

Italy Policy Brief

Challenges and Opportunities for the Development of NCW in Italy:

Persistent Governance Fragmentation and Institutional Misalignment: Structural Barriers to NCW Implementation

Non-Conventional Water (NCW) for Water and Land Governance

AG-WaMED Project (PRIMA / European Union)



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Executive Summary

Italy faces increasing pressure from climate change and recurrent droughts, making the expansion of non-conventional water (NCW) strategies a national priority. In the Italian case, the development and rehabilitation of reservoirs and storage infrastructures represent a key NCW, essential to secure water supply for agriculture and rural communities.

However, fragmented governance, regulatory ambiguity, and insufficient financial support have slowed implementation. At the same time, there is a broad consensus among farmers, associations, and institutions on the urgent need to expand storage capacity. National and regional policy instruments, together with technical expertise and emerging local initiatives, provide potential entry points for scaling NCW.

In Italy, NCW strategies are primarily focused on reservoirs and water storage systems, which represent the backbone of current adaptation responses to drought and scarcity.

National and Institutional Context

Water governance in Italy is characterized by fragmentation and overlapping responsibilities across municipalities, regional administrations, and national agencies. This complexity often results in bureaucratic delays and inconsistent implementation of environmental laws, particularly concerning sediment management and land use. At the same time, climate variability has intensified demand for reservoirs as adaptive infrastructure, especially in areas like Val d'Orcia, where agricultural irrigation is increasingly necessary.

Policies and Strategies on Water and Land

Several instruments address water scarcity and infrastructure development in Italy, including the Piano Invasi, the PNISSI, and the Decreto Siccità. Regional

programs such as Tuscany's Regional Rural Development Program (PSR) provide co-funding for storage projects. However, these initiatives remain underfunded and fragmented, limiting their transformative potential. While NCW is formally recognized in national strategies, implementation is slow and hampered by regulatory and financial obstacles.

Barriers to the Adoption of NCW

The upscaling of NCW in Italy is hindered by a combination of structural, economic, and cultural barriers. Governance fragmentation and overlapping mandates produce uncertain and slow approval processes, discouraging investment. Farmers face high costs and limited financial predictability, with EU and national funding mechanisms often misaligned with local agricultural realities. Technical challenges include the deterioration of existing reservoirs and limited land availability for new projects. In addition, legal ambiguities regarding sediment reuse and restrictive environmental regulations inflate compliance costs. On the cognitive and behavioral side, many farmers remain reliant on traditional practices, with few demonstration projects to showcase innovative solutions.

A further barrier is the limited integration of gender considerations into water and agricultural strategies. Women's participation in decision-making structures remains marginal, and existing programs do not explicitly address inclusivity in NCW initiatives.

Summary of key barriers:

- Fragmented governance and overlapping institutional mandates.
- Regulatory ambiguities, especially in sediment management.
- High upfront costs and insufficient funding support.
- Deterioration of existing reservoirs and limited space for new ones.
- Complex authorization procedures.

- Limited adoption of conservation practices.
- Farmer reluctance to change traditional approaches.
- Weak gender mainstreaming in rural and water programs.

Drivers for the Upscaling of NCW

Despite these barriers, several enabling factors offer potential. There is a shared recognition among stakeholders—particularly farmers—of the urgent need to expand storage to cope with drought. Farmer associations and reclamation consortia actively advocate for funding and regulatory reform, giving visibility to NCW needs. Regional initiatives such as Tuscany's PSR provide co-financing, while national instruments like Piano Invasi and Decreto Siccità reflect growing political awareness. An important advancement in the Tuscany Region is represented by the publication of guidelines¹ for the rehabilitation of existing small reservoirs that aims to ease the interpretation of the regulations by the interested stakeholders. There is also an emerging recognition of the value of shared reservoirs for small farms, which could democratize access to water infrastructure. Finally, some consultants and technical experts are beginning to promote improved practices, although systematic support for knowledge transfer is still lacking.

Summary of key drivers:

- Broad consensus on the need for storage expansion.
- Farmer associations and consortia lobbying for reforms.
- Regional co-funding programs (e.g., Tuscany's PSR) and initiatives (Tuscany's guidelines).
- National instruments (Piano Invasi, Decreto Siccità).
- Emerging attention to shared reservoirs for small farms.
- Presence of technical expertise and consultants.

¹ <https://www.regione.toscana.it/-/indirizzi-operativi-e-procedurali-per-gli-invasi-di-competenza-regionale>

Conclusions and Recommendations

Italy's case illustrates how institutional fragmentation and regulatory ambiguity can stall the adoption of NCW, even when social and environmental needs are widely recognized. To overcome these barriers, the following recommendations are proposed:

- **Reform governance structures** to clarify responsibilities and improve coordination across sectors and levels.
- **Simplify and harmonize regulations**, particularly regarding sediment reuse and environmental compliance.
- **Increase financial support** through targeted funds aligned with local agricultural needs, including measures for small and mid-sized farms.
- **Rehabilitate existing reservoirs** and promote shared infrastructures to enhance efficiency and equity.
- **Promote demonstration projects and technical assistance** to accelerate the diffusion of innovative practices.
- **Integrate gender considerations** into water and agricultural programs to strengthen inclusivity.

References and Project Credits

This policy brief is part of the AG-WaMED Project (PRIMA / European Union), which aims to strengthen water and land governance in the Mediterranean through the adoption and scaling-up of non-conventional water resources.