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Gender Mainstreaming in Morocco's Water Sector

From National Strategies to Oasis Farming Realities

Lisa Bossenbroek



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Lisa Bossenbroek

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Abstract

Gender mainstreaming in the water sector has gained increasing attention in international and national governance frameworks, yet its translation into meaningful change for women and in gender relations more broadly, in a context where both institutional arrangements and accelerating climate change are intensifying challenges around water access, control, use, and governance, remains a persistent challenge. This report examines this gap in the Moroccan context, focusing on two complementary entry points: an overview of gender mainstreaming efforts and institutional advances in the water and irrigation sectors; and the everyday realities of women farmers and cooperative members in the oasis regions of Boudnib and the Drâa Valley. Combining document analysis and institutional interviews with in-depth fieldwork, the study asks whether and how national gender mainstreaming commitments translate into tangible shifts in women's water access, livelihoods, and decision-making power on the ground.

The findings point to a more nuanced picture. Morocco has made genuine institutional progress: gender is now formally embedded in constitutional principles, water law, sectoral strategies, and national planning instruments, and donor-financed irrigation projects have demonstrated that integrated gender approaches can yield concrete results. Yet these gains remain fragile, often conditional on external support or on the commitment of individual champions within institutions, a dependence that poses significant risks to their sustainability. Outside donor-supported projects, gender analysis is often absent from programme design, and formal inclusion, such as in land programmes, cooperatives, or training schemes, does not automatically translate into effective control over water, labour, or decisions. Many adaptive initiatives are shaped as much by women's own agency as by the institutional programmes formally available to support them, whose reach remains uneven and frequently contingent on literacy, mobility, and institutional connections. Deeper structural constraints, including historical exclusion from water governance bodies, the growing individualisation of groundwater access, and socio-cultural norms that limit women's recognition as farmers and irrigators, remain insufficiently taken into account by current approaches. The report concludes with five recommendations calling for stronger institutional anchoring, cross-sectoral coordination, reformed empowerment indicators, and a gradual reduction of dependence on donor financing.

Résumé

L'intégration du genre dans le secteur de l'eau a suscité une attention croissante dans les cadres de gouvernance internationaux et nationaux, mais sa traduction en changements concrets pour les femmes et dans les relations de genre de manière plus large, dans un contexte où les arrangements institutionnels et l'accélération des changements climatiques intensifient les défis autour de l'accès, du contrôle, de l'usage et de la gouvernance de l'eau, reste un défi persistant. Ce rapport examine cet écart dans le contexte marocain, en se concentrant sur deux entrées complémentaires : un aperçu des efforts d'intégration du genre et des avancées institutionnelles dans les secteurs de l'eau et de l'irrigation, et les réalités quotidiennes des agricultrices et des membres de coopératives dans les régions oasiennes de Boudnib et de la Vallée du Drâa. Combinant analyse documentaire et entretiens institutionnels avec un travail de terrain approfondi, l'étude interroge si et comment les engagements nationaux en matière d'intégration du genre se traduisent par des changements tangibles dans l'accès des femmes à l'eau, leurs moyens de subsistance et leur pouvoir de décision sur le terrain.

Les résultats dressent un tableau nuancé. Le Maroc a accompli des progrès institutionnels réels : le genre est désormais formellement ancré dans les principes constitutionnels, la loi sur l'eau, les stratégies sectorielles et les instruments de planification nationale, et les projets d'irrigation financés par des bailleurs de fonds ont démontré que des approches genre intégrées peuvent produire des résultats concrets. Ces acquis demeurent toutefois fragiles, souvent conditionnés par les financements extérieurs ou par l'engagement de personnes convaincues au sein des institutions, une dépendance qui fait peser des risques significatifs sur leur pérennité. En dehors des projets soutenus par des donateurs, l'analyse de genre est souvent absente de la conception des programmes, et l'inclusion formelle dans les programmes fonciers, les coopératives ou les formations, ne se traduit pas automatiquement par un contrôle effectif sur l'eau, le travail ou les décisions. De nombreuses initiatives adaptatives, dont la diversification des moyens de subsistance et les réseaux de solidarité, émergent principalement de l'initiative propre des femmes, le soutien institutionnel ne jouant qu'un rôle partiel. Des contraintes structurelles plus profondes, notamment exclusion historique des instances de gouvernance de l'eau, individualisation croissante de l'accès aux eaux souterraines, et normes socioculturelles limitant la reconnaissance des femmes en tant qu'agricultrices et irrigantes, restent insuffisamment prises en compte. Le rapport se conclut par cinq recommandations appelant à un ancrage institutionnel plus solide, une coordination intersectorielle renforcée, des indicateurs d'autonomisation réformés et une réduction progressive de la dépendance aux financements extérieurs.

ملخص

إلى ترجمته أن غير والوطنية، الدولية الحوكمة أطر في متزايداً اهتماماً الماء قطاع في الاجتماعي النوع دمج اكتسب المؤسسة الترتيبات فيه تتشابه سياق في أوسع، بشكل الاجتماعي النوع علاقات وفي المرأة لصالح ملموسة تغييرات تزال لا وحوكمته، واستخدامه فيه والتحكم الماء إلى بالوصول المتعلقة التحديات لتعميق المناخية التغييرات وتسارع دمج جهود عرض: متكاملين مدخلين على مركزاً المغربي، السياق في الفجوة هذه التقرير هذا يدرس قائماً تحدياً تمثل وأعضاء المزارعات للنساء اليومي والواقع والري، الماء قطاعي في المحقق المؤسسي والتقدم الاجتماعي النوع والعمل المؤسسية والمقابلات الوثائق تحليل بين وبالجمع. درعة ووادي لبودنيب الواحية المناطق في التعاونيات تحولات إلى تُفضي الاجتماعي النوع دمج مجال في الوطنية الالتزامات كانت إذا عمّا الدراسة تتساءل المعمق، الميداني ذلك يتحقق وكيف الواقع، أرض على القرار اتخاذ على وقدرتها عيشها وسبل الماء إلى المرأة وصول في ملموسة.

