

TIP CLIMATE ACTION



13. CLIMATE ACTION



NUMBER OF
PUBLICATIONS & THESES

13



NUMBER OF
PROJECTS

60



NUMBER OF
EVENTS

12



NUMBER OF
COURSES OFFERED

71



NUMBER OF
COLLABORATION

3



NUMBER OF
AWARDS

8

SDG 13 CLIMATE ACTION

Take urgent action to combat climate change and its impacts

Targets and Indicators

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

13.2 Integrate climate change measures into national policies, strategies and planning

13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

13.A Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible

13.B Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities

Courses, Theses, Publications

TEDU integrates sustainability and climate action into its academic curriculum, highlighting the importance of educating future professionals to address the pressing challenges of climate change. In 2023, several courses directly contributing to SDG 13 were offered. For example;

CE 332: Water Resources Engineering: This course introduces students to the distribution of water on Earth and the related challenges for humanity, while equipping them with knowledge and skills for the sustainable management of water resources, with a focus on hydrological processes and the impacts of climate change.



CE 537: Sustainable Sediment Management in Water Resources Engineering: The course covers the principles of sediment management in water resources, aiming to equip students with the skills to address erosion and sedimentation challenges through sustainable practices and solutions that mitigate the environmental impacts of sediment transport, particularly under changing climate conditions.

CE 542: Geotechnical Engineering Applications Benefitting Society: This course focuses on in-depth geotechnical applications that incorporate experiential or service-learning to develop sustainable infrastructure solutions, directly benefiting communities by addressing real-world problems in the context of climate resilience and adaptation.

ECON 370: Climate Policy and Green Transition: Addressing the economics of climate change, this course provides insights into the development and implementation of international climate policies and governance frameworks such as the UNFCCC and Paris Agreement, with a focus on sustainable development, the EU Green Deal and its regulatory and sectoral implications, Turkish climate policy, carbon pricing, circular economy, green finance, and the international governance of climate finance, all within the context of the green transition and its socio-economic impacts.

In line with the objectives of SDG 13, two notable theses contribute valuable insights into climate action and environmental sustainability. The first thesis, titled "**Clustering Analysis on G20 Countries' Climate Change Efforts Regarding the Energy Sources**," explores the shift from fossil fuels to renewable energy sources among G20 nations. By employing clustering analysis, this study suggests similar renewable energy policies for countries within the same group, utilizing methods such as Principal Component Analysis and k-means clustering. The findings aim to provide alternative approaches to policy-making that consider the unique contexts of each country while addressing coal phase-out and net-zero goals.

The second thesis, "**Fire Detecting Robot System with GSM Technology**," addresses the critical issue of late detection in forest fires, which pose significant threats to the environment, human safety, and property. This

study focuses on the design of a robot capable of detecting flames, measuring environmental temperature and humidity, and communicating its location through a GSM network. By integrating a fire sensor with GPS technology, this research seeks to enhance early diagnosis and response to forest fires, contributing to more effective environmental management.

Additionally, in 2023, TEDU academics contributed to the discourse on climate action through two significant publications that align with the objectives of SDG 13.

The first article, "**Spinning in Circles? A Systematic Review on the Role of Theory in Social Vulnerability, Resilience, and Adaptation Research**," systematically reviews 4,432 articles addressing social vulnerability, resilience, and adaptation (SVRA) in the context of natural hazards and climate change. The review reveals a lack of theoretical grounding in approximately 90% of the studies examined, highlighting a gap in the literature. It emphasizes the need for a more reflexive approach to theory in SVRA research to enhance transparency and robustness in empirical findings, particularly in relation to hazards such as wildfires and floods.

The second article, "**Risk Assessment of Sea Level Rise for Karasu Coastal Area, Turkey**," analyzes the risks associated with sea level rise (SLR) due to global warming in a low-lying coastal region. Utilizing Digital Elevation Models (DEMs) and Geographic Information Systems (GIS), the study visualizes inundation scenarios for 1 m, 2 m, and 3 m SLR by 2100. The findings indicate that as SLR increases, a significant portion of the Karasu coastal area faces heightened risks, with critical implications for urban areas, arable land, and forests. This research provides essential data for decision-makers to inform land use policies and enhance coastal management plans, emphasizing the urgent need for adaptive strategies in response to climate change.

Events - Activities

TEDU actively engages its academic and administrative staff, as well as student groups, in a variety of events and activities designed to promote climate action, raise awareness about environmental challenges, and foster collaborative solutions.



