Chapter Zero Türkiye
The Executives' Climate Forum

TÜSİAD

Blue Economy Event Report

18 MARCH 2025

INTRODUCTION

In collaboration with Chapter Zero Türkiye and TÜSİAD, an event focusing on the blue economy was held on March 18, 2025, at the TÜSİAD Headquarters to highlight the growing impact of climate change on water resources. On the occasion of World Water Day, the meeting addressed the importance of the blue economy in terms of sustainable development and its interaction with various sectors.

Prepared in collaboration with Stantec.

OPENING REMARKS

The event opened with a keynote speech delivered by Cevdet Alemdar, Chair of the Steering Committee of Chapter Zero Türkiye. Key points from Cevdet Alemdar's address are summarized below.

- The defining elements of the global economy are rapidly transforming. Population growth and rural-to-urban migration accelerate urbanization, while industry-driven competitiveness comes to the fore. At the same time, increased consumption, climate change, and the mismanagement of natural resources exert severe pressure, particularly on water resources.

- The blue economy has become not only an environmental priority but also a critical issue for economic growth, industrial competitiveness, and the sustainability of social welfare.

- According to the 2024 report of the General Directorate of State Hydraulic Works (DSİ)[1], countries with annual per capita water availability below 1,700 m^3 experience water stress. In Türkiye, this figure stood at approximately 1,308 m^3 in 2024. For water-stressed countries like Türkiye, sustainable water management is a strategic imperative.

- The use of technology, modern infrastructure, effectively-implemented legislation, and transformation models integrated across the entire value chain are essential for sustainable water management.

[1] 2024 General Directorate of State Hydraulic Works (DSİ) Activity Report: https://cdniys.tarimorman.gov.tr/api/File/GetGaleriFile/425/DosyaGaleri/594/dsi_2024_yili_faaliyet_raporu.pdf

- Chapter Zero's global mission is to put the fight against climate change at the forefront of corporate board agendas. As Chapter Zero Türkiye, our goal is not only to raise climate- and environment-related issues but also to help define the private sector's role in tackling the climate crisis, and to encourage companies to view the green transition as an opportunity. In doing so, we aim to fulfil our responsibilities to humanity and the planet while advancing the sustainable development of our country.

> ***"The defining elements of the global economy are rapidly changing. Population is rising, the rural-to-urban transition is accelerating, and industry-based competitiveness is gaining importance. On the other hand, due to increased consumption, climate change, and misuse, the pressure on the water resources we intend to discuss today intensifies every day. With this understanding, as we approach World Water Day on March 22, our agenda focuses on various dimensions of water management—from legislation to technology, from infrastructure to financial instruments, and from best practices to corporate transformation and partnerships."***

KEYNOTE SPEECH

The keynote speech, which addressed the critical role of the blue economy in sustainable development and its intersectoral interactions, was delivered by Dr. Murat Sarıoğlu, Regional Water Director for the Middle East and General Manager of Stantec Türkiye.
Key highlights from his speech are summarized below.

- Water is not only the source of life but also a cornerstone of economic growth, sustainable development, and social welfare. According to a 2023 WWF report[2], the annual economic value of water and freshwater ecosystems is estimated at 58 trillion USD, equivalent to 60% of global GDP. However, pressures on water resources continue to rise due to climate change, industrialization, rapid urbanization, and population growth—making sustainable water management more critical than ever. In this context, global efforts increasingly focus on developing blue economy models that promote sustainable use of marine and ocean resources while supporting economic growth, social well-being, and ecosystem health.

- The decline of water resources and deficiencies in water management directly threaten economic stability. The World Bank (2023) projects that global water scarcity could cost the world economy 5.6 trillion USD annually by 2050[3]. For Türkiye, already under water stress, the risk will be felt even more acutely. Therefore, water management must be regarded not only as an element of sustainable development but also as a strategic economic asset.

[2] 2023 WWF Report: https://wwf.panda.org/wwf_news/?9842941%2Fwater-report-2023

[3] 2023 World Bank Report: https://www.worldbank.org/en/topic/water/publication/scaling-up-finance-for-water-a-world-bank-strategic-framework-and-roadmap-for-action

- Many sectors—particularly industry, agriculture, and energy—are heavily dependent on water. Thus, sustainable water management must play a central role in sectoral policies that aim to enable long-term economic growth.

