

RESEARCH PORTFOLIO

Socio-natural systems

Name of researchers in charge

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Group description

The Laboratory of Chemical and Environmental Engineering (LEQUIA) is a research group of the University of Girona (UdG) devoted to the development of eco-innovative environmental solutions. LEQUIA is a part of the UdG's Institute of the Environment (IMA) and participates actively in UdG Campus Water. LEQUIA is a "consolidated research group" recognised by the Catalan Government and a member of TECNIO, a network that brings together leading experts in applied research and technology transfer in Catalonia. The group is multidisciplinary, with chemists, biologists, environmental scientists, engineers, and political scientists, among others.

Research description

The research line investigates the **role of values, cognitive frames and socio-political arrangements in environmental planning, technologies and interventions**. The line emerges out of an established research trajectory in LEQUIA: for the past 25 years we have been studying the *Planning, control and evaluation of complex environmental systems*. As environmental studies are becoming more interdisciplinary, the group widened its understanding of environmental systems in order to integrate human and social variables. It acknowledges that social perception, ethical values, politics, policy and governance form an inseparable part of the "natural" world and the decisions taken therein. Our research has focused on: 1) The ethical-political dimension of technologies, from Nature-based solutions to Artificial Intelligence applications; 2) Urban planning, circular economy and sustainable transitions; 2) The hydrosocial cycle: decision-making and conflicts in urban water management and governance. This subgroup is involved in several interdisciplinary projects on participatory implementation of nature-based solutions in cities through living labs.



Project EdiCitNet: living lab Sant Narcis (Girona)



Rec Comtal de Barcelona

Most relevant projects

- > **RITA** - urban water cycle Resilient To pAndemics. AGAUR. Programme PANDÈMIES2020. 2021-2022.
- > **EdiCitNet** - Edible Cities Network - Integrating Edible City Solutions for social resilient and sustainably productive cities – European Commission. H2020-SCC-NBS-2017. 2018-2023. <http://www.edicitnet.com>.
- > **Gestió integral del cicle urbà de l'aigua en el paradigma de l'economia circular** – AGAUR. Programa de Doctorats Industrials. 2017-2020.
- > **Anàlisi i millora del grau de satisfacció dels usuaris del servei del cicle de l'aigua urbà** – AGAUR. Programa de Doctorats Industrials. 2022-2025.
- > **AMAZOMEM** - Sistema descentralizado de membranas para la potabilización sostenible de agua en comunidades amazónicas. El agua potable como bien común. Unitat de Compromís Social de la UdG. 2019-2021.

Most relevant publications

- > Perello-Moragues A., Poch M., Saurí D., Popartan L.A., Noriega P., **Modelling domestic water use in metropolitan areas using socio-cognitive agents**, *Water (Switzerland)*, Open Access, Volume 13, Issue 82, April 2021, Article number 1024.
- > Popartan L.A., Ungureanu C., Velicu I., Amores M.J., Poch M., **Splitting Urban Waters: The Politicisation of Water in Barcelona between Populism and Anti-Populism**, *Antipode*, Volume 52, Issue 5, Pages 1413 - 14331 September 2020.
- > Castellar J.A.C., Popartan L.A., Pueyo-Ros J., Atanasova N., Langergraber G., Säumel I., Corominas L., Comas J., Acuña V., **Nature-based solutions in the urban context: terminology, classification and scoring for urban challenges and ecosystem services**, *Science of the Total Environment*, Open Access, Volume 77920, July 2021, Article number 146237.
- > Edwards, E, Popartan L.A. (eds) **Urban Natures: Making Visible, (Re)Connecting and (Re)Politicising**, Berghen Books, 2022. Upcoming.

Doctoral theses

- > Popartan, L.A., **The socio-cognitive dimension of water: the case of politicisation of water in Barcelona**, 08/10/2020, <http://hdl.handle.net/10803/671135>
- > Ongoing:
 - Gómez, A.N., Resilience indicators in the Urban Water Cycle
 - Recalde, Y., Soluciones basadas en la naturaleza como medida para la gestión del ciclo hidrosocial urbano en regiones con distintas realidades económicas y sociales a nivel mundial.
 - Cueva, J.C., Análisis de la sostenibilidad de los sistemas de agua rural en comunidades del río Amazonas

Networks

- > **COST Action Circular City** - <https://circular-city.eu/> - Working Group 5 – Transformation Tools

Relevant collaborations

- > Department of Geography, UdG, Research Group on Environment and Geographic Information Technologies.
- > Institut Català de Recerca de l'Aigua