تكشف النتائج عن صورة متباينة. أحرز المغرب تقدماً مؤسسياً حقيقياً: إذ بات النوع الاجتماعي راسخاً رسمياً في المبادئ الدستورية وقانون الماء والاستراتيجيات القطاعية وأدوات التخطيط الوطني، كما أثبتت مشاريع الري الممولة من الجهات المانحة أن المقاربات المندمجة للنوع الاجتماعي قادرة على إنتاج نتائج ملموسة. غير أن هذه المكتسبات تبقى هشّة، كثيراً ما تكون رهينة بالتمويل الخارجي أو بالتزام أفراد مقتنعين داخل المؤسسات. وهو ما يُشكّل اعتماداً يُلقي بمخاطر جسيمة على استدامة هذه المكتسبات. خارج المشاريع المدعومة من الجهات المانحة، غالباً ما يغيب تحليل النوع الاجتماعي عن تصميم البرامج، كما أن الإدماج الرسمي في برامج توزيع الأراضي أو التعاونيات أو التكوين لا يُترجم تلقائياً إلى تحكم فعلي في الماء أو العمل أو القرارات. وتنبثق العديد من المبادرات التكيفية، بما في ذلك تنويع مصادر العيش وشبكات التضامن، أساساً من المبادرة الذاتية للنساء، بينما لا يلعب الدعم المؤسسي سوى دور جزئي. ولا تزال هناك إكراهات بنيوية أعمق لم تُؤخذ بعين الاعتبار بشكل كافٍ، من بينها الإقصاء التاريخي من هيئات حكمة الماء، والتفرّد المتزايد في الولوج إلى المياه الجوفية، والأعراف الاجتماعية والثقافية التي تحدّ من الاعتراف بالنساء كفلاحات ومسؤولات عن السقي. ويختتم التقرير بخمس توصيات تدعو إلى ترسيخ مؤسساتي أقوى، وتنسيق قطاعي معزز، ومؤشرات تمكين مُعاد النظر فيها، وتقليص تدريجي للاعتماد على التمويلات الخارجية.

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Abbreviations

ABH	Agences de Bassin Hydraulique (river basin agencies)
ADA	Agence pour le Développement Agricole (Agency for Agricultural Development)
AFD	Agence Française de Développement (the French development agency)
ANDZOA	Agence Nationale pour le Développement des Zones Oasiennes et de l'Arganier (National Agency for the Development of Oasis and Argan Zones)
ANEF	Agence Nationale des Eaux et Forêts (National Agency for Water and Forests)
CEDAW	Convention on the Elimination of all Forms of Discrimination against Women
CSW	Commission on the Status of Women
DGH	Direction Générale de l'Hydraulique (General Directorate of Hydraulics)
DIAEA	Direction de l'Irrigation et de l'Aménagement de l'Espace Agricole (Directorate of Irrigation and Agricultural Land Development)
EBRD	European Bank for Reconstruction and Development
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GAP	Gender Action Plan
GCF	Green Climate Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German development cooperation organisation)
GRB	gender-responsive budgeting
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ICRAM	Initiative Concertée pour le Renforcement des Acquis des Marocaines (Concerted Initiative for the Strengthening of the Achievements of Moroccan Women)
IGE	Institutionalisation of gender equality
INDH	Initiative Nationale pour le Développement Humain (National Human Development Initiative)
LOLF	Loi Organique relative à la Loi de Finances (Organic Finance Law)
MA	Ministère de l'Agriculture, de la Pêche maritime, du Développement rural et des Eaux et Forêts (Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests)
MAD	Moroccan dirham (currency)

MDCE	Ministère délégué auprès du Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, chargé de l'Eau (Ministry of Energy, Mines, Water and the Environment, in charge of water)
MDGs	Millennium Development Goals
MEE	Ministère de l'Équipement et de l'Eau (Ministry of Equipment and Water)
MENA	Middle East and North Africa
OECD	Organisation for Economic Co-operation and Development
ONCA	Office National du Conseil Agricole (National Agricultural Extension Agency)
ONEE	Office National de l'Électricité et de l'Eau Potable (National Office of Electricity and Drinking Water)
PAG	Plan d'Action Genre (Gender Action Plan)
PAGER	Programme d'Approvisionnement Groupé en Eau Potable des Populations Rurales (Grouped Drinking Water Supply Programme for Rural Populations)
PDAIRE	Plans Directeurs d'Aménagement Intégré des Ressources en Eau (Integrated Water Resources Development Master Plan or Integrated Water Resource Management Master Plan)
PDIAA-CC	Projet de Développement de l'Irrigation et d'Adaptation de l'Agriculture Irriguée aux Changements Climatiques à l'Aval du Barrage Kaddoussa (Project for the Development of Irrigation and Adaptation of Irrigated Agriculture to Climate Change Downstream of the Kaddoussa Dam)
PGE	Plan Gouvernemental de l'Égalité (Governmental Plan for Equality)
PLGE	Plan Local de Gestion de l'Eau (Local Water Management Plan)
PNE	Plan National de l'Eau (National Water Plan)
PNEEI	Programme National d'Économie d'Eau en Irrigation (National Irrigation Water Saving Programme)
SDGs	Sustainable Development Goals
SEWA	Self Employed Women's Association (India)
SIIGSE	Strategy for the Institutionalisation and Integration of Gender Mainstreaming in the Water Sector
UDHR	Universal Declaration of Human Rights
UNFCCC	United Nations Framework Convention on Climate Change
WUA	Water Users Association

1 Introduction

Over the last couple of decades, gender mainstreaming in the water sector has become a growing concern both in academia and in the development world. This concern stems from studies illustrating how the implementation of water development projects, as well as the impacts of droughts and other water-related disasters, have had negative consequences for women and for gender relations more broadly, not least because women have often been left out of such programmes and have generally had unequal access to water resources, infrastructure and water rights (see for example Carney, 1993; Crow, 2001; Ramamurthy, 1991).

