

# THE ROLE OF UNIVERSITIES IN ENVIRONMENTAL PROTECTION

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### Introduction

The recent industrialization and urbanization during the last century has brought extensive environmental pollution problems to the world. The first signs of pollution were observed in water pollution. Later solid waste, air, noise and radioactive pollution began to show their affect on human beings.

In general, occupations evolve according to necessity. The first environmental engineering applications in Turkey were in the areas of water supply and disposal. At the beginning, the water supply and disposal problems were solved by civil engineers. As the sources of pollution became diverse and the treatment methods became sophisticated, the multi-disciplinary character of environmental engineering emerged.

In the last 40 years, three main phases have been observed in the development of environmental protection in Turkey. Between 1950 and 1971, industrialization was the most important goal and no heed was paid to environmental protection. The characteristic signs of this phase were the cement plants located in the centers of cities even though the location of raw materials was far outside the cities. This was because people wished to see a plant in their city. From 1971 to 1982, a transitional phase was noted. Environmental protection was considered while industrializing. Different environmental protection groups were established during this period, such as the Environmental Research Group in the Turkish Scientific and Technical Research Council (TUBITAK), the start of undergraduate education in Istanbul Technical and Middle East Technical Universities, and the establishment of the Under-secretariat of the Environment.

After 1982, it was understood that the environment could not be sacrificed on the altar of industrialization and urbanization. The groups had begun to exert some influence. Also, the Environmental Protection concept was included in the Turkish constitution for the first time in 1982. Following this, the General Directory of the Environment, the Under-Secretariat of the Environment and finally, the Ministry of the Environment were established. The Water Pollution and Control Regulation Act was also passed on September 4, 1988.

Universities conducted research in addition to their educational activities. Eighty students were accepted for undergraduate education in Istanbul Technical University's Environmental Engineering Department every year. Also, ten students were accepted to the M.S. program, and about five students enrolled in the Ph.D. program.

The M.S. and Ph.D. research topics were selected from the important environmental problems confronting Turkey. In addition, research was done to solve some of the specific environmental problems. Some examples are:

- Istanbul Solid Waste Research Project;
- Izmit Bay Pollution Control Project (sponsored by TUBITAK);
- Porsuk and Sakarya River Pollution Control and Optimization Project (sponsored by TUBITAK);
- Izmit Bay Project;
- waste water treatment plant location priorities research project;
- Turkish waste inventory project;
- medical wastes regulation preparation; and,
- wastewater treatment systems for small communities and touristic locations, are some of the examples of such projects.

Different projects are also carried out by international organizations such as NATO and UNDP/UNESCO. In addition, the State Planning Organization (DPT) supports the Istanbul Technical University Pulp and Paper Research Center's research. New developments in the paper industry, waste recovery, minimization and treatment were achieved by this research center.

Application projects are beneficial to universities because they solve the problems faced in the real environment and bring financial support to the universities. Some of the projects conducted by the Environmental Engineering department of Istanbul Technical University are as follows:

- Marine disposal projects for different cities and towns;
- Waste water and industrial treatment plants designs for different cities and towns in Turkey;
- Technical consulting services given to different local and overseas organizations such as SEKA, ISKI, Libya, etc.; and
- environment impact assessments for different industries and constructions.

In conclusion, universities play an important role in environmental protection by means of research activities and applicable projects, as well as through their educational facilities. Also, the cooperation among state agencies, universities and industrial establishments has a great impact on finding solutions to pollution problems.

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Professor **Ahmet Samsunlu** studied at Hanover Technical University (B.Sc., M.Sc.) and received his doctorate there in environmental engineering. He worked at the Ege University, Izmir, until 1986 where he became Professor, Chairman of the Department of Environmental Engineering and Dean and Vice-Rector of the University. At present, he is the Chairman of the Department of Environmental Engineering at the Technical University of Istanbul. He has been Turkish representative at the European Council for Environment Group, a member of the Turkish National Research Organisation's environmental group and a Board member of the Turkish State Organisation. As a member of Parliament, he was Minister for Housing, City Planning, Resettlement and the Environment.

Professor **Veysel Eroglu** is teaching at the Department of Environmental Engineering of the Istanbul Technical University. His research interests include water and wastewater treatment, industrial waste treatment, system analysis and optimization. He is author of 150 scientific papers, 8 books in Turkish and one book in English.