- Traditional methods of water management are no longer sufficient. To use water more efficiently, minimize losses, and develop sustainable solutions, new perspectives, robust strategies, and advanced technologies are needed. Innovation plays a vital role in increasing water efficiency. For example:

  o **Smart water management systems, Geographic Information Systems (GIS), and remote sensing technologies** enable much more effective monitoring and management of water resources. They make it possible to clearly identify where water losses occur, how efficiency can be improved, and how risks can be minimized.

  o **Investments in infrastructure that reduce water losses** are gaining growing importance. Key priorities in water management include modernizing aging urban distribution networks, preventing leakages, and minimizing losses during water transmission.

  o **Increasing investments in recycling and water reuse technologies** is of critical importance. These technologies ensure that water is addressed within the framework of a circular economy. The reuse of treated wastewater in industry, agriculture, or the irrigation of urban green spaces makes a significant difference in water conservation.

o Innovative technologies such as **smart water meters, cloud-based data analytics, and early warning systems** enable more efficient use of water resources. By enhancing transparency in both individual and corporate consumption, these solutions help reduce unnecessary waste. Through digital transformation, water management becomes not only more effective but also more transparent and accountable.

o **Promoting water-saving technologies in the agricultural sector** is another critical priority. Drip irrigation systems, production methods that increase water reuse, and agricultural practices that require less water stand out as effective solutions for improving the efficiency of water resource use.

- Water management should not be seen solely as a cost factor but also as a window of opportunity for new business models and investment areas. According to Fortune Business Insights[4], the global water and wastewater treatment market was valued at 323.32 billion USD in 2023 and is projected to reach 617.81 billion USD by 2032, reflecting a compound annual growth rate (CAGR) of 7.5%. For the private sector, water management offers vast opportunities in financial sustainability and innovative solutions.

- Effective water management requires joint efforts from all stakeholders. Strong partnerships between the public and private sectors, integration of academic research into decision-making, the contribution of local governments' field experience to policy design, and the adoption of industrial symbiosis models will all foster more efficient and circular water use.

- For Türkiye, adopting an integrated basin-based water management approach is a pressing need. In recent years, public institutions have carried out—and continue to carry out—intensive efforts and projects on this issue; significant steps have also been taken in the management of 25 river basins in line with the EU Water Framework Directive. So far, River Basin Management Plans have been successfully finalized for 11 basins, including Akarçay, Western Mediterranean, Burdur, Büyük Menderes, Gediz, Konya Closed Basin, Northern Aegean, Küçük Menderes, Meriç-Ergene, Susurluk, and Yeşilırmak. Expanding these practices nationwide will help advance a coherent and sustainable water policy.

[4] 2025 Fortune Business Insights Report: https://www.fortunebusinessinsights.com/water-and-wastewater-treatment-market-102632

> *We must remember that the decisions we make today will determine not only our present but also future generations' access to water and the sustainability of our economic development. It is time to see water not as an unlimited resource, but as a strategic asset at the heart of our economy and ecosystem balance.*

BLUE ECONOMY PANEL

Following the keynote speech, a panel was moderated by TÜSİAD Deputy Secretary General Dr. Nurşen Numanoğlu, featuring Akkök Holding Corporate Sustainability Manager Çiğdem Arpat Koçak, EBRD Climate Adaptation and Nature Finance Specialist Olivia Becher, TÜSİAD Water Group Chair Ayla Öngören, Beko Environment Director Zeynep Özbek, Stantec Project Manager Figen Şişman Nayal, and TSKB Head of Economic Research Dr. Feridun Tur as speakers. The panel focused on various aspects of water management, including regulatory frameworks, technology and infrastructure, financial instruments, best practices, corporate transformation, and collaboration. The key highlights from the discussion are summarized below.

1. Regulatory Framework

Due to Türkiye's location within the Mediterranean basin, it is projected that the country will face intense water stress as a result of the impacts of climate change. In this context, recognizing the importance of water policies, the TÜSİAD Water Group carries out activities to monitor national and international strategies, policies, and legislation; to raise awareness on water-related issues; to share best practices; and to strengthen implementation capacities.