Turkey's 100+100 Years: Ecological Notes Symposium (16-17 November 2023):

As TED, the "Turkey's 100+100 Years: Ecological Notes" symposium, organized within the scope of the 100th anniversary of our Republic, was held on November 16-17 at the Ahmet Ersan Conference Hall. The event aimed to develop future predictions from past experiences by addressing Turkey's ecological challenges and opportunities. The symposium brought together researchers from various disciplines such as art, design, architecture, engineering and environmental studies, providing a comprehensive discussion environment. Discussions on Turkey's ecological issues and opportunities within the scope of the symposium have also focused on developing solutions for climate change and environmental sustainability.



Evaluation of Hail Damage Claims through Integration of ECMWF Forecasts and Agricultural Insurance Records: An Advanced Spherical Big Data Approach (10 November 2023)

The integration of ECMWF forecasts addresses the growing challenges of climate-related risks, enabling better preparation and response to extreme weather events such as hailstorms, which are becoming more frequent due to climate change.

Sustainable Fashion (26 April 2023)

The event organized with Dr. Sanem Odabaşı focused on the concept and practices of sustainable fashion design. Sustainable fashion design aims to reduce greenhouse gas emissions by developing innovative and

sustainable methods to combat climate change. Practices such as the use of organic materials, energy efficiency, and water conservation contribute to this goal.



Sustainable Campus Projects Competition (27 April 2023)

The Award Ceremony of the Sustainable Campus Projects Competition, which was organized to include all members of TEDU in its sustainability studies, to collect ideas for the sustainable campus goal and to implement these ideas in the process to achieve the main goal of "Sustainable TEDU", was held with the participation of our rector Prof. Dr. İhsan Sabuncuoğlu, the Sustainability Committee, our valuable instructors and students. At the ceremony where the first 3 projects that could be implemented with a low budget on campus were introduced and the winners were presented their awards, the branch manager of the Ministry of Environment, Urbanization and Climate Change, Ms. Ebru Dilber Çufadar, was with us with her "Zero Waste" presentation.

UNDP Zero-Carbon Literacy: Digital Content Development Camp and Research Project (5-6 June 2023)

'UNDP Zero-Carbon Literacy: Digital Content Development Camp and Research Project', which emerged with the aim of visualizing and promoting the concepts that entered the literature with climate change and climate crisis, producing informative content in line with Turkey's zero carbon targets, and producing remarkable digital designs and platforms that have the potential to create concrete behavioral change in society within the scope of climate change, was implemented under the leadership of EÜAŞ and supported by UNDP Turkey in May 2022. On 05-06 June 2023, as the final event of the project, the Digital Design Creation Camp



and Competition was hosted by TEDU. During the event, experts from EÜAŞ, academics from TEDU Primary Education Program, Dr. Professor Mehmet Sen and Dr. Lecturer Sinem Sözen Özdoğan and NGO representatives held 4 different workshops.



Life with Nature Academy (3-10 July 2023)

"Life with Nature Academy," organized in cooperation with TEDU and EGET Foundation, was successfully held at TOVAK International Marmaris Academy in Marmaris/Turunç between 3-10 July 2023. 14 participants from different universities, including EGET Foundation scholars and students affected by the earthquake, attended various theoretical trainings and practical workshops focused on environmentally friendly and sustainable living for a week.

Theoretical courses designed by EGET Foundation instructors and TEDU English Language and Literature Department faculty members enabled participants to acquire social, artistic and economic information about sustainable living. In the workshops led by EGET Foundation trainers, participants gained practical knowledge and experience about sustainable and environmentally friendly practices in their daily lives. The training program, which was enriched with performance practices, film screenings, historical site tours and musical concerts, ended with a boat tour and certificate ceremony.

Collaboration, Projects, Awards

The earthquakes that occurred in Türkiye on 6 February 2023 showed once again how fragile we are in the face of disasters and emergencies, and the need for all segments of society to assume serious responsibilities against such major disasters. Institutions that develop technologies, products, services, information and data, and train human resources (universities, technology centres, industrial zones, NGOs, and businesses) have important responsibilities. On 25 March 2023, A

Search Conference was organised by some of Türkiye's important institutions and organisations under the coordination of TEDU.



