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INN WATER
Promoting social innovation to renew multi-level and cross sector water governance

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Result Factsheet - KER

INN-WATER PRICING MICRO-SIMULATION MODEL

Water Pricing Assessment Tool

Link to the tool

RESULT Type:
ICT software digital solution

Owner: UNIVERSITÉ DE LA RÉUNION

Contributors: REKK, eurecat Centre Tecnològic de Catalunya

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Description

The (Inn-) Water Pricing Micro-Simulation Model is a digital tool that enables to assess the socio-economic performance of the water pricing policy (Linear Tariff, Two-part Tariff, Increasing Block Tariff) for domestic implemented in a specific area. This evaluation is carried out by means of a dashboard and some appropriate "academic" indicators, in 5 fields of analysis related to EU-WFD (Affordability; Incentive effect; Economic efficiency; Equity; Cost recovery), that are commonly applied in Water Economics (or in other areas of Economics like Economics of Poverty, Economics of Taxation ...).

The main feature of the tool is to be based on an econometric model of local household water demand functions, that is on the estimated causal relationship that links household water consumption to its main determinants (size of the family, level of income, tariff parameters ...). Coupled with the database used for its estimation, the latter does provide essential information (distribution of basic needs across the population, price-responsiveness of water demand, extent of overconsumption ...) to carry out some relevant public policy evaluations, whether for diagnostic or simulation purposes.

TARGET AUDIENCES

Water Managers

Can use the findings to raise awareness and possibly influence policy related to equitable and sustainable water pricing.

Water Regulators

May provide grants and subsidies to support further implementation and citizen engagement actions.

Research and technology institution

Can offer technical expertise and contribute to the scientific understanding of the socio-economic trade-offs in water tariff design.

General public

Can also benefit by being better informed and engaged in the debate on water pricing and resource management.

We specially need

1. Collaboration with/feedback from experts on occasional improvements and possible extensions (e.g. the integration of decision-making analysis of public investments) with regard to the assessment currently implemented by the tool);

2. Collaboration with experts on tool design (interfaces, infographics (replacing tables), management of information granularity, setting of the simulation portfolio), production of technical documentation and serious game scenarios (andragogy), and development of AI assistance (conversational agent training, decision-making support algorithm) to improve user experience

3. Funding for the continued development of the tool (including the scaling up operation) with, in particular, human resources for backend code development.

SDG's

Unique value proposition

The tool enables all the stakeholders involved in water price setting to conduct public policy evaluation in accordance with academic standards, by making use of the information provided by an econometric model to feed a set of proper and consistent indicators, but whose production requires knowledge of household water demand functions (and the socioeconomic composition of the user population).

Use beyond the project life

The development of the tool will continue by pushing for the upscaling operation, the articulation/integration with the CGE Model InnWater - La Réunion and the user experience. At the same time, it is planned to develop the learning environment around the use of the tool (including the development of serious game scenarios) and test the produced material in academic courses and demonstration activities for professionals (on the topic of the economics of water pricing). Finally, two collaborative projects (one on Reunion Island and one in continental Europe) with authorities involved in the setting of domestic water tariffs are expected to be launched for the operational use of the tool.

Impacts

- **Scientific**: usual indicators are supplemented by some "new measures" commonly applied in other areas of social sciences, e.g. Poverty analysis.
- **Economic**: improvement of local public decision-making process (and the related domestic water pricing) through the application of a common and consistent evaluation methodology to support co-construction of public policy.
- **Societal**: making use of the information on general and personal impacts of domestic water pricing to foster awareness and social acceptability of the tariff mechanism.
- **Environmental**: improving the calibration of current water pricing schemes to strengthen their incentive effect (water conservation) while maintaining the affordability of the service (and cost recovery).

Replicability

The tool to be truly operational (and provide effective information on the performance of specific water pricing policy in well-defined area) needs to substitute the econometric model used for demonstration purpose with an econometric model of local household water demand and, if necessary, to adapt the Tariff module to the specific features of national regulations. Based on these adjustments, the number of potential beneficiaries is large (potentially all local and national drinking water and wastewater utilities).

Key benefits

Explain the socio-economic impacts of water pricing

Show key trade-offs to support water and wastewater utilities

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