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

4

February 2026

Result Factsheet

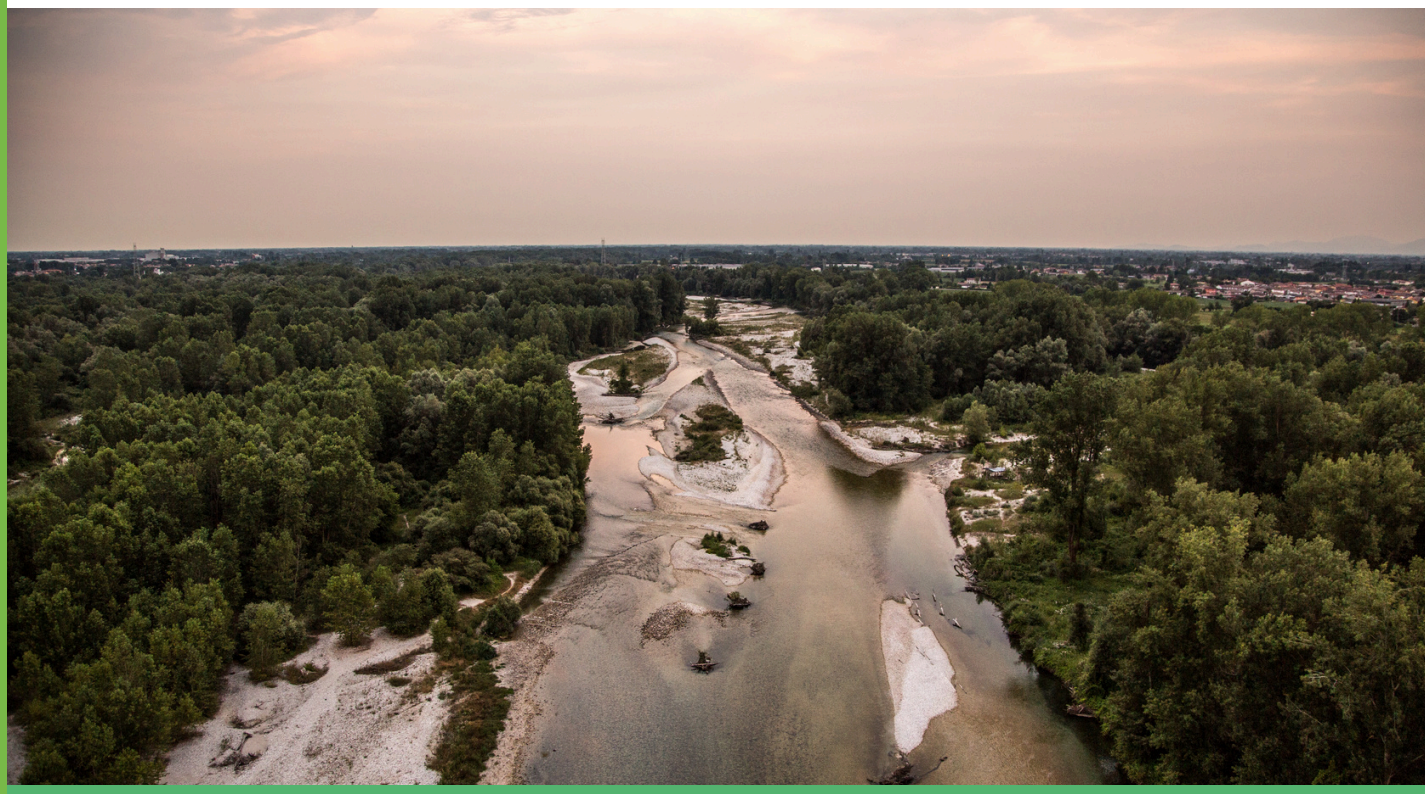
WEFE NEXUS MACRO-ECONOMIC SIMULATION

RESULT Type:
Scientific or technological R&D

Link to the tool

Owner: Université de Rouen Normandie

Contributors: Université de La Réunion; eurecat Centre Tecnològic de Catalunya



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Description

The WEFE Nexus macroeconomic simulation model allows to simulate and analyze shocks such as water scarcity and water policy measures. The analysis allows to evaluate the economic impacts on industries, markets and economic agents and to identify the negative (or positive) impacts of shocks and water policy measures. By simulating the macroeconomy as a whole integrated system interactions between industries, markets and agents can be identified and be considered for economic and policy evaluation.