12 organizations founded (Akut Search and Rescue Association-AKUT, Ankara Chamber of Industry 1st Organised Industrial Zone, Başkent University, Başkent University Biotechnology Development Centre, Bilim Ağacı Foundation, İzmir University of Economics, Koç University, Organized Industrial Zone-OSTİM, OSTİM Medical Industry Cluster, Sabancı University, TEDU, Economic Policy Research Foundation of Türkiye-TEPAV) Disaster and Emergency Technologies Platform on June 22, 2023. The thematic areas that the platform focuses on are information and communication technologies, built environment technologies, health (life sciences) technologies, climate- agriculture and environment technologies, and industrial ones. Additionally, the social and legislative dimension, existing within the intersection of these areas, hold vital importance in its agenda. By the end of 2023, the Platform had grown to include 87 members from various sectors. These members came from a diverse range of institutions such as universities, research and technology centers, associations, federations, unions, clusters, cooperatives, foundations, and private sector companies. As of October 2024, the number of partners in the platform has increased to 130. Among these partners is the Higher Council of Organized Industrial Zones, which coordinates 400 organized industrial zones. These zones are comprised of thousands of companies of various sizes and scales.



All activities mentioned above were carried out under the coordination of the TEDU.



Within the scope of SDG 13, Dr. Mehmet Alper Yalçinkaya's project, "Science, Belief, and Trust: Politics and Publics in Turkey," provides valuable insights into the intersection of science, belief, and environmental awareness. Focusing on religious Muslims in Turkey, the study examines views on key societal issues, including climate change, its causes, and its impacts. By exploring how religious communities perceive climate science, respond to scientific discourses on environmental change, and interpret the role of scientists in guiding climate-related behavior, this project sheds light on the broader dynamics of science communication and public trust in scientific advisories on climate action. These findings contribute to understanding the social dimensions of climate resilience, offering perspectives that can enhance the effectiveness of climate policies by taking into account diverse cultural and belief-based viewpoints in Turkey.

In 2023, TEDU students, faculty, and administrative staff received notable recognition for their contributions to sustainability and climate action. Elif Çiçek, a student in the Interior Architecture and Environmental Design program, won the Runner-Up award in the Vectorworks Design Scholarship 2022 for her project "Go Green"—a sustainable design created as part of the TINT 102 Studio 2 course. Additionally, TEDU's poster supporting the International Federation of Library Associations and Institutions (IFLA) sustainability efforts was published on IFLA's "Environment, Sustainability, and Libraries - Green Library Poster" page, making it the third poster from Turkey accepted. These accomplishments underscore TEDU's commitment to SDG 13 by recognizing and celebrating impactful initiatives for environmental sustainability.



Within the TEDU 102 Service Learning course, TEDU students collaborated with NGOs in 2023 to develop projects aligned with the Sustainable Development Goals (SDGs), which they later presented at a project fair. Among these, several initiatives specifically targeted climate change. One example is the project titled "Turn off the Lights for a Bright Future," which promoted energy conservation by raising awareness of the environmental impact of reducing unnecessary light usage. The student team created informational brochures and QR codes to engage the public, explaining how small actions like turning off lights can lower energy consumption and carbon emissions. By encouraging individuals to adopt these habits, the project aimed to foster sustainable behaviors that help conserve resources and decrease reliance on non-renewable energy sources, ultimately contributing to a more sustainable future.





Another project, titled "Reduce Your Carbon Footprint," focused on raising awareness among Ankara residents about reducing individual carbon footprints. By distributing educational posters and leaflets in high-traffic public transportation areas like buses and metro stations, the project aimed to reach a broad audience and inspire eco-friendly practices. The initiative highlighted the impact of everyday activities on environmental sustainability, encouraging collective action toward a healthier, greener community. By emphasizing the importance of individual responsibility, this project aligns with SDG 13 goals, fostering awareness and engagement in combating climate change at a community level.



In collaboration with ÇEKUD (the Solidarity Association of Environmental Organizations), the "Green Habits, Bright Future" project conducted by TEDU 102 students sought to increase environmental awareness by addressing common but often overlooked

behaviors that contribute to pollution. Recognizing that everyday habits—such as waste oil disposal, garbage separation, and dishwashing practices—can significantly impact the environment, the students surveyed community members on these topics to assess their awareness. By sharing their findings with ÇEKUD, they aimed to inform and support NGO initiatives promoting sustainable practices. This project supports SDG 13 by fostering respect for nature, promoting awareness about pollution's root causes, and encouraging community-level environmental responsibility

Campus

Our university has been informed about the studies planned to be carried out in cooperation within the scope of the Strategy Document and Action Plan (2023-2033) on Water Universities and Business Efficiency within the Framework of Adaptation to a Changing Climate prepared by the Ministry of Agriculture and Forestry. Activities aimed at the targets in the action plan are mutually controlled and monitored in six-month periods. Documents prepared on the relevant dates according to the action plan are sent by e-mail and official letter.

