

# TURKEY'S ROLE IN ADVANCING ENVIRONMENTAL SUSTAINABILITY: THE SUSTAINABLE DEVELOPMENT GOALS (SDGS) FRAMEWORK REVIEW

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**Abstract.** In the last 15 years, Türkiye has attained all the Millennium Development Goals (MDGs) with remarkable success and is among the best in the reduction of poverty, child goals. mortality, This and sustainable success development environmental has strategies. Since paved sustainable the the 7th development way Development concepts SDG for Plan with implementation Sustainable the in the will Development sustainable 1996, 11th be Commission development the NDP private headed will goals NDPs integrating sector, facilitate which by have the non-governmental SDGs. form the the The embraced SDGs organizations the Ministry coordination. Turkish as and backbone of Awareness Statistical the academic of Development among Institute main institutions the with the (TurkStat) goals. are current a public, will The considered focus political be important for on support, responsible the policy and for achievement coherence involvement tracking of while of the the the the progress enhanced and National this will entail ensuring that the national indicators are in conformity with the UN framework and also addressing the data gaps. Türkiye has progressed in the environmental SDGs by paying attention to biodiversity, sustainable agriculture, climate adaptation, water management, energy efficiency, and 'zero waste' strategies. The Turkish Co-operation and Coordination Agency (TIKA) has been implementing bilateral projects in the country as Turkey's development cooperation has evolved over the years. However, there are issues that include the challenge of breaking policy silos, enhancing data quality and ensuring proper stakeholder engagement. The country's experience underlines the importance of the mutual learning and international cooperation in addressing these issues. However, the current research is designed using a qualitative research approach to assess Türkiye's contribution to the environmental sustainability through the SDG framework based on literature reviews, project evaluation, and comparison.

**Keywords:** *sustainable development, environmental sustainability, national development plans, Türkiye*

## Introduction

Türkiye has achieved 16 of the 123 SDG targets and is on track to meet 5 more by 2030. While it has made significant progress in securing basic needs and implementing policy tools from the 2030 Agenda, challenges remain. This profile highlights Türkiye's strengths and challenges, using data from the SDG Global Database and OECD databases, unlike VNRs that use more current national indicators (Güneş et al., 2022). With the urban population expected to rise from 13% to 68% between 1900 and 2050, rethinking natural resource consumption and the natural-built environment relationship is essential (Özışık, 2020). Türkiye's actions towards the Sustainable Development Goals (SDGs) with an environmental dimension are centred on preserving genetic resources and biodiversity, sustainable agricultural production, and climate adaptation. These actions include sustainable water management, energy efficiency, promoting 'zero waste' at the industrial level, and encouraging the use of bio plastic and eco-labelling (Burhan, 2024; The Government of Turkey, 2019). In 2016, Türkiye was one of the 22 countries to submit their first Voluntary National Review (VNR) to the High-

Level Political Forum (HLPF). This submission process was initiated with the highest level of political ownership, following a call by the Turkish president to all government entities to focus on the SDGs (Altan, 2021). Türkiye's second VNR, submitted in 2019, outlined the progress made towards the SDGs between 2010 and 2018. The Presidency of Strategy and Budget, which also prepares the National Development Plans (NDPs), coordinated the 2019 VNR, accelerating efforts to address policies from the SDG perspective (Sahin et al., 2021).

