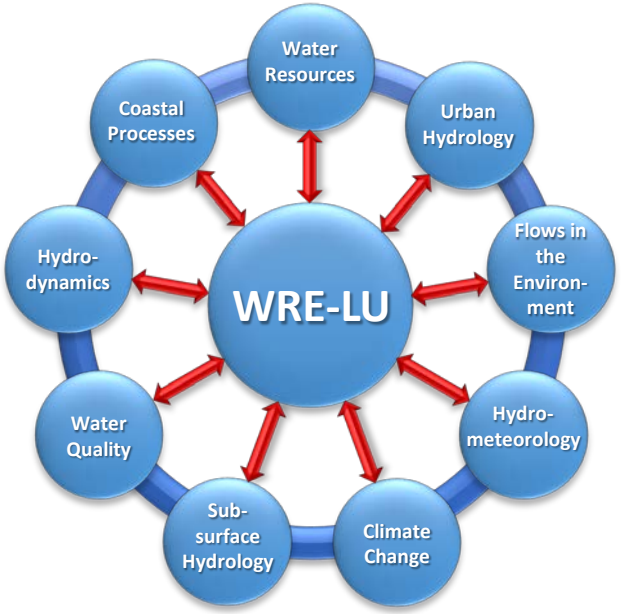
We Understand Water!

WATER RESOURCES ENGINEERING

LUND UNIVERSITY, SWEDEN



WRE-LU – The Department of Water Resources Engineering at Lund University represents a wide variety of water-related specialties that can be divided into the 9 categories above. Thus, we work on almost every aspect of water. Our overall goal is to provide a better understanding of the interaction between physical processes and human activities, which is our contribution to a more sustainable global development.

At present, the group consists of 10 professors, 2 researchers, and 16 PhD students. As an illustration of the international focus of our work, the group represents 12 different nationalities.

The following pages provide a few key words describing each of our 9 research areas:

Coastal Processes: Waves, currents, sediment transport, coastal protection, integrated coastal planning and management, impact of climate change, development of numerical models.

Hydrodynamics: Free-surface flow, unsteady flow, boundary layers, flow around structures, nearshore circulation, water-sediment interaction, pipe flow, jets & mixing processes.

Water Quality: Landfill microbiology, sustainable solid waste management, bacterial biofilm communities in drinking water, reuse of wastewater, aspects of pharmaceutical contamination.

Subsurface Hydrology: Soil water and groundwater movement, arid soil management, measurement techniques, dielectric properties of soil and other porous materials, solute transport, macropore flow, soil salinity.

Climate Change: Climate variability vs. change, adaptation strategies, impact assessments (hydropower production forecasting, agriculture, ground-water regeneration, water balance & nutrients in the Baltic Sea).

Hydro-Meteorology: Coupling between climate and hydrological models, hydrological downscaling, forecasting seasonal to decadal climate services.

Flows in the Environment: Hydrodynamics of surface waters, transport processes & spreading of pollutants, mixing mechanisms, jets & plumes, technical solutions for pollution discharge, stratification.

Urban Hydrology: Climate change effects on stormwater systems, green roofs, snowmelt in urban environments, stormwater in low income peri-urban areas, intense rains, open storm water management, green-blue infrastructure, sustainable cities.

Water Resources: Arid-zone hydrology, irrigation, desalination, integrated water resources/river basin management, infrastructure adaptation, river rehabilitation & protection, hydrosolidarity, artficial recharge systems, EU flood directive.

INTERNATIONAL COOPERATION

The internationational profile of WRE-LU is also illustrated by its large global network. Among others, we are now actively cooperating with:

Bolivia - Univ. Mayor San Simón, Univ. de San Andres; **Brazil** - Univ. Rio Grande do Sul; **Chad** - Lake Chad Commission; **China** - Chongqing Univ., Wuwei City, Xiamen Univ.; **Denmark** - Coastal Authority, Copenhagen Univ., Danish Geol. Survey, Danish Tech. Univ., DHI; **Egypt** - Cairo Univ., Port Said Univ.; **Ethiopia** - Addis Ababa Univ.; **Finland** - Meteorol. Inst., Tampere Univ. of Tech., Univ. Oulu, Univ. of Tampere; **Germany** - Tech. Univ. Braunschweig; **Iceland** - Maritime Admin.; **India** - Indian Inst. of Tech.; **Indonesia** - National Inst. of Tech., Tanjungpura Univ.; **Japan** – Univ. of Tokyo, Kyushu Univ.; **Latvia** - Latvia Univ.; Lithuania - Kaunas Inst. of Tech.; **Mozambique** - Univ. Eduardo Mondlane; **Namibia** - Polytechnic of Namibia; **Norway** - Bergen Univ., Norwegian Univ. of Sci. and Tech., SINTEF, Univ. Oslo; **The Netherlands** - Delft Tech. Univ., UNESCO-IHE Institute for Water Education; **Sri Lanka** - Open Univ.; **USA** - US Army Corps of Engineers; **Vietnam** - Inst. of Mechanics.

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