From the 1980s and 1990s onwards, international water policy began to formally acknowledge this disadvantage, but largely on instrumentalist terms. Wallace and Coles (2005) trace how women's roles as primary managers and carriers of domestic water, long overlooked by male-dominated water bureaucracies, was recognised mainly because involving them was seen to increase project efficiency, rather than out of any deeper commitment to redressing inequalities in access, labour, and decision-making power. This logic carried into the neoliberal reforms of the 1990s, when the Dublin Principles affirmed both water as an "economic good" and women's central role in providing and safeguarding it, without resolving the tension between commodifying a resource and relying on the unpaid, undervalued labour of those expected to safeguard it. As Wallace and Coles argue, this set the template for a pattern that recurs across the gender-mainstreaming efforts and literature more broadly: as gender became a technical checklist item through frameworks, training modules, and gender units, its original, transformative attention to power was progressively diluted into a simple women-men binary.

This gap between rhetoric and transformation appears to have grown more, not less consequential over time. Sultana (2018) shows that climate change is compounding long-standing gender-water inequalities, as shifting water availability intensifies the burdens of collection and caregiving that fall on women, while adaptation programmes frequently reproduce rather than redress them. Mishra Panda (2007) offers a parallel critique at the policy level, showing that even celebrated initiatives, such as the Self Employed Women's Association (SEWA)'s "Women, Water and Work" campaign in Gujarat (India) can make women visible in collective water management while leaving household-level gender relations, and the market reforms reshaping water access more broadly, largely untouched. Taken together, this literature suggests that gender mainstreaming in water governance remains broadly endorsed in policy yet persistently difficult to translate into meaningful shifts in decision-making power or the everyday realities of women who manage water.

It is against this broader backdrop of persistent rhetoric-practice gaps that Morocco offers an instructive case. Over the last couple of years, multiple efforts have been undertaken there to integrate gender and social equity dimensions into water strategies, plans, and projects. Among others, these efforts have encompassed the formal institutional anchoring of gender in water governance through strategies, action plans, and gender committees, as well as the integration of gender into national water planning and the incorporation of gender indicators across water-related projects.

Morocco's gender mainstreaming efforts in the water sector have attracted support from international donor agencies, making it a relevant case for drawing lessons that can inform further support measures. While some achievements are tangible, notably the development of gender action plans and the incorporation of gender indicators into national water planning, the extent to which these gains translate into meaningful change on the ground remains an open question. These efforts have been carried out across several institutional actors, most notably the Ministry of Equipment and Water (MEE), which holds the primary mandate for planning and regulating water resources, and the Ministry of Agriculture, Maritime Fisheries, Rural Development, and Water and Forests (MA), which is responsible for agricultural and rural development policy

including irrigation. Rather than assessing implementation across all institutional levels, this study focuses on two complementary entry points: the content and ambitions of national gender action plans developed within these institutions; and the everyday realities of women farmers and cooperative members in oasis regions. Specifically, it asks how gender mainstreaming has been institutionalised within Morocco's water and irrigation sector – through which strategies, mechanisms, and project-level tools – and how these efforts resonate with gendered water and farming realities on the ground.

Existing research on these questions remains partial. A study on professional women across Morocco's water institutions found women to be a clear minority at senior levels, with some institutions assuming that women professionals preferred office-based work over fieldwork due to family responsibilities, a perception the study found was not consistently accurate (Tortajada, 2003). Although this finding predates many of the gender mainstreaming efforts subsequently implemented, it raises the question of how the situation may have changed since. At the same time, little research has examined how rural women in Morocco experience and navigate water management in their daily lives, or how they engage with local governance structures such as Water Users Associations. Taken together, these omissions point to the need to ask not only what has been formally put in place, but whether and how national commitments resonate with the lived experiences of the women they are intended to support.

These omissions in the literature reflect, and are compounded by, structural inequalities that shape rural women's everyday lives well beyond formal institutions. Rural women continue to face constraints on their ability to participate and to be recognised as water users and farmers in their own right, with their specific experiences and needs often overlooked (Meinzen-Dick & Zwarteveen, 1998). These exclusions are exacerbated by environmental stress, as water availability and quality rapidly diminish, especially in more marginalised regions such as the oases and mountain villages. This stress, combined with increasing competition over water among different uses, including intensive irrigated agriculture, is reshaping the gendered organisation of labour and generating unequal opportunities in terms of both impacts and response options. The lived experiences of women documented in this report illustrate how water governance choices made in the agricultural and water sectors directly influence gendered patterns of vulnerability, work allocation, and exclusion, while also shaping the scope for adaptation and participation.

The report is structured as follows: Section 2 presents the analytical framework, followed by Section 3 which focuses on the methodological approach used to assess gender mainstreaming in the water and irrigation sector. Section 4 analyses the institutionalisation of gender mainstreaming across policies, strategies, and governance arrangements. Section 5 examines gendered water and farming realities through two in-depth case studies in oasis regions. Section 6 concludes with key findings as well as policy recommendations.

