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GOVERNAÇÃO
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Água e desenvolvimento: a importância das percepções sociais em Marrocos

Water and development: the importance of social perceptions in Morocco

Carla Fernandes

Fátima Alves

Resumo

Marrocos enfrenta uma disponibilidade de água per capita em declínio, com consequências negativas para a agricultura, a segurança alimentar e energética, a estabilidade social e a própria sustentabilidade do seu modelo de desenvolvimento. Este artigo analisa criticamente a gestão da água em contextos rurais e urbanos, abordando os impactos socioeconómicos e as respostas comunitárias. Salienta a importância de analisar as percepções e práticas locais de uso da água, valorizando o conhecimento continuamente produzido pelas comunidades, que pode, assim, complementar as estratégias institucionais de produção e distribuição de água. No Antropoceno, é essencial desenvolver soluções que respondam eficazmente e de forma sustentável às diversas realidades territoriais de Marrocos.

Palavras-Chave: Recursos Hídricos; Percepções Locais; Desenvolvimento Sustentável; Marrocos.

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Abstract

Morocco faces declining water availability per capita, which threatens its agriculture, food, and energy security, as well as social stability and the sustainability of its development model. This article critically examines water management in rural and urban settings, addressing both socio-economic impacts and community responses. It emphasises the importance of engaging with local perceptions and practices of water use, highlighting the adaptive knowledge continuously generated by communities. Such insights can complement institutional strategies for water production and distribution. In the Anthropocene, locally led and context-sensitive approaches are essential for designing sustainable development solutions that effectively respond to Morocco's diverse and evolving territorial realities.

Keywords: Water Governance; Local Perceptions; Sustainable Development; Morocco.

Introduction

While the world is pushing all the planet's ecological boundaries (Richardson et al., 2023), Morocco faces serious concerns related to water scarcity (World Bank, 2022). Water scarcity is particularly critical since agriculture constitutes a large percentage of the Moroccan economy (Van Praag & Ou-Salah, 2021), and it is necessary for vital sectors such as food and energy production (Figure 1). Furthermore, water-related concerns could increase local tensions (IEP, 2024).

This study aims to present a reflection on specific water management issues and their consequences in rural and urban areas in Morocco. It is followed by a broader reflection on sustainability and development, seeking to draw light into the importance of understanding context-centred local perceptions regarding the management of resources.

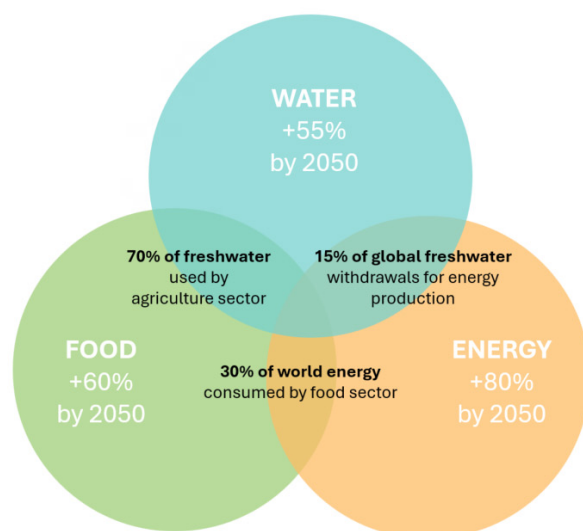


Figure 1. Interconnected water, energy, and food security challenges (Daher & Mohtar, 2021).

Water Management in rural areas

Water scarcity results from declining precipitation and overexploitation of groundwater resources (El Asri et al., 2022). Other factors, such as the increasing salinity in groundwater in coastal areas due to sea-level rise, can also endanger available freshwater (Rayan et al., 2022).

Agricultural practices are also changing with the introduction of new economic actors and legislation. In practice, shifts in the agricultural sector's economic paradigms, with larger and more transient companies requiring daily labourers, are replacing the family-centred farm economic model in rural areas (Ameur et al., 2017). Measures relying on limitations on farming products that depend extensively on water are being implemented in different areas. This is leading to the displacement of large companies to other areas with different rules, leaving behind depleted groundwater resources and daily workers without income.

Relying on more efficient irrigation techniques has yet to produce the expected water-saving results (Bouras et al., 2019). However, the more efficient use of this resource has allowed for expanding agricultural exploitation to regions with water scarcity.

As described in the following subsection, migration from rural areas into urban centres and abroad has been a consistent response in Morocco to the challenges of rural areas since the second half of the XX century (Berriane et al., 2021).

Climate Mobility

A common trend in Morocco's policies is the tendency to consider migration undesirable. For example, the National Strategy for Integrated Coastal Management states that rural areas should be provided with the means to resist the expansion of urbanised zones and choose to develop small and medium-sized centres equipped with the necessary socio-educational and logistical

facilities to retain part of the rural population inclined to migrate. While surveys in various countries indicate that environmental factors are not directly cited as the trigger for migration (Hoffmann & Zens, 2024), research in rural areas of Morocco led to more direct links between environmental degradation, namely increasing water scarcity, and out-migration from rural into urban areas (Ferreira Fernandes et al., 2023a; Ou-Salah, 2023).

