PRESENTATION

About InnWater

InnWater aims to foster sustainable multi-level and cross sector water governance through social innovation. To this end, InnWater is developing a set of tools and services adapted to local needs for the benefit of water stakeholders, including a governance assessment matrix, guidance for stakeholders' engagement, as well as simulations linking water resources management and economic activities. To achieve its goals, InnWater engages with pilot site communities, co-developing tools to address specific water challenges like pricing policies, water quality, and infrastructure investment.

Figure 2: InnWater pilot sites maps

InnWater is coordinated by the International Office for Water and run from 2023 to 2026.

References

[1] LES CHRONIQUES DE L'EAU n°143 (Décembre 2024) - Office de l'Eau Réunion

[2] GUIDE DE BONNES PRATIQUES POUR LA MISE EN ŒUVRE DE LA METHODE DES COUTS DE TRANSPORT – Sebastien TERRA (2005)

[3] GUIDE DE BONNES PRATIQUES POUR LA MISE EN ŒUVRE DE LA METHODE D'ÉVALUATION CONTINGENTE– Sebastien TERRA (2005)

[4] ECONOMIC VALUATION AND THE NATURAL WOLRD – David PEARCE (1992)

Realisation

- Authors: Lou-Anne Wolf (Université de la Réunion)
- Graphic design: Ananda Rohn & Elisa Bezier (OiEau)
- Date: July 2025

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contact.innwater@oieau.fr

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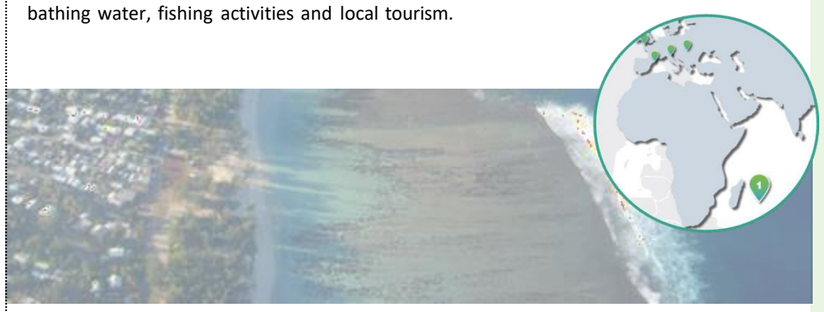
CONTEXT AND PROBLEM

In La Réunion, **46% of households are not connected to a public sewerage system** [1]. These households use non-collective sanitation systems, which are often poorly maintained or leaky. As a result, inadequately treated wastewater seeps into the ground or runs off the surface, particularly during rainfall. This water, laden with nutrients, organic matter and sometimes chemical pollutants, ends up in the lagoon via rivers or directly in the groundwater.

This pollution leads to eutrophication of the lagoon: excess nutrients encourage the proliferation of algae, which suffocates the corals and **upsets the fragile balance of the reef ecosystem**. Ultimately, this threatens marine biodiversity, the quality of bathing water, fishing activities and local tourism.



METHODOLOGICAL INSIGHTS

To better protect the lagoon and guide public decisions, it is important to understand its true value, including in economic terms.

This is why monetary evaluation methods have been put in place, such as **the transport cost method** and **the contingent valuation method**. These make it possible to estimate, in euros, the benefits that the reef and the lagoon bring to society. These evaluations help to raise awareness of the cost of environmental degradation, such as pollution caused by domestic sewage, and to justify the investment needed to preserve the reef.

This approach is rooted in the concept of **Total Economic Value (TEV)** [4], which recognizes that ecosystems like coral reefs generate a wide range of benefits—some of which are directly visible and others less tangible but equally important. By quantifying these different components, TEV provides a comprehensive framework for understanding the full contribution of the lagoon and reef system to the well-being of society.

Policy relevant learnings

Université de La Réunion

The overall objective of InnWater Policy Brief is to highlight how InnWater solutions can support water related policies implementation and formulate recommendations for their update. This document presents the highlights of the full version of the Policy Brief #2.

Three Policy Briefs will be delivered over the course of the project with different focuses:

#1 Water governance challenges overview, Europe at a fork in the River A changing water context, with a general approach to set the water governance scene.

#2 Effective citizen engagement strategies, addressing international policies.

#3 Synthesis of policy relevant learnings from the all the project's results, focusing on European water related policies (this one).

Box #1

Definition of concepts

Travel Cost Method

The methodology of this study involves the observation of the time, fuel and travel costs expended by individuals in order to access and enjoy the lagoon. The extent to which individuals are willing to travel to access this location is indicative of its perceived value to them. [2]

Contingent Valuation Method

This approach involves the administration of surveys that inquire directly into the financial contributions that individuals would be willing to make towards the preservation of coral reefs and thereby, the lagoon. [3]

