

STAFF RESOURCES

WESI's chief asset is its research team of some thirty highly qualified staff, drawn from a range of disciplines including engineering, agriculture, economics, mathematics, environmental sciences and computing. This breadth emphasizes both the requirements of environmental change impact modeling and laboratory expertise in all aspects of the development and application of advanced modeling systems. Line management is achieved through program area leaders who, with the director, have amassed considerable experience in undertaking interdisciplinary projects, international collaborative research, technology transfer projects, and major international contracts. The director and program area leaders are all full-time academic staff at An-Najah National University.

COMPUTING RESOURCES

WESI operates its own cluster of high performance PCs and supports the full range of its computing activities. Full advantage is being taken of networking through national and international links. WESI maintains its own home page on the World Wide Web through the university website (www.najah.edu). A state of the art collection of software is available at WESI for the use of the staff and graduate students. Recently, a GIS unit was established at WESI where the latest GIS related technologies are being used in the modeling and management of surface water and groundwater resources.

LABORATORY RESOURCES

Currently, WESI houses three main laboratories: water, wastewater, and water microbiology. These laboratories are situated in three laboratory rooms. The laboratories are well equipped and capable of performing the needed tests on water and wastewater. Some of the important equipment in these laboratories include:

- Atomic Absorption Spectrophotometer, Shimadzu 6700, with all options, and fully computerized. Capable of identifying metals with a very high accuracy. Pure analytical stock solutions and lamps were bought for the analysis of all metals found in water, wastewater, and soils;
- Gas Chromatograph with Mass Spectrophotometer, Shimadzu 17A, with all options and fully computerized. Capable of identifying 260,000

organic compounds including fertilizers, pesticides, detergents, insecticides, food additives, and others with a very high accuracy;

- Spectrophotometer; and
- Atomic titrator, programmable and regular pH, DO, EC meter, still, manifold filtration unit, autoclave, hot plates, shakers, water baths, and other lab equipment necessary for routine analysis of water and wastewater.

INTERNATIONAL AFFILIATION

Since its establishment, there have been many cooperation agreements, programs, and projects with international institutions and agencies:

- Joint project with Utah State University (USU), Logan, Utah, USA
- Joint projects with The Federal Ministry of Education and Research (BMBF), Germany – GLOWA project
- Cooperation agreement with the University of Jordan, Amman, Jordan
- Cooperation agreement with the National Water Research Center, Cairo, Egypt
- Joint project with Achen University, Germany
- Joint training program and research projects with UNESCO
- Project with the German Agency for Technical Cooperation (GTZ), Germany
- Joint projects with UNDP/PAPP
- Joint project with Near East Foundation (NEF)
- Joint agreement with the World Bank
- Joint awareness campaign with Save the Children Federation (SCF)
- Joint project with Development Alternative International and USAID
- Joint project with Delft Hydraulics, The Netherlands
- Joint project with National Technical University of Athens, Greece
- Joint project with Kohn University, Germany
- Joint project with Newcastle University, UK
- Joint projects with CARE International
- Joint projects with Acción Contra el Hambre (ACH) – Spain

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An-Najah National University

Scientific Centers

An-Najah National University

WATER AND ENVIRONMENTAL STUDIES INSTITUTE

Towards sustainable development in Palestine





The Water and Environmental Studies Institute (WESI) at An-Najah National University (ANU) was established in June 2001, as a result of upgrading the Water and Environmental Studies Center founded in 1994.

WESI is a stand-alone facility that operates within an academic environment and collaborates with government and private sectors along with international entities to address technical aspects of water and environmental-related issues. This is accomplished through providing laboratories, computer facilities, and office space. The research, education, and outreach efforts are funded through projects, research grants, and contracts from different sources.

MISSION STATEMENT

The mission of WESI includes the following activities:

- Supervise and manage the two Master of Science (M.S.) programs of Water and Environmental Engineering and Environmental Sciences offered at ANU.
- Facilitate research that supports education and teaching within the university environment.
- Develop research plans and priorities to highlight the water and environmental problems in Palestine and the methods of solving them.
- Carry out environmental impact assessment studies, evaluation assignments, training courses, seminars, workshops, public awareness programs, and research projects.
- Strengthen the partnership with Palestinian Authority institutions through long-term agreements.
- Offer consultancy services to local and international organizations and entities in the area of studying, reviewing, evaluating, monitoring, supervising and designing projects and plans related to water resources and environmental systems.

THE ACADEMIC MISSION

WESI has the largest postgraduate program in the field of water and environmental engineering in Palestine.

In the M.S. program in Water and Environmental Engineering the candidate concentrates on surface and subsurface hydrology, engineering probability and statistics, aquatic chemistry, water and wastewater treatment, sanitation and public health, water quality lab, advanced hydraulic

engineering, hydraulic structures design, sediment transport, water resources management, irrigation and drainage systems, solid waste management, water quality modeling, and environment impact assessment.

The M.S. program in Environmental Sciences is multidisciplinary and is designed in such a way that an interested individual, with B.Sc. degree, can join the program and benefit from it. The program covers areas of general environmental sciences including natural resources management, environmental law, public health and sanitation, environment social impact assessment, applied statistics, wildlife protection and management, soil-water-plant relationship, land reclamation, environmental pollution and pesticides, waste management, instrumental analysis, mathematical ecology, water resources management, water quality control, and air pollution control.

RESEARCH ACTIVITIES

WESI research activities focus on Palestinian water resources and environmental systems. Such activities include, but are not limited to, the following:

- Groundwater management using optimization techniques
- Assessment of groundwater vulnerability to contamination
- Characterization of groundwater pollution from nitrate and chloride
- Development of lumped parameter models for the assessment of groundwater pollution
- Management of seawater intrusion in coastal aquifers
- The impact of wastewater use in irrigation on soil pollution
- Modeling nitrate fate and transport in groundwater
- Simulation of runoff in semi-arid regions
- Management of water resources using WEAP
- Reliability-based design of water distribution systems
- Artificial recharge of groundwater
- Modeling of groundwater recharge using GIS-Model Builder
- Scenario analysis of water resources at city level using WEAP
- Feasibility analysis of the reuse of wastewater in agriculture