2 Analytical framework for analysing gender mainstreaming in the water sector

To analyse how gender is mainstreamed in Morocco's water and irrigation sector, this report adopts a focused and deliberately bounded perspective. Rather than mapping gender mainstreaming across the full architecture of water institutions, the analysis concentrates on two levels: the content and ambitions of policies and national gender action plans developed within the water and agricultural sectors; and the lived realities of women farmers and cooperative members in oasis regions.

At the institutional level, how gender is mainstreamed is analysed through policy frameworks, and incentive structures shaping water governance. In this research I have been looking at how gender is integrated in these documents, including attention to macro-level strategies and legal

frameworks, intermediate institutional arrangements (ministries, basin agencies, and projects), and field-level implementation. Particular emphasis is placed on whether gender is treated as an add-on topic or as a potentially transformative objective capable of reshaping core water and irrigation agendas (Jordans, 1998).

To analyse the case studies, an analytical framework has been developed that is based on a central gender mainstreaming document in the water sector, namely the gender-sensitive diagnostic and action framework produced for Morocco's National Water Plan (PNE), hereafter referred to as the PNE gender report (Ravesloot et al., 2019). It should be noted that the PNE gender report is itself a proposed action plan rather than a record of gender mainstreaming already achieved: it sets out intended activities, expected results, and indicators for future implementation, not documented outcomes. The grid derived from it (see Box 1 and Table 1) should therefore be read as a lens for examining how far these proposed commitments are designed to engage with – or risk overlooking – field-level realities, rather than as a benchmark of policy already put into practice. A grid (see Box 1) was developed by identifying the themes and problem framings that the report repeatedly uses to address gender issues in the water sector related to the following dimensions: water scarcity; groundwater depletion; climate extremes; agriculture and irrigation; participation in water management; and, finally, gender-sensitive actions and indicators.

These themes were translated into operational analytical dimensions that remain directly traceable to the report's logic while allowing empirical analysis of field realities and power relations in water-scarce agricultural contexts (see Table 1). In doing so, the grid enables one to establish a dialogue between policy intent and lived practices, highlighting where gender mainstreaming resonates with local realities and where important dimensions remain insufficiently captured. Box 1 illustrates how the grid was developed.

Box 1: Summary of the analytical grid construction

This study applies an analytical grid derived from the PNE gender report (Ravesloot et al., 2019). The objective of the grid is to provide a policy-consistent lens for analysing field realities in water-scarce agricultural contexts, and to assess how gender mainstreaming, as articulated in the PNE, captures, or fails to capture, lived gender relations in irrigation systems.

The grid was constructed through a systematic review of the PNE's gender diagnostic and action plan, retaining only those entry points that are both recurrent in the PNE's framing and directly relevant to the field realities of the two oasis case studies. These entry points include water scarcity; groundwater depletion; climate extremes; agriculture and irrigation; participation in water management; and, finally, gender-sensitive actions and indicators (Ravesloot et al. 2019, pp. 13-16; pp. 17-21; pp. 35-39). Table 1 presents these original PNE themes alongside the corresponding analytical dimensions developed for this study and the specific focus of each in the case studies.

Rather than reproducing the PNE gender report thematic actions verbatim, these entry points were translated into operational analytical dimensions that can be examined empirically across different local contexts. This translation was guided by a simple principle: each analytical dimension should remain traceable to the PNE's policy logic, while allowing systematic observation of practices, constraints, and power relations at the field level. The grid therefore reorganises the PNE gender report's 14 numbered thematic actions into a smaller set of cross-cutting analytical dimensions rather than reproducing them one-to-one. Exclusions from the grid follow two distinct logics: First, some actions were excluded because they fall outside the empirical scope of the two case studies examined in this report: Actions 3, 4, and 5 (dam preservation, large-dam surface-water mobilisation, and small-dam local development) all concern dam-related infrastructure and construction processes not present at either fieldwork site. Second, other elements of the PNE gender report – including internal institutional staffing, legal drafting processes, and gender-responsive budgeting – were excluded on methodological rather than case-specific grounds: these are addressed at a strategic or administrative level and cannot be consistently examined through local fieldwork in any oasis setting. Together, these exclusions reflect evaluative choices about scope and observability, not judgments about the relevance of these themes to gender and water governance more broadly.

Accordingly, PNE gender report themes related to water scarcity and climate stress were operationalised as exposure to water-related risk, enabling analysis of how declining groundwater and reduced surface water affect women's livelihoods, workloads, and income security (Ravesloot et al., 2019, pp. 13-15).

The PNE gender report's emphasis on agriculture and irrigation as priority sectors informed the dimension access to water and land, distinguishing between formal access promoted by policy and effective access shaped by knowledge, labour, mobility, and social legitimacy (Ravesloot et al., 2019, pp. 19-21). The "land" component of this dimension extends beyond the PNE's own analysis: the policy document assumes the existence of women landholders without interrogating how access to land is acquired or who is excluded from it. Its inclusion here reflects an analytical extrapolation by the author rather than an entry point substantively developed in the PNE gender report itself. The PNE gender report's repeated focus on participation in water management was translated into *control over decisions and resources*, allowing analysis beyond numerical participation to include everyday decision-making over irrigation, labour, and income (Ravesloot et al., 2019, p. 21; pp. 37-39). Similarly, the PNE gender report's framing of vulnerability and climate extremes informed analytical attention to labour organisation and workload (Ravesloot et al., 2019, p. 13). The PNE gender report's reliance on gender-sensitive actions, indicators, and logical frameworks informed a dimension contrasting *participation versus empowerment*, enabling assessment of what current monitoring tools capture and what they overlook (Ravesloot et al., 2019, pp. 49-56).