A closer look at water-focused regulations highlights the necessity of managing water in terms of both quantity and quality simultaneously. It is crucial that

basin-based management approaches be tailored to the specific conditions of each basin and that a holistic approach be adopted in monitoring water resources by avoiding overlaps and redundancies.

In 2023, the Ministry of Agriculture and Forestry launched the National Water Efficiency Mobilization, and in the same year, the Water Efficiency Strategy Document and Action Plan Within the Framework of Adaptation to the Changing Climate (2023–2033) was published. Basin-based sectoral allocation plans are being gradually released. At the end of 2024, the Water Efficiency Regulation was published. This regulation requires all sectors, including buildings, to submit their water use plans and progressively increasing targets to the Ministry every five years. This approach is considered not only as a system for setting limits but also as a management model aimed at continuous improvement.

Wastewater is also an integral part of water management. With the Regulation on the Management of Industrial Emissions, published by the Ministry of Environment, Urbanization, and Climate Change, the goal is to prevent industrial pollution and, similar to the Water Efficiency Regulation, to ensure continuous improvement. Another important development regarding wastewater is the Project on Determining Türkiye's Industrial Wastewater Profile, initiated by the Ministry of Environment, Urbanization, and Climate Change, which aims to characterize industrial wastewater by sector. Within this scope, the objective is to define sectoral discharge parameters in greater detail, align discharge criteria with international standards, and, taking into account all project outputs, prepare draft legislation to better control industrial wastewater discharges.

The EU acquis continues to serve as an important reference for environmental legislation in Türkiye; accordingly, developments in water-related policies within the EU are closely monitored. In this context, the EU has prepared and opened for consultation the Water Resilience Strategy[5]. This strategy places particular emphasis on smart water technologies and the integration of new technologies. Experience gained under the Water Framework Directive and the challenges encountered during its implementation have played an important role in shaping the Strategy. In this respect, the Strategy represents a complementary and forward-looking step aimed at strengthening existing policies and ensuring more resilient management of water resources.

[5] The EU Water Resilience Strategy was published on 3 June 2025.

2. Financial and Economic Instruments

Today, companies are compelled to reassess not only their product portfolios but also their investment decisions, supply chains, and production processes from the perspective of water risk. For companies operating in water-intensive sectors such as food, construction, chemicals, and real estate, these risks directly affect operational[4] continuity and market credibility. Since risks in the supply chain are considered part of a company's own water risk, raw materials sourced from regions experiencing water scarcity must be carefully evaluated in this regard. From this perspective, the sustainable management of water resources has become a strategic priority that requires balancing economic growth with environmental responsibility. In sectors operating in water-stressed regions, the objective of protecting the blue economy constitutes common ground between national water policies and private sector strategies.

While efficient water use by industries contributes to sustainability, it is equally important to strengthen the financial infrastructure and incentive mechanisms to ensure the effective implementation of water-focused policies. In parallel, water risk is becoming an increasingly decisive factor within the financial system. The banking sector is taking into account the sensitivity of financed projects to water risks; accordingly, a more cautious approach is being adopted during preliminary assessments of investments in high-risk regions. At the same time, the number and size of water-focused funds are increasing, while alternative financing instruments such as blue and green bonds and sustainability-linked loans are gaining prominence. These instruments provide

not only interest advantages but also competitive benefits in terms of maturity and financing volume. In Türkiye, the exemption of development financing for water projects from certain macroeconomic constraints provides an important facilitation in this context.

In this transformation, shaped by the integration of water risks into financial decision-making processes, companies are expected not only to improve their environmental performance but also to monitor and report it in line with international standards in order to build investor confidence. Smart systems such as real-time data tracking and leak detection are among the key technologies emerging in this process.

For water-related investments to be effective, an approach that goes beyond a focus on efficiency alone and embraces a holistic ecosystem perspective is required. Water is not merely a production input but part of society's shared wealth. The symbiotic relationship between soil and water necessitates that these resources be managed together.

In conclusion, the effective management of risks related to water resources is recognized as one of the fundamental pillars not only of environmental sustainability but also of financial resilience, corporate reputation, and economic sustainability. Investment approaches developed within this framework enhance the contribution of both the private sector and financial institutions to water-focused sustainable development, while accelerating the transition toward resilient business models of the future.

