LEESU
Water - Environment - Urban Systems Laboratory

Director: Bruno Tassin
Total staff: 83 people (in 2012)

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LEESU is organised into 2 teams working respectively
on the urban water cycle and urban engineering.

Its main research activities

The laboratory’s work on the urban water cycle encompasses the study of hydro-meteorological phenomena, the transfer of water and contaminants on urban catchments and their impact on the receiving environments, rivers and lakes. In parallel, it also includes the analysis of the relations between actors in the decision-making processes relating to urban water management.

The laboratory’s activity in urban engineering stands at the interface between the engineering sciences and the sciences of urban sustainability. Its aim is to establish scientific approaches to decision-making in support of regional and local authorities and their different actors.

LEESU is a member of the Urban Futures LabEx (excellence laboratory) and of OSU-Efluve.

LEESU is a member of SOERE Urbis and Glacpe.
LEESU

PRIMARY RESEARCH FIELDS

Urban water cycle

Hydro-Meteorology and Complexity
A “complex systems” approach to:

- Observe, understand and model hydro-meteorological processes in urban environments.
- Investigate extreme events and climate change at a wide range of scales (multifractals approach).

Analysis of contaminants in urban environments
- Characterisation and modelling of contaminants in urban infrastructures, networks and at catchment area scale.
- Assessment of the effectiveness of waste water treatment plant and on site sanitation on chemical contaminants.

Anthropised receiving environments
- Analyse of the behaviour of urban rivers in relation with their chemical and microbiological contamination.
- Monitoring and modelling of the effects of anthropic pressures on the behaviour of urban and periurban lakes.

Actors and decision-making processes
- Analyse of the management of urban water masses in relation to the institutional territories and their vulnerability and water plus sewerage services in connection with flood events.
- Understanding of the innovation processes in urban hydrology and best management practices of rainwater management and recovery.

Urban Engineering

The laboratory works with the EIFFAGE Group on eco-neighbourhoods and the role of private actors in these operations.

This research will complement other ongoing work in partnership with the Île-de-France Region and the City of Paris. This work will be used to monitor eco-neighbourhood and New Urban District operations in their different phases of design and implementation.

Find out more:
LEESU website

Highlights

Participation in major research programmes, including:

- “Hydrology for a Resilient City” Chair, partnership with Veolia Environnement
- OPUR (Observatory of Urban Pollutants) programme, partnership with AESN, SIAAP, CG 92, 93, 94 and the City of Paris
- ANR: PULSE (CEP&S), INOGEV, TRAFIPOLLU (Sustainable City), MENTOR (Ecotech) projects
- Île-de-France sustainable development research network
- Germa project (risk-taking in large urban planning projects)
- Geostocal project (geothermal/urbanism)
- Resilis project (urban resilience)