



PhD in INGEGNERIA AMBIENTALE E DELLE INFRASTRUTTURE / ENVIRONMENTAL AND INFRASTRUCTURE ENGINEERING - 38th cycle

Research Area n. 3 - Environmental and Hydraulic Engineering and Geomatics

**INTERDISCIPLINARY Research Field: MINING BIG DATA TO SUPPORT ENVIRONMENTAL
POLICY MAKING**

Monthly net income of PhDscholarship (max 36 months)

€ 1195.0

In case of a change of the welfare rates or of changes of the scholarship minimum amount from the Ministry of University and Research, during the three-year period, the amount could be modified.

Context of the research activity

Motivation and objectives of the research in this field

Interdisciplinary PhD Grant

The PhD research will be carried out in collaboration with research groups of the PhD programme in "**URBAN PLANNING, DESIGN, AND POLICY**".

See <https://www.dottorato.polimi.it/?id=422&L=1> for further information.

The growing availability of big and open data, although diverse in accessibility by public and private institutions, is enabling the implementation of policy making processes having a stronger experimental nature. Situated and temporary attempts, tests differentiated in urban areas or districts, as well as the spreading adoptions of policy measures developed in other cities clearly reveal this experimental approach within contexts which are keener to organizational learning and innovation.

Within this landscape the proposed research aims at:

- 1) reviewing the existing scientific literature looking at the experimental dimension of environmental policy making
- 2) mapping most recent progresses in urban environmental modelling and monitoring using big/open data
- 3) developing a methodological framework starting from



	<p>an analysis of existing initiatives in European cities</p> <p>4) testing the methodological framework on a city in the Lombardia region selected by considering both the intensity of environmental policy measures and the data sets available or to be created ad hoc.</p>
<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The biggest challenge in the proposed research is the identification of effects on the environmental system as clearly and univocally associated to a single policy measure. Coherently with this awareness, the proposed research will address methods for ecosystem services evaluation and for basic environmental monitoring of the quality status of urban water, air and soil. In this perspective, modelling tools will be used to support the analysis of new policy scenarios, to simulate the impacts created by previous policy measures, predicting the effects of behavioural changes and induced practices; such analysis will outline the obstacles that have proved to limit the effectiveness of the implemented measures, and it will assess the environmental efficiency indicators and the costs associated with each alternative by means of cost-effectiveness analysis.</p>
<p>Educational objectives</p>	<p>Acquisition of the critical thinking and research skills to become independent scholars; Acquisition of research methods, either quantitative and deductive either qualitative and inductive.</p>
<p>Job opportunities</p>	<p>Research agencies, Research Institutions, industrial sector, public Bodies and Authorities involved in environmental policies.</p>
<p>Composition of the research group</p>	<p>0 Full Professors 2 Associated Professors 2 Assistant Professors 1 PhD Students</p>
<p>Name of the research directors</p>	<p>Arianna Azzellino, Grazia Concilio</p>

Contacts
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	597.50 €
By number of months	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>List of Universities, Companies, Agencies and/or National and International Institutions that are cooperating in the research</p> <ol style="list-style-type: none"> 1) RISE - Research Institutes of Sweden, CTF - Center for Service Research // Political Science 2) Stockholm Environmental Institute 3) Water Research Institute, Italian National research Council 4) Ikerbasque, Basque foundation for Science <p>Educational activities (purchase of study books and material, funding for participation to courses, summer schools, workshops and conferences): financial aid per PhD student per year: max 1624.30 euros per student on average.</p> <p>Teaching assistanship (availability of funding in recognition of support to teaching activities by the PhD student): there are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.</p> <p>Computer availability and desk availability: 1st year + 2nd year + 3rd year: individual use.</p>