By remaining closely anchored in the PNE gender report – while transparently flagging the limited points where the policy document's own analysis had to be extended to fit field realities – the grid allows the analysis to identify internal gaps and blind spots within the policy framework itself, rather than measuring field realities against external gender models. The case studies thus serve to trace the reach and limits of PNE gender-sensitive actions when confronted with everyday irrigation practices in drought-affected agricultural systems.

Table 1: Analytical grid derived from the gender-sensitive actions of the PNE gender report

PNE theme (2019)	Status	Analytical dimension	How examined in case studies
Water scarcity and groundwater over-exploitation	✓ Selected	Exposure to water-related risk	Declining groundwater, reduced surface water, and differentiated impacts on women's farming, income security, and workloads
Agriculture and irrigation as gendered sectors	✓ Selected	Access to water and land	Formal access (land rights, irrigation eligibility) versus effective access (knowledge, labour, social legitimacy)
Participation of women and men in water management	✓ Selected	Control over decisions and resources	Everyday decision-making over irrigation, crops, labour, and income; formal institutional bodies excluded as beyond local fieldwork scope
Climate extremes and vulnerability	✓ Selected	Labour organisation and workload	Task reallocation under drought; feminisation of activities; double burden of productive and reproductive labour
Gender-sensitive actions, indicators and logical frameworks	✓ Selected	Participation versus empowerment	Numerical participation (training, cooperatives) versus substantive empowerment (voice, leadership, negotiation power)
Internal institutional staffing and human resources management	✗ Excluded	—	Administrative level; not observable through local fieldwork
Legal drafting and regulatory texts	✗ Excluded	—	Legislative level; not observable through local fieldwork
Gender-responsive budgeting	✗ Excluded	—	Strategic/financial planning level; not observable through local fieldwork
Water pricing and tarification	✗ Excluded	—	Outside scope of fieldwork
Dam construction, hydroelectric infrastructure and expropriation	✗ Excluded	—	Outside scope of fieldwork
Rainwater harvesting and non-conventional water resources	✗ Excluded	—	Outside scope of fieldwork
Wastewater treatment and pollution control	✗ Excluded	—	Water quality governance; outside scope of fieldwork
Youth engagement in water conservation	✗ Excluded	—	Intergenerational awareness; outside scope of fieldwork
Digital tools and information systems (village 365, SIG-Système informatique Géographique - eau)	✗ Excluded	—	Institutional monitoring infrastructure; not observable as a gender dynamic at field level
Women's representation in formal bodies (CBH-Conseil de Bassin Hydraulique, commissions)	✗ Excluded	—	Institutional governance beyond local scale of fieldwork

Source: Ravesloot et al. (2019)

Finally, the framework treats gender mainstreaming as an iterative and contested political process, evolving from awareness to accommodation and, in some cases, towards partial transformation of dominant water management models (Zwarteveen, 2006). Analytically, this implies continuously linking institutional discourse and policy instruments to grounded empirical evidence and critically examining whose knowledge, labour, and priorities are recognised in both policy arenas and water-related projects.

Applying this framework to the oasis case studies enables the report to assess gender mainstreaming not only as a policy objective, but as a lived, negotiated process within irrigated agriculture, one that highlights both the possibilities and the limitations of current national strategies in addressing gendered water and farming challenges on the ground, as well as the limits of development cooperation in supporting such processes.

3 Methodology

This report analyses gender mainstreaming distinguishing between laws, strategies, and policies/programmes. Laws are understood as legally binding instruments adopted through Parliament and, in the Moroccan system, formally enacted through royal promulgation by *dahir*, that create enforceable obligations for public institutions. Strategies are treated as medium- to long-term frameworks that articulate a vision, guiding principles, and cross-sectoral priorities for gender equality, without themselves creating enforceable duties (OECD [Organisation for Economic Co-operation and Development], 2010). Policies and programmes refer to executive instruments, such as action plans, sectoral programmes, and guidelines, through which legal and strategic commitments are operationalised via concrete objectives, measures, indicators, and budgets (Hill & Hupe, 2014). This distinction allows one to assess how gender equality commitments in the water sector are anchored legally, framed strategically, and translated operationally into planning, budgeting, and implementation practices.

The analysis of the institutional context was complemented by fieldwork conducted in two oasis regions, where interviews with women farmers and cooperative members provided insights into the lived realities of gendered water and farming practices. The selection to focus on the oasis regions is embedded in a particular context marked by a combination of historical marginalisation, acute socio-environmental vulnerability, demographic changes, and renewed political attention, making them critical sites to understand how gender comes to matter in local water governance and irrigated farming.

For decades, oasis regions have remained peripheral to national water and irrigation policies, which have largely prioritised large-scale irrigated perimeters, and export-oriented agriculture in plains and coastal areas (Swearingen, 1988). This is not to say that oasis regions have been without state infrastructural investment: both case-study sites lie downstream of major dams – the Mansour Eddahbi Dam, completed in the 1970s, and, more recently, the Kaddoussa Dam. Yet these investments have been oriented primarily towards regulating and mobilising water for multi-sectoral, and often competing uses, rather than towards strengthening the oasis irrigation systems themselves (see for example Bossenbroek & Ftouhi, 2024a, 2025b). This asymmetry between large-scale infrastructural investment and limited support for local irrigation governance and infrastructures makes oases particularly revealing sites for examining how gender mainstreaming commitments translate (or fail to translate) in these contexts.

