainability of the investments.** At this point, integration of environmental and social risk assessment processes into the decision making mechanisms can be put into practice as a step that creates added value.

15. **Becoming an attraction center in terms of financing sustainability and green economy requires active effort.** Identifying and implementing systematic and participatory actions are significant for Turkey to concretize and reinforce its place among world's attraction centers in terms of international sustainability and green finance.

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