

Solving water problems or creating new ones?

The use of alternative water resources for irrigation presents a number of challenges that require further attention from European policies

Overview

The growing gap between water availability and water demand – due to increasing human pressures and climate change – has prompted the exploitation of non-conventional water resources for covering high irrigation demands in many Southern European regions. The MAGIC project has examined the role that Alternative Water Resources (AWRs) play in the agricultural and water governance context of the Canary Islands (Spain).

Our research involved more than 70 stakeholders including public authorities in WEF nexus related policies, academics, agricultural, water management and civil society organisations. A round of interviews combined with a quantitative analysis of water-food production patterns served as information inputs for two deliberative workshops where the technological, environmental and social challenges of using AWR for irrigation were discussed.

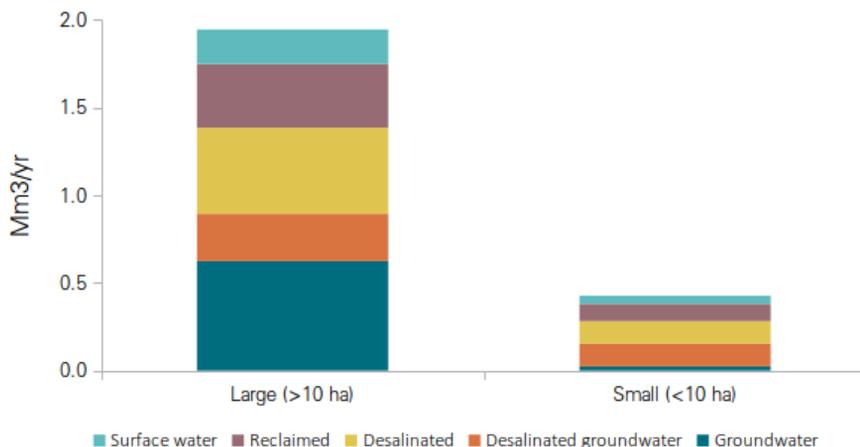


Fig. 1 - Total water used by type of source and farm size in South-East Gran Canaria irrigation area in 2019

Alternative water resources in European policies

From a wider European view, the key challenge for the viability of AWRs for irrigation purposes is the development of a dedicated regulatory framework that provides security to both agricultural producers and consumers. The energy dependencies of AWRs must be addressed within such regulation.

The Water Framework Directive and the Common Agricultural Policy could include AWRs as explicit instruments in the pursuit of environmental objectives.



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Sustainability factors in the use of AWRs

The findings from the MAGIC case studies in Gran Canaria and Tenerife (Canary Islands) suggest that access to water resources is not perceived as a problem in these areas as was initially hypothesized considering the local conditions of aridity, groundwater overdraft and climate change projections. On the contrary, AWRs appear as technological innovations that provide security to farmers in terms of availability and stable prices in the Canarian context of private marketization of freshwater resources. In addition, AWRs may contribute to the stabilization of groundwater tables if adequately managed within the water resources pool. Whereas groundwater still plays an important role in Canarian agricultural production, especially in the production of banana and tomato for exportation, both reclamation and desalination are integrated in a myriad of water-food nexus patterns (Fig. 1). Public leadership and subsidies to lower their price have been fundamental for the uptake of these resources.

Challenges in the use of AWR

As a note of caution, AWRs may contribute to a perception of unlimited water availability that reinforces unsustainable consumption trends. With regards to specific impacts, the inadequate salt balance of desalinated water has been shown to affect crops and deteriorate soil structure in the long run whereas reclaimed wastewater faces problems of emerging pollutants. To address these challenges, farmers require technical support and training in the management of these resources. Finally, the role of renewable energies in decreasing AWRs costs is still uncertain and it requires specific demonstrative projects to test the robustness of this WEF synergy.



Wastewater reclamation plant in Valle Guerra irrigation area, Tenerife.

Conclusion

The success of AWRs in the Canaries is inseparable from the particularities of the local water governance context. The main lesson for other regions is that AWRs price must be competitive with that of other freshwater resources. Explicit WEF nexus strategies across governance levels are required if AWRs are to contribute to the sustainable management of water resources in Southern Europe. Unless agricultural policies are capable of guaranteeing revenues for small and medium size farming systems that include the payment for these resources, public regulation and subsidization of the energy costs of AWRs appear as the only way forward.

Key sources for further information

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