Finally, recent institutional strategies for the development of oasis territories highlight renewed attention to these regions, reflecting national-level prioritisation of ecological and socio-economic challenges in oases and argan ecosystems (ANDZOA [Agence Nationale pour le Développement des Zones Oasiennes et de l'Arganier], 2022). This renewed attention creates a critical moment to examine whether gender mainstreaming is meaningfully integrated into

emerging water and development interventions, or whether gender remains secondary to technical and territorial objectives.

3.1 Data collection methods

For this report, a combination of a review of key constitutional, legal, and policy documents essential for understanding gender mainstreaming in the water sector in Morocco, and semi-structured interviews conducted with institutional actors and local farmers and women's groups, was adopted.

The following documents were reviewed:

- Royaume du Maroc. (1 July 2011). *Constitution du Royaume du Maroc*. Portail du Royaume du Maroc. https://www.maroc.ma/sites/default/files/2024-10/constitution_du_1er_juillet_2011.pdf
- Royaume du Maroc. (10 August 2016). *Loi no. 36-15 relative à l'eau*. Secrétariat Général du Gouvernement. https://www.sgg.gov.ma/Portals/0/textesconsolides/36_15.pdf
- MDCE (Ministère délégué auprès du Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, chargé de l'Eau) & UN Women. (2017). *Stratégie et plan d'actions pour l'intégration du genre dans le secteur de l'eau: Étude de la stratégie d'institutionnalisation de l'intégration du genre dans le secteur de l'eau*. Authors.
- Ravesloot, S., Rerolle, A., & Assari, K. (2019). *Intégration du genre dans le Plan National de l'Eau et formation du Département de l'Eau à la planification, programmation et budgétisation sensible au genre – Livrable 2: Rapport des actions de l'intégration du genre dans le PNE*. Ministère de l'Équipement, du Transport, de la Logistique et de l'Eau & UN Women.
- DIAEA (Direction de l'Irrigation et de l'Aménagement de l'Espace Agricole). (2023). *Le genre dans les projets d'irrigation financés par les bailleurs de fonds* (Internal technical note (unpublished)). Ministère de l'Agriculture, de la Pêche Maritime, du Développement Rural et des Eaux et Forêts, Rabat.

In addition, as provided in Table 2, 19 interviews in total were conducted with different actors. To protect the identity of respondents, all interviewees have been anonymised and are referred to by code rather than by name; identifying details such as specific job titles have similarly been generalised where necessary to prevent indirect identification.

Interviewees in the Boudnib region and the Drâa Valley were selected on the basis of prior contact, long-standing fieldwork, and existing collaborations. Given that fieldwork in this phase lasted only one and a half weeks, this approach allowed for efficient access to individuals with whom relationships of trust had already been established, and whose knowledge of local water dynamics could be drawn on more readily within the limited time available. Beyond this practical consideration, the selection also reflects a deliberate attempt to capture the heterogeneity of oasis women's experiences: interviewees were chosen to represent a range of occupations, ages, marital statuses, and levels of education, rather than treating "women" as a homogeneous category.

Table 2: Interviews conducted

Code	Institution/sector	Role (generalised)	Location
KII-1	Independent researcher	Sociologist, water governance specialist	Rabat
KII-2	International development agency (GIZ)	Water management/hydrology specialist	Rabat
KII-3	UN agency (UN Women)	Programme officer	Rabat
KII-4	National ministry (water)	Technical staff	Rabat
KII-5	National ministry (agriculture)	Senior official, irrigation/hydro-agricultural planning	Rabat
KII-6	National ministry (agriculture)	Mid-level official, irrigation planning and monitoring	Rabat
KII-7	National ministry (agriculture)	Technical staff, irrigation and agricultural land planning	Rabat
KII-8	National ministry (water)	Senior advisor	Rabat
KII-9	Local community	Farmer and president of local association	Boudnib region
CI-10–12	Bread cooperative	Cooperative members, former farmers (n=3, 2 sessions)	Timiderte, Drâa Valley
KII-13	Local community	Farmer-entrepreneur	Drâa Valley
CI-14–17	Date cooperative	Cooperative members (n=4)	Tamagroute, Drâa Valley
CI-18–19	Bread cooperative	Cooperative members (n=2 sessions)	Zagora, Drâa Valley

Note: The different codes also identify the interview types with KII referring to a key informant interview and CI referring to a collective interview.

Source: Author

The sample was composed exclusively of women. This choice was a deliberate analytical decision: women's experiences, knowledge, and everyday water practices in oasis agriculture have historically been marginalised or subsumed within male-centred accounts of farming and water governance, both in policy documents and in much of the existing research. Centring women's voices in this sample was thus intentional, allowing their perspectives to be documented on their own terms.

The case studies presented in Section 5 combine individual portraits with insights drawn from a broader interview series, including fieldwork conducted in the Boudnib area in 2022 and multiple fieldwork visits in the Drâa Valley between 2019 and 2025 (Bossenbroek et al., 2024; Bossenbroek & Ftouhi, 2024a, 2024b). This mixed approach draws on biographical and narrative methods, which are particularly suited to capturing the processual, relational, and context-dependent dimensions of gendered water access and farming trajectories. Individual portraits offer analytical depth, allowing for a solid, grounded account of how women navigate water scarcity, gender norms, and institutional constraints in her daily life. The broader interviews serve to situate individual experiences within wider patterns observed across the region, signalling where a particular trajectory reflects shared constraints and where it represents a more exceptional path.

Finally, interviews were conducted as semi-structured conversations, covering, among other topics, farm and domestic activities, daily water access, existing water institutions and women's roles within them, along with the conflicts and challenges women face in relation to water access, in terms of both quantity and quality. Interviews with institutional actors were carried out

between June and July 2025, and were followed by fieldwork activities that ran during the last week of September 2025 and the last week of November 2025.