To accelerate improvements in water efficiency, the recovery and reuse of treated wastewater, and the establishment of technological infrastructure in these areas, incentive and support mechanisms must be strengthened.

3. Infrastructure, Technology, and Innovation

Water scarcity is emerging as a critical issue not only for Türkiye but also on a global scale. Current data on water consumption in Türkiye reveal a sensitive picture in terms of the sustainability of water resources. According to the targets of the Ministry of Environment, Urbanization, and Climate Change[6], the rate of wastewater reuse is aimed to be increased to 15% by 2030. Achieving this target requires the strengthening of infrastructure and the wider deployment of advanced recovery technologies.

6 Report by the Ministry of Environment, Urbanization, and Climate Change: https://www.csb.gov.tr/aritilmis-atiksularin-yeniden-kullanim-oraninda-yuzde-4-olan-yil-sonu-hedefi-asildi-bakanlik-faaliyetleri-34168

The industrial sector plays a key role in this transformation. In Türkiye, some industrial companies have already taken significant steps by establishing closed-loop water recovery systems. However, for recovery practices to become widespread, it would be beneficial to draw on global examples. For instance, Singapore's New Water Project, which treats wastewater with advanced technologies to drinking[4] water quality, is regarded as a successful example of sustainable water management. In Germany, the recovery rate in the industrial sector has reached around 30%, while in Israel, approximately 80% of the water used in agriculture comes from reclaimed sources.

Such global projects are supported by advanced engineering solutions and project management practices. However, bottlenecks arise in infrastructure development and technology integration processes, with high initial investment costs in particular slowing progress. At this point, not only financing but also increased research and development (R&D) investments are of great importance. By developing innovative and local solutions, costs can be reduced, and the spread of technologies can be facilitated.

Ensuring sustainability in water management requires not only making investments but also ensuring that these investments are operated effectively in the long term. In this respect, investing in human capital and updating training programs are critically important. Through university–industry collaborations, both human capital and technological capacity can be enhanced. In addition, the expansion of pilot projects in the industrial sector for the adoption of new technologies contributes to minimizing risks and enables the scaling up of successful practices.

Among the advanced technologies currently in use are membrane bioreactors, nanotechnological filters, reverse osmosis systems, electro-deionization systems, and zero-liquid discharge (ZLD) technologies. Creating hybrid solutions by integrating these systems with energy-efficient technologies yields positive results both environmentally and economically. For example, the use of membrane bioreactors in wastewater treatment plants can improve water quality while enabling the reuse of this water for process or irrigation purposes. Supporting such systems with renewable energy sources can further increase efficiency.

To address water stress in coastal regions, the use of desalination systems powered by renewable energy sources is recommended. These systems are considered an effective solution, particularly in converting seawater into potable water.

Digitalization and smart water systems have also become an integral part of modern water management. Data analytics and remote monitoring systems supported by IoT-based sensors enhance the efficiency of recovery facilities. The use of digital solutions for detecting water leakages points to a major potential, especially in cities where water losses reach 40–50%. For the widespread adoption of such systems, a phased investment strategy is recommended: rather than immediately deploying large-scale infrastructure investments, beginning with small-scale pilot regions and expanding investments as efficiency is demonstrated emerges as a strategic approach.

R&D investments not only drive technological development but also serve as a long-term guarantee of sustainability. In parallel, with rising consumer awareness, demand for sustainability- and water-saving-oriented products is increasing, which plays an encouraging role for private sector investments. This creates a competitive environment in the market, where environmental investments provide companies with a competitive advantage.

In conclusion, water recovery technologies are of strategic importance not only for environmental sustainability but also for economic resilience and social welfare. The effective participation of industry and the private sector in this process will strengthen Türkiye's water management capacity and contribute to creating a more liveable environment for future generations.

Infrastructure improvements to prevent water losses and leakages will help avoid both natural resource depletion and economic losses. The effective use of remote sensing and Geographic Information Systems (GIS) in water resource

management should be ensured. The advancement and development of water recovery technologies are valuable for the efficient management of both water and energy resources.