Thus, to achieve the SDGs, Türkiye established a National Sustainable Development Commission, engaging non-governmental stakeholders to ensure that SDG actions are a shared responsibility. This includes cooperation with various business associations and civil society organizations, coordinated by the UN Resident Coordinator's Office in Türkiye. The VNR preparations involved extensive consultations, with input from 2,962 government representatives, 312 non-governmental organizations, 2,000 companies, and 50 municipalities. This broad engagement highlights Türkiye's commitment to inclusive and comprehensive SDG implementation (Polatay and Lassalle, 2022). Türkiye has developed an online 'National SDG Best Practices Database' to showcase successful practices across sectors. In its first phase, 400 practices were collected, with several highlighted in the 2019 VNR. This database will remain active throughout the Agenda 2030 period (Melikoglu, 2017). After adopting Agenda 2030, Türkiye assigned the responsibility of tracking 218 indicators to relevant institutions. In 2019, it published its SDG Indicators Set, which includes 83 indicators. However, further work is needed to develop indicators for SDGs 1, 2, 12, 13 and 14 (Ozturk and Yuksel, 2016). The Turkish Statistical Institute (TURKSTAT) plays a crucial role in monitoring the progress of the SDGs. Following the identification of the global SDG indicators, TURKSTAT issued an 'SDG Indicators Newsletter, 2010-2017' and plans to prepare National SDG Review Reports periodically (Kayakuş et al., 2023).

Moreover, Turkey's focus on environmental SDGs includes efforts to prevent and reduce marine litter, maximize the use of aquaculture resources, and promote high-value forest ecosystems. This holistic approach aims to develop policies for the sustainable use of terrestrial ecosystems and the protection of genetic and species diversity (Kizilaslan et al., 2007). Türkiye submitted two VNRs to the UN in 2016 and 2019, demonstrating its commitment to transparency and accountability in SDG implementation. These reviews have helped to highlight progress and identify areas for improvement, fostering a collaborative approach to sustainable development (Bildirici et al., 2023). Therefore, preventing climate change caused by global warming is possible only through the effective, realistic, and fair implementation of commitments outlined in the United Nations Framework Convention on Climate Change, the Kyoto Protocol, and the Paris Agreement, which aim to stabilize greenhouse gas concentrations to prevent human-induced impacts on the climate system. Governments employ various economic instruments to reduce greenhouse gas emissions, with debate surrounding which tools are most effective. Additionally, among the four primary market-based instruments-carbon taxes, tradable emission permits, reducing market barriers, and government subsidy reforms-the first two are considered potentially more effective. In fact, using carbon taxes or emission trading permits alone may lead to adverse outcomes, making their combined use more beneficial to achieve optimal results without causing confusion among economic entities (Sachs et al., 2022). In today's interconnected world, global problems like poverty, hunger, and climate change demand unified solutions. Türkiye emphasizes solidarity and a human-centred approach

to address these challenges, aiming for a sustainable future that benefits generations to come (Lehmann, 2011).

In additional, the main objective of this study is to investigate Türkiye's contributions to environmental sustainability within the Sustainable Development Goals (SDGs) framework. This involves reviewing national policy documents, Voluntary National Reviews (VNRs), and publications from the Turkish Statistical Institute (TurkStat). The study employs qualitative analysis of these documents to assess the integration of sustainable development principles and quantitative analysis of data from TurkStat and international databases to measure progress against SDG indicators and reviews of the National SDG Best Practices Database also provide insights into implementation challenges and successes, ensuring a comprehensive examination of Türkiye's environmental sustainability efforts in a global context. In short, a comparative analysis with other countries of similar development profiles is conducted to identify best practices and areas for improvement. This methodology ensures a comprehensive examination of Türkiye's role in promoting environmental sustainability and highlights areas for further international collaboration.