4 Institutionalisation of gender mainstreaming in the water sector

Gender mainstreaming in Morocco's water sector has followed a progressive yet uneven trajectory shaped by political leadership, institutional reforms, international cooperation, and sustained advocacy from gender-focused actors within and beyond government. Based on the documents provided by the actors interviewed, as well as the interviews conducted with institutional stakeholders, it is possible to identify interlocking scales of governance at which gender and water governance intersect, ranging from international normative instruments to national policy frameworks and regional arenas of implementation.

4.1 International gender equality commitments

At the international level, Morocco's commitments to gender equality are embedded in a dense normative framework rooted in core human rights instruments, notably the Universal Declaration of Human Rights (UDHR, 1948) and the International Covenant on Civil and Political Rights (ICCPR) and International Covenant on Economic, Social and Cultural Rights (ICESCR), both adopted in 1966 and ratified by Morocco in 1977. The Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), ratified in 1993 with reservations, provides a comprehensive definition of discrimination against women and obliges states to eliminate gender-based inequalities in access to rights, resources, and decision-making (Zirari, 2010). It became a crucial catalyst for legal changes in the country (Bouthiche, 2025). Progress has been periodically assessed through global milestone processes, notably the Beijing Declaration and Platform for Action (1995), which remains a cornerstone of international gender policy through its twelve strategic areas of action, and through the Commission on the Status of Women (CSW), which has explicitly emphasised women's participation in decision-making, including in natural resource governance (GIZ [Deutsche Gesellschaft für Internationale Zusammenarbeit], 2024). These commitments were further articulated through the Millennium Development Goals (MDGs, 2000-2015), particularly MDG 3 on gender equality, and consolidated within the Sustainable Development Goals (SDGs – see next paragraph). At the regional level, gender equality is also embedded in the African Union Agenda 2063, particularly through Aspiration 3 on good governance and human rights and Aspiration 7 on people-centred development focused on women and youth (GIZ, 2024).

Alongside this human rights-based architecture, gender equality commitments intersect with water and climate governance through global environmental and development frameworks to which Morocco is also a party. Central among these is the United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992, which provides the overarching framework for climate action. The adoption of the Paris Agreement (2015) marked a turning point in explicitly integrating gender considerations into climate governance, leading to the adoption in 2016 of a dedicated decision on gender and climate change under the UNFCCC. These climate commitments are closely linked to the 2030 Agenda for Sustainable Development, notably through SDG 5, which aims to achieve gender equality and empower all women and girls; SDG 6, which seeks to ensure universal and equitable access to water and sanitation and the sustainable management of water resources; and SDG 13, which calls for urgent action to combat climate change and its impacts (Raveslout et al., 2019; GIZ, 2024). Together, these instruments constitute the meta-level framework through which international bodies, national governments, and development actors are increasingly expected to treat gender, water, and

climate as interdependent rather than separate policy challenges, an expectation that directly shapes the normative environment within which Morocco's water sector gender mainstreaming efforts are situated.

4.2 Evolution of the national legal framework for gender equality and water governance

These international commitments have shaped Morocco's legislative orientations in important ways, leading over the past two decades to the emergence of a framework that ensures greater attention to gender equality within which water governance operates.

The 2011 Constitution (Royaume du Maroc, 2011) represents a major normative turning point. It explicitly enshrines equality between women and men across civil, political, economic, social, cultural, and environmental rights (Article 19), and mandates the State to work toward parity and the elimination of all forms of discrimination, including through the creation of a dedicated authority for parity and non-discrimination (Articles 19 and 164). Importantly for water governance, the Constitution also stipulates, in Article 31, that

the State, public establishments, and territorial collectivities shall mobilize all available means to facilitate the equal access of women and men to the conditions enabling them to enjoy their rights, including access to water and to a healthy environment, within the framework of sustainable development.

In addition, three legal frameworks further shape the institutional environment for integrating gender into water governance, public financial management, and equitable socio-economic development across Morocco's twelve regions (see also GIZ, 2024). First, the 2004 Labour Code establishes two core principles: the prohibition of discrimination and the guarantee of equal opportunity and equal treatment in employment and professional practice. Second, the Organic Law No. 130.13 relating to the Finance Law (Kingdom of Morocco (LOLF), 2015) requires the systematic integration of a gender perspective into ministerial budget programming, as well as into monitoring and evaluation processes (Article 39). Third, the organic laws on Territorial Collectivities promote equitable regional development and local democracy through advanced regionalisation, mandating the integration of gender equality into local and regional development programmes and encouraging inclusive participation by civil society and the private sector.

Turning now to the various development strategies and programmes that have had a notable influence on gender mainstreaming in the water sector, a range of efforts have been deployed over the past decades. Box 2 (Institutional map: gender mainstreaming in Morocco's water sector) provides an overview focusing on gender mainstreaming in Morocco's water sector. In 2006, Morocco adopted a National Strategy for Equality and Equity between the Sexes to be achieved through the integration of a gender approach into development policies and programmes. This strategy outlined governmental orientations regarding policies to be pursued in the field of gender equality and equity along with recommending the development of sector-specific action plans aimed at reducing gender inequalities rooted in socially constructed roles that disadvantage women. The modalities for implementing this National Strategy are based on the accountability of each ministerial department, which is required to adopt its own sectoral action plan for the institutionalisation of gender equality (IGE) (MDCE [Ministère délégué auprès du Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement, chargé de l'Eau] & UN Women, 2017).

