Sustainable Water Management Doctoral Programme (Water4All)

Title of the PhD Project	Closing the local water loop: nature-based solutions for rural water management
Acronym	WaNBS
Research Fields of the Project	Environmental Engineering, Urban and Regional Planning
Keywords	Sustainability, nature based solutions, ecosystem services
Host Institution, Department and Campus Location	Izmir Institute of Technology, Environmental Engineering, Izmir
PhD Awarding Institution and Graduate Programme	Izmir Institute of Technology, Environmental Engineering Ph.D. Programme
Name and Affiliation of Main Supervisor	Assoc. Prof. Hatice Eser Ökten, IZTECH
Name and Affiliation of Co-Supervisors	Assist. Prof. Nicel Saygın, IZTECH
Research Environment and Infrastructure	Izmir Institute of Technology
Scientific Context of the Project	Nature-based solutions (NBS) in water resources management entail the intentional and strategic utilization of ecosystem services to enhance both the quantity and quality of water, while also bolstering resilience to climate change. These solutions are commonly integrated with traditional water infrastructure to achieve more sustainable results. The concept that thriving ecosystems contribute to the well-being of human beings is not a recent one. The intricate involvement of various jurisdictions and stakeholders required for the implementation of NBS may be one factor preventing their complete utilization. However, this challenge also underscores one of their primary advantages – these solutions often yield a combination of economic and social benefits for various sectors and stakeholders within the water basin. Within the WaNBS project, the doctoral candidate (DC) will identify the scope and severity of water-related risks in a given rural area, analyze the built infrastructure and evaluate different scenarios of nature based solutions in terms of sustainability

	metrics. In the end, the DC will develop a decision-making tool for sustainable management of water in the rural areas based on nature based solutions.
Brief Workplan	0-2 year: Technical, academic and non-academic formal training. 2. year: Qualifying Exam and Proposal 1-3 year: Field studies, data collection, data analysis 3-4 year: Data analysis, thesis preparation
Innovative Aspects of the Project	A decision-making tool will be developed for sustainable water management in the rural areas that can be customized and serve in the process of policy-making.
Training Opportunities of the Project	• Life Cycle Assessment • Statistics
Interdisciplinary Aspects	This project is at the intersection of Environmental Engineering and Urban and Regional Planning fields.
Intersectoral Mobility ☐ **Short Visit** ☒ **Secondment**	İzmir Commodity Exchange
Intersectoral Mobility ☐ **Short Visit** ☐**Secondment**	
International Academic Secondment	Villanova University, USA University of Calabria, Italy

Main Supervisor	
Brief CV	**Assoc. Prof. Dr. Hatice Eser ÖKTEN**

	E-mail: haticeokten@iyte.edu.tr **Academic Degrees** Ph.D. Environmental Engineering, University of Wisconsin-Madison, USA 2008 M.Sc. Environmental Engineering, Istanbul Technical University, Türkiye 2002 B.Sc. Environmental Engineering, Istanbul University, Türkiye 1999 **Professional Networks** Google Scholar: https://scholar.google.com/citations?user=GLVckPMAAAAJ&hl=en&oi=ao ResearchGate: https://www.researchgate.net/profile/Hatice-Eser-Oekten Scopus: https://www.scopus.com/authid/detail.uri?authorId=12776514500 ORCID: https://orcid.org/0000-0001-7511-940X
Co-supervisors	
Brief CV	**Assist. Prof. Nicel SAYGIN** **E-mail:** nicelsaygin@iyte.edu.tr **Academic Degrees** Ph.D. Design and Planning, University of Colorado, USA 2002 M.Sc. City Planning, University of Pennsylvania, USA 1997 M.Sc. City Planning, Clemson University, USA 1996 B.Sc. City and Regional Planning, Dokuz Eylul University, Türkiye 1991 **Professional Networks** Google Scholar: https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=nicel+sayg%C4%B1n&btnG= ResearchGate:

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