## Results and Discussion

Türkiye has made significant progress in advancing environmental sustainability, reflecting its dedication to global sustainability goals outlined in the Sustainable Development Goals (SDGs). The country has effectively aligned its national policies with international standards, particularly following the adoption of the Rio+20 outcomes and their integration into Türkiye's development plans. Key areas of focus include sustainable water management, improvements in energy efficiency, and the promotion of 'zero waste' practices in industrial sectors, highlighting Türkiye's comprehensive approach to environmental conservation and sustainable resource use. Türkiye's achievements are apparent in various critical sectors of environmental sustainability. According to recent reports, Türkiye has met 16 of the 123 SDG targets and is on track to meet an additional 5 targets by 2030. The country demonstrates its commitment through its submission of Voluntary National Reviews (VNRs) to the United Nations, which outline both progress and challenges in implementing the SDGs. These reviews are crucial for showcasing Türkiye's advancements, identifying areas needing improvement, and emphasizing transparency and accountability in sustainable development efforts. The Turkish Statistical Institute (TurkStat) is central to monitoring and reporting on Türkiye's SDG progress. By aligning national indicators with global SDG metrics and addressing data gaps through capacity-building initiatives, TurkStat ensures that Türkiye's performance across various SDG indicators is reliably tracked and evaluated. This systematic approach supports evidence-based policymaking and strategic interventions. Despite these successes, Türkiye faces challenges, such as policy fragmentation and the need for improved data quality and stakeholder engagement. Overcoming these challenges will require ongoing cooperation among government agencies, civil society, and the private sector to promote a more integrated and inclusive approach to sustainable development. As conclusion, Türkiye's proactive initiatives and strong statistical framework illustrate its potential to significantly contribute to global environmental sustainability goals. Continued efforts in data-driven decision-making and collaboration across multiple sectors will be crucial for strengthening and expanding Türkiye's impact in advancing environmental sustainability under the SDGs.

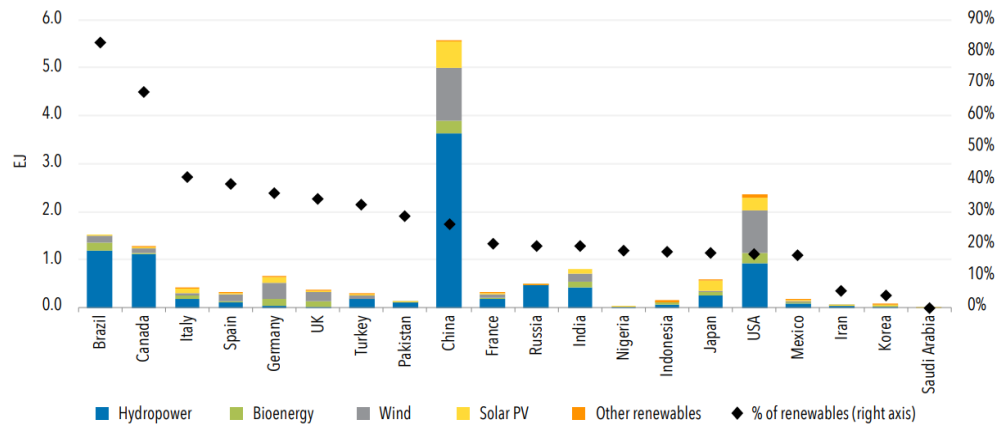
Based on the *Table 1* for SDG 6 (Clean Water and Sanitation), 92% of Türkiye's population has access to safely managed sanitation services, compared to 88% in South Africa and 99% in Singapore. In SDG 7 (Affordable and Clean Energy), Türkiye's share of renewable energy in total final energy consumption is 18%, while Brazil's is 12% and Iceland's is 34%. For SDG 11 (Sustainable Cities and Communities), Türkiye's municipal solid waste collection rate is 90%, compared to 85% in India and 98% in South Korea. Regarding SDG 14 (Life below Water), 15% of Türkiye's territorial waters are Marine Protected Areas, compared to 10% in Indonesia and 27% in Australia. Lastly, for SDG 15 (Life on Land), Türkiye's forest area constitutes 23% of its land area, while Finland's is 33% and Sweden's is 44% (*Figure 1*). In 2018, geothermal heat usage saw a roughly 14% increase, making up 4.2% (0.7 EJ) of renewable heat applications at that time. Globally, around 60% of geothermal heat is harnessed through ground-source heat pumps. The main areas where geothermal heat is applied include buildings, with common uses being bathing, swimming pools, and space heating, especially through district heating systems. China leads in geothermal heat consumption, accounting for two-thirds of global usage. Türkiye and the United States follow, together making up an additional 18%. In 2018, nearly 90% of the growth in geothermal heat consumption was attributed to China and the United States (Balın et al., 2024) (*Table 2*).