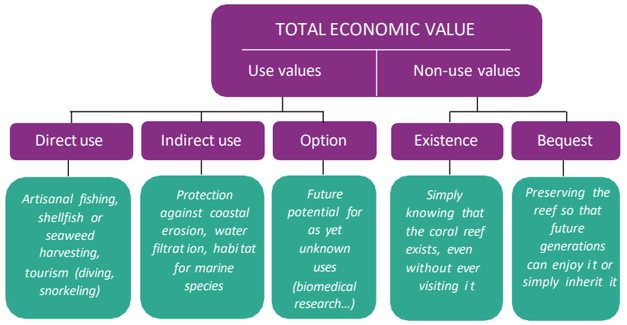


Figure 1: Graphic representation of Total Economic Value for valuation of ecosystem services

DATA COLLECTION

To implement both the Travel Cost Method (TCM) and the Contingent Valuation Method (CVM), a structured questionnaire was developed. It included a series of questions designed to estimate actual travel expenses and frequency of visits for the TCM. For the CVM, a hypothetical scenario was presented, describing a credible coral reef preservation program and inviting respondents to state their willingness to pay through monthly contributions.

In addition, the questionnaire gathered detailed socio-demographic information (age, income, education level, place of residence, etc.) to help explain heterogeneity in preferences and behavior. A total of **764 individuals were surveyed** across three popular western beaches of La Réunion — Hermitage, La Saline, and Trou d'Eau. The sample comprised 541 local residents and 223 tourists.

KEY FINDINGS AND IMPLICATIONS

The Travel Cost Method (TCM) estimated that residents of La Réunion visit the western beaches—Hermitage, La Saline, and Trou d'Eau—have a consumer surplus of €69.50 per visit. This surplus reflects the maximum amount that an individual is prepared to spend to visit the site (Maximum Willingness To Pay), thus illustrating the recreational value that he or she places on the site studied, in this case the reef and lagoon of La Réunion. When extrapolated to number of visitors per year, this corresponds to an aggregate recreational use value of approximately €70 millions per year.

€69.5 millions per year

The Contingent Valuation Method (CVM), based on a hypothetical scenario of a reef preservation program funded by voluntary monthly contributions over five years, indicated an average willingness to pay (WTP) of €7.30 per month. This amounts to €87 annually per person. At the population level *(according to INSEE in 2021, there are 67,895 local residents aged over 15),* the estimated total non-market value—reflecting both use and existence values—reached approximately €60 millions per year.

€59.5 millions per year

This valuation expresses both the recreational value but also includes the existence values attributed to the coral reef by the respondents.

The findings from both valuation techniques underscore the **considerable economic significance of La Réunion's lagoon ecosystem**, highlighting its importance not only for recreational purposes but also for its broader societal value. The high annual use value estimated through the Travel Cost Method emphasizes the role of the lagoon as a central recreational asset for local residents. The frequency of visits indicates that access to healthy reef-adjacent beaches significantly contributes to quality of life and local well-being.

The findings from the Contingent Valuation Method further demonstrate that the strong willingness to contribute financially to a hypothetical preservation program indicates public support for conservation policies and potential for mobilizing local funding mechanisms. Moreover, the analysis revealed that **income** and **emotional attachment to the lagoon** are key determinants of willingness to pay, indicating that both economic capacity and perceived personal value play critical roles in shaping environmental commitment.

The preceding points have collectively highlighted the necessity for increased investment in the conservation of reefs, with a particular emphasis on addressing sources of anthropogenic pollution, such as sewage, which have been demonstrated to be lethal to corals. It is proposed that the reef be recognized as a valuable public asset, which would facilitate the justification of budget allocations, the execution of cost-benefit analyses of coastal development and the design of payment for ecosystem services schemes tailored to the context of La Réunion.

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POLICY RECOMMENDATIONS

EU LEVEL

The European Union plays a key role in supporting environmental protection across its territories, including its outermost regions. It can provide **strategic guidance, funding, and legislative integration** to strengthen reef resilience.

- Prioritize wastewater management and marine pollution reduction within EU-funded environmental programs.
- Ensure inclusion of overseas territories like La Réunion in initiatives targeting water quality and coastal ecosystem restoration.
- Promote integration of coral reef protection into the Water Framework Directive, Biodiversity Strategy, and Marine Strategy Framework Directive.
- Encourage cooperation between regions to share solutions and experiences on wastewater and reef preservation.

NATIONAL LEGISLATION

France has a responsibility to safeguard the biodiversity of its overseas territories, including coral reef ecosystems, by **reinforcing legal protection** and **investing in water and sanitation infrastructure**.

- Upgrade national sanitation policies to reflect the vulnerability of island ecosystems to domestic wastewater.
- Secure dedicated funding for improving wastewater infrastructure near reef zones.
- Recognize coral reefs as national environmental assets, justifying ecological compensation and PES mechanisms.
- Use ecosystem valuation in national coastal and urban planning to align economic, social, and environmental priorities.

LOCAL LEVEL

Local authorities are best placed to act **quickly** and **effectively** by improving wastewater treatment, **engaging the community**, and aligning development planning with ecosystem protection.

- Invest in sanitation solutions, especially in areas close to the lagoon.
- Integrate reef health criteria into municipal water and land-use planning tools.
- Raise public awareness of the links between domestic pollution and coral degradation.
- Apply economic valuation results to prioritize projects that offer both environmental benefits and public support.
- Foster cooperation between sanitation services, environmental agencies, and civil.