4. Institutional Structures and Collaboration

Water management, a core element of corporate sustainability approaches, is no longer addressed solely in its environmental dimensions but has become an inseparable part of risk management, investment planning, and technological transformation. In this regard, companies are building corporate structures that place proper water management at the foundation of their strategic plans; enhancing management systems through data-driven approaches; and shaping investments in line with environmental impacts. In particular, companies located in water-stressed regions are designing their business models around the realities of climate change, drought, and sea-level rise. In facilities equipped with smart meters, digital monitoring systems, and automation infrastructures, water consumption and wastewater management are regularly tracked, and sustainability criteria are adopted as a prerequisite in investment evaluation processes.

Collaborative actions in this field demonstrate that sustainable water management is inherently based on a multi-stakeholder structure at both local and global scales. Partnerships with universities enable the integration of academic knowledge and research capacity into industrial applications, facilitating the development of innovative technologies. Likewise, participation in

international commitment mechanisms ensures coordinated action toward common global water management objectives. Through socially impactful projects, local development is supported in regions with limited water access, thereby strengthening companies' contributions in the area of corporate social responsibility. In addition, governance models designed for the supply chain ensure that all stakeholders are included in water efficiency processes and help mainstream sustainability targets across the sectoral level.

The success of the sustainability approach depends not only on strategic planning and collaboration but also on supporting these structures with concrete and measurable practices. In this context, the development and implementation of innovative technologies provide significant gains in water management. Technologies aimed at reducing freshwater use are being deployed alongside the integration of alternative sources such as seawater desalination. Closed-loop systems and recycling-oriented designs minimize water consumption in production processes, reduce environmental impact, and increase resource efficiency.

Environmental criteria integrated into product development processes also make a difference during consumer use, contributing to the circular economy. In this respect, the use of recycled materials or water-saving technologies not only creates direct environmental benefits but also steers customers toward sustainable choices.

Furthermore, the installation of advanced treatment systems in production facilities across different geographies enables high levels of reclaimed water; these systems have become a standard in new investments and constitute one of the core elements of corporate environmental policy.

Beyond reducing environmental impacts, all these practices make critical contributions to production security, operational sustainability, and economic efficiency. In conclusion, water management stands at the centre of sustainability policies as a fundamental component of both environmental and corporate strategies, guiding a multilayered transformation process supported by technology, product innovation, and global cooperation.

In water management, it is crucial to develop local solutions through collaboration among public institutions, the private sector, local authorities, and academia. Cooperation between institutions that must act jointly in the use and sharing of natural resources, as well as among those that can establish industrial symbiosis, is critical for the effective management of water.

CONCLUSION

The blue economy is regarded not only as one of the most critical elements of environmental sustainability but also as an integral part of economic growth, social welfare, and strategic competitiveness. The event comprehensively addressed the opportunities offered by the blue economy, the structural challenges faced in water management, technological solutions, and the regulatory steps that need to be taken. In this context, four key findings can be summarized as follows:

- *Strengthening the legal framework for water management and updating it in line with European Union regulations has emerged as a crucial necessity, considering Türkiye's growing water stress. Expanding basin-based planning, integrating monitoring systems, and adopting a holistic approach to the management of both quantity and quality of water are priority action areas for the implementation of sustainable water policies.*
- *Water management is no longer confined to environmental dimensions but is also an integral part of financial risk management and economic sustainability. Innovative financing tools such as water-focused funds, green bonds, and blue bonds not only incentivize private sector transformation but also pave the way for models that create synergy with public investments. The integration of water risk assessments into financial institutions' systems will play a critical role in accelerating this transition.*

• Considering Türkiye's low water reuse rate and high-water loss and leakage levels, advanced treatment technologies and digital water management systems are of critical importance. Solutions such as recycling, desalination, closed-loop systems, and digital monitoring infrastructures not only reduce environmental impacts but also enable economic efficiency and resilient infrastructure investments. To ensure the widespread adaption of these technologies, it is necessary to increase R&D investments, support pilot projects, and facilitate technology transfer.

• Water management, as a multi-stakeholder and multi-layered domain, is not solely the responsibility of central authorities. It also requires the active involvement of local governments, the private sector, universities, and civil society. As a necessity rather than a choice, institutions must shape their sustainability strategies with a water-centred focus, enhance governance through data-driven systems, and prioritize water efficiency across supply chains. Models supported by institutional collaboration and local solutions both address regional needs and contribute to the national water security strategy.