The overarching Result 4 comprises four sub-results:

The WEFE Nexus CGE Model for Réunion Island (Result 4.1)

This sub-result consists of the macroeconomic model named the REWEFE model, a stand-alone version developed and released using the GAMS modelling software. It can be used for WEFE nexus CGE model analysis.

Data Viewer for Results Visualisation (Result 4.2)

The data viewer, implemented on the InnWater Governance Platform, enables the presentation and analysis of simulation results from the WEFE Nexus CGE model. It can be used for displaying and analysing WEFE nexus CGE model scenario results in a structured way.

AI Assistant (Result 4.3)

The artificial intelligence assistant supports users of the InnWater Governance Platform in understanding the CGE model and interpreting its results. The AI assistant supports the understanding of the CGE model and its results.

Target Audiences

The result targets **EU and Member State policy-making institutions, Research and Technology Organizations**, and **Other actors who can help us fulfil our market potential.**

Policy-making

institutions can use the model to raise awareness and influence policies for integrated water, energy, food, and ecosystem management.

Research and Technology Organizations

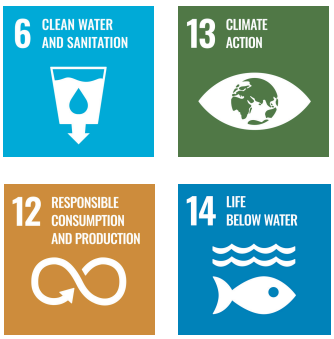
can collaborate and use the modelling framework to support WEFE Nexus studies.

Other actors

such as water managers and environmental agencies, can provide technical expertise to apply and adapt the model for policy evaluation

We specially need

The development of the CGE model relies particularly on the macroeconomic database known as the Social Accounting Matrix (SAM). The SAM used in this study was provided by CEMOI (Centre d'Économie et de Management de l'Océan Indien) and was developed within the framework of the OMEGA project (Outre-mer : Modèles d'Équilibre Général Appliqués), with contributions from the French Ministry of the Interior and Overseas Territories.



Unique value proposition

The CGE model developed and applied for the simulations adopts a cross-sectoral approach to water governance and represents the first CGE model to integrate the four WEFE nexus pillars—water, energy, food, and ecosystems—for Réunion Island. The scenario simulations for local stakeholders enable discussion and co-development with the targeted audience through a co-modelling approach.

Use beyond the project life

The WEFE Neus macroeconomic simulation model will be further developed and applied for policy analysis in Réunion Island.

- The CGE model will be used as a stand-alone tool for policy assessment and for addressing research questions related to Réunion Island.
- The CGE model will also be applied in future research projects and extended by new dimensions according to the new research questions.

Impacts

- **Scientific**: Provides the first CGE model integrating the four WEFE pillars for Réunion Island. The tool advances interdisciplinary research by linking hydrological, agricultural, energy and macroeconomic systems, creating a scientific foundation for cross-sector policy analysis.
- **Economic**: Supports the evaluation of water policy measures and scarcity shocks on industries, markets, and households, helping identify cost-effective and balanced responses. Strengthens economic planning capacity for regional authorities and informs public investment strategies under the EU Green Deal framework.
- **Societal**: Engages local stakeholders through participatory scenario simulations, fostering understanding of trade-offs between resource use and social welfare. Enhances policy dialogue between researchers, decision-makers, and practitioners to co-design adaptive strategies for sustainable resource management.
- **Environmental**: By integrating environmental constraints and ecosystem functions into macroeconomic modelling, the simulation highlights the economic value of water and natural resources, promoting sustainable management and policy coherence across the WEFE Nexus.

Key benefits

Simulating the context of the overall macroeconomy and the WEFE nexus.

Identifying interactions between industries, markets, and agents.

Providing results that can be used for economic and policy evaluation.

Replicability

The simulation results can provide insights for scenarios in regions with conditions similar to those of the study area, Réunion Island. The CGE model can also be developed and applied to other regions, provided that the necessary data are available.

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