However, it is essential to acknowledge that strategies that focus on reducing out-migration through supporting adaptation efforts and building resilience are not necessarily the best option. Instead, migration needs to be perceived in its complexity, neither as a solution for everything nor a problem to be solved, but as part of what can be classified as global change and development (de Haas, 2024). Therefore, it is more relevant to look at development holistically and understand the role of migration as a possible response that can produce better local outcomes (Lindgaard et al., 2024).

Water Management in Urban Areas

Various interventions are being implemented to manage water availability in Morocco, including investment in large engineering projects (Ministry of Youth, Culture and Communication, 2023). The National Water Plan has prioritised solutions such as diverting river water to dams and building a large desalination plant. Regarding distribution, in some regions, namely urban areas, different private companies have been awarded distribution management contracts, but there are concerns about various degrees of efficiency (Rezzouq, 2021).

However, if water demand continues to rise, these efforts may fall short (Figure 2). Therefore, more research is required to understand perceptions of water consumption in urban centres in Morocco, drawing from existing studies carried out in rural areas where water management is more studied, particularly in oases

(Mahjoubi, 2022) and agricultural lands (Azemzi, 2021).

While large-scale investments in producing and distributing water are essential, they require substantial funds that could be directed toward the increasing energy needs of other sectors. With water (and electricity) utilities increasingly managed by decentralised, public-private partnerships across Morocco, aligning all stakeholders – including consumers – around responsible water usage is crucial. Communication and education are vital tools to encourage the rational use of resources, yet their full potential remains largely untapped.

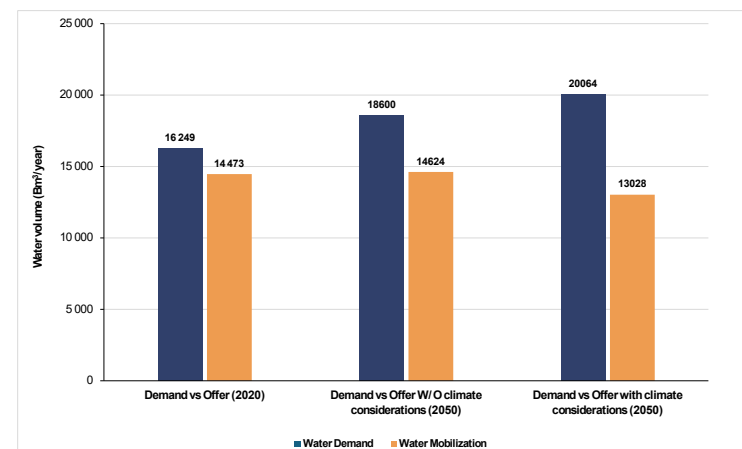


Figure 2. Projected water deficit over 2020-2050 (with and without climate change considerations) (World Bank, 2022).

Sustainability

The concept of sustainable development is defined in political circles and tries to reach uniform and universalist definitions. However, those definitions do not represent diversity (Telleria, 2022). Solutions that do not rely solely on technical fixes must be addressed, and communities must be involved in ontological

pluralism to imagine new solutions (Nightingale et al., 2020). By focusing on micro-level perceptions and experiences, researchers and policy-makers can gain insights into how individuals and communities perceive and navigate the impacts of climate change in personally significant ways (Burke, 2020). For example, in Morocco, religious beliefs are part of how people perceive and cope with environmental change (Ou-Salah et al., 2024). Having a more context-centred approach would allow for a better understanding of how these lived experiences inform local knowledge and, in turn, shape adaptive responses and resilience strategies. This process is particularly critical in countries like Morocco, where there is a lack of universal social protection that could support the populations in tackling the challenges of a deteriorating climate.

In its Ecological Threats report (2024), IEP highlights solutions related to micro-entrepreneurship and cooperatives to build resilience to climate shocks. For Morocco, Bouhazzama and Guenaoui (2020) provide more evidence of cooperatives' importance in improving social cohesion and ensuring development models based on democratic participation. Ferreira Fernandes et al. (2024b), when researching social perceptions regarding projections of future views of development, have also collected evidence that farmers' associations in Morocco are a necessary step in the development path. This study points out that local associations and cooperatives are perceived as important economic actors in rural areas since they increase the possibility of local employment.

Ferreira Fernandes et al. (2024b) also highlighted a common opinion among farmers to expand the exploitation of groundwater resources, to cope with the impact of climate change on surface water availability and increased demand for water. These resources, often used at rates that are faster than its replenishment, raise various concerns with the social perceptions of sustainability, namely, how farmers understand the concepts

associated with intergenerational equity and the rights of future generations to resources.

Engaging in various sustainability models requires elaborating, implementing, and monitoring regulations to prevent private actors and local authorities from competing to attract investors, create jobs that could further degrade the environment, harm the public interest, and preserve natural resources.

Conclusion

Stepping away from dichotomous definitions of the negative and positive consequences of migration, community resilience, and sustainable development opens new possibilities for understanding the knowledge being constantly created by communities, which informs their actual responses and actions. Thus, engaging with communities to understand water consumption patterns and how to nudge behaviour could better support the institutional efforts being deployed regarding water production and distribution.

In this new era, the Anthropocene, locally-led responses aligned with the specificities of micro contexts need to be addressed to imagine new holistic solutions to development.

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