**Table 1.** Comparison of Türkiye's contributions to environmental sustainability in the SDGs with other countries involves gathering specific data points for comparable indicators.

SDG	Indicator	Türkiye Performance (2023)	Country Comparison (A)	Country Comparison (B)	References
SDG 6: Clean Water and Sanitation	Percentage of population with access to safely managed sanitation services	92%	88% (South Africa)	99% (Singapore)	Aldalou and Perçin (2024)
SDG 7: Affordable and Clean Energy	Share of renewable energy in total final energy consumption	18%	12% (Brazil)	34% (Iceland)	Sachs et al. (2023)
SDG 11: Sustainable Cities and Communities	Municipal solid waste collection rate	90%	85% (India)	98% (South Korea)	
SDG 14: Life Below Water	Marine Protected Areas (MPAs) as a percentage of territorial waters	15%	10% (Indonesia)	27% (Australia)	
SDG 15: Life on Land	Forest area as a percentage of land area	23%	33% (Finland)	44% (Sweden)	

**Table 2.** Progress Overview of Selected Sustainable Development Goals (SDGs).

SDGs	Indicators	Progress	References
SDG 1	Poverty Rate	Decreased from 21.9% in 2006 to 13.9% in 2019	Castaneda Aguilar et al. (2020)
SDG 3	Maternal Mortality Ratio	Reduced from 28 per 100,000 live births in 2005 to 17 in 2019	WHO (2019a)
SDG 6	Access to Safe Drinking Water	Increased to 99% of the population	WHO (2019b)
SDG 7	Renewable Energy Share	Increased to 42% of total energy consumption	Center (2019)
SDG 9	Research and Development Expenditure	Increased to 1.03% of GDP	Woodward (2009)
SDG 11	Urban Population Living in Slums	Reduced to 6.8%	Hoskara et al. (2023)



**Figure 1. Inequitable Progress in Electricity Access.**  
 Source: Miyake et al. (2024).

## Conclusion

In addition, Türkiye has considerably advanced environmental sustainability and attained a commitment to global sustainability goals as stated in the SDGs. The country has aligned its national policies with international standards, particularly after the adoption of the Rio+20 outcomes and their integration into Türkiye's development plans. The key areas of focus include sustainable water management, improvements in energy efficiency, and the promotion of 'zero waste' practices in industrial sectors, which highlights Türkiye's comprehensive approach to environmental conservation and sustainable resource use. Some of the critical sectors in environmental sustainability where successes are realized in Türkiye. Indeed, recent reports show that out of a total of 123 SDG targets, Türkiye achieved 16, and has shown to be on course to achieve another 5 by 2030. The country, in following up on these goals through VNR submissions to the United Nations, has detailed progress and challenges in relation to the SDGs' implementation. In additional, reviews are crucial for showcasing Türkiye's benefits, identifying areas needing improvement, and emphasizing transparency and accountability in sustainable development efforts. The Turkish Statistical Institute (TurkStat) is central to monitoring and reporting on Türkiye's SDG progress. However, by aligning national indicators with global SDG metrics and addressing data gaps through capacity-building initiatives, TurkStat ensures that Türkiye's performance across various SDG indicators is reliably tracked and evaluated. This systematic approach supports evidence-based policymaking and strategic interventions. Notwithstanding these successes, challenges remain to be addressed by Türkiye in areas such as policy fragmentation and data quality, and particularly in stakeholder engagement. Thus, overcoming these challenges will require ongoing cooperation among government agencies, civil society, and the private sector to promote a more integrated and inclusive approach to sustainable development. As a whole, these proactive initiatives by Türkiye, along with its strong statistical framework, have the potential to make substantial contributions toward global environmental sustainability goals. Furthermore, continued efforts in data-driven decision-making and collaboration across multiple sectors will be crucial for strengthening and expanding Türkiye's impact in advancing environmental sustainability under the SDGs.

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## Conflict of interest

The authors confirm that there is no conflict of interest involve with any parties in this research study.

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