Box 2: Institutional map: gender mainstreaming in Morocco's water sector

i) Central/strategic level

Ministry of Equipment and Water (DGH – Direction Générale de l'Hydraulique)

- Overall institutional mandate for gender mainstreaming in the water sector
- Anchors gender in sector strategies (SIIGSE) and flagship planning (PNE)¹
- Aligns sector action with national gender-responsive budgeting (GRB)

Gender committee (Comité Genre)

- *Level:* Strategic governance
- *Composition:* The Secretary General, Chair of the Gender Committee; the Director of Administrative and Financial Affairs, who serves as the Committee's Secretary; the Director of National Meteorology; the Director of Water Research and Planning; the Director of Hydraulic Development; the directors of the River Basin Agencies
- *Functions:* Strategic steering, validation of orientations and priorities, inter-departmental coordination, institutional accountability for gender integration

Technical gender commission (Commission Technique Genre)

- *Level:* Operational/technical
- *Composition:* Technical staff from central services from the Ministry of Equipment and Water
- *Functions:* Operationalisation of gender mainstreaming; tools and indicators; data collection; monitoring and internal reporting to the gender committee

ii) Territorial/basin level

River basin agencies (ABH) (Agences de Bassin Hydraulique)

- Implement gender-sensitive actions on the ground
- Integrate gender into basin and local planning instruments:
 - PDAIRE (Plans Directeurs d'Aménagement Intégré des Ressources en Eau)
 - PLGE (Plan Local de Gestion de l'Eau)
- Interface with local authorities, users, and women's organisations

iii) Policy and operational instruments (cross-cutting)

- SIIGSE (2016–2017): Institutional framework and governance backbone
- Gender-sensitive PNE actions (2019): Operational translation of gender into PNE axes (actions, indicators)
- Monitoring and reporting: Project monitoring and evaluation; basin-level follow-up; national GRB reporting, including the Centre d'Excellence de la Budgétisation Sensible au Genre (CE-BSG) (Centre of Excellence for Gender-Responsive Budgeting), created in 2013 under the Ministry of Economy and Finance

iv) Inter-ministerial coordination

Ministry of Solidarity, Social Inclusion and Family

- Leads national coordination of the gender equality strategy (PGE) and hosts the inter-ministerial gender concertation network in which the water sector's gender focal point participates

Ministry of Agriculture

- Irrigation efficiency, agricultural pollution, women farmers' access

¹ A revised/updated PNE was reportedly under finalisation as of 2026, and the extent to which gender considerations will be incorporated into this new iteration remains to be confirmed (see also Footnote 4).

Ministry of Interior

- Flood/drought risk management, civil protection, territorial coordination

ONEE – Office National de l'Électricité et de l'Eau Potable (National Office of Electricity and Drinking Water)

- Capacity-building partner alongside DGH and ABH (GIZ/Enabel-supported gender training)

ANEF – Agence Nationale des Eaux et Forêts

- Sector partner with its own gender committee, central and regional gender focal points, active in gender-sensitive forestry/water programming

Ministry of Economy and Finance

- GRB, performance monitoring

Ministry in charge of the Environment/Sustainable Development

- Environmental impact assessments, pollution control, climate adaptation

Source: Author, based on MCDG & UN Women, 2017; GIZ, 2024; and institutional interviews conducted

The National Strategy for equity and equality laid the ground for the Governmental Plan for Equality (PGE), launched in 2012, under the title “Concerted Initiative for the Strengthening of the Achievements of Moroccan Women” (ICRAM I, 2012-2016). ICRAM thus represents the first operational implementation of the PGE, aimed at institutionalising gender equality within public policies and sectoral programmes. Structured around eight strategic axes, the plan places particular emphasis on the institutionalisation and dissemination of gender equality principles, as well as on ensuring equal and equitable access to decision-making positions, notably within public administration, including the administrations operating in the water sector.

In parallel, gender awareness in the water sector was strengthened by the adoption of Water Law No. 36-15, which explicitly integrates a gender perspective in its preamble and in several substantive provisions, notably to enhance women's representation within water governance bodies. Most notably, gender figures as one of the fundamental principles on which this text is based: i) the right of every woman and man to access water; ii) water management in accordance with principles of good governance; and iii) the consideration of gender in the development and management of water resources (MDCE & UN Women, 2017). Yet, as noted by a report written by the Ministry of Energy, Mines, Water and the Environment, in charge of water (MDCE),² and UN Women, a close reading of this law reveals that the gender approach promoted in the preamble has been somewhat neglected in the overall document. As such it is indeed only explicitly addressed in four out of the 162 articles that make up the law. These four articles emphasise, on the one hand, equitable access to water for all women and men, and on the other hand, women's representation (25 per cent) within water governance bodies (the Higher Council for Water and Climate, Basin Councils, and Prefectural and Provincial Water Commissions) (MDCE & UN Women, 2017).

2 In Morocco, water resources management has been placed under different ministerial responsibilities over time, following government reorganisations. In the 2000s and early 2010s, water was placed under the Ministère de l'Énergie, des Mines, de l'Eau et de l'Environnement. From the mid-2010s, water responsibilities moved to the Ministère de l'Équipement, du Transport, de la Logistique et de l'Eau. Since the 2021 government reorganisation, water policy and water resources management have been under the Ministry of Equipment and Water (MEE), notably through the General Directorate of Hydraulics (DGH), while drinking water supply and sanitation are implemented mainly by the National Office of Electricity and Drinking Water (ONEE). This reflects a longstanding institutional separation between water resources management, hydraulic infrastructure, and service provision, rather than the existence of a standalone Ministry of Water.

A key turning point for mainstreaming gender in the water sector occurred between 2015 and 2016, when the Ministry of Equipment and Water formally committed to institutionalising the gender approach. This shift was driven by two converging forces: i) the 2015 Organic Finance Law, and ii) the leadership of Minister Charafat Afilal, who requested technical support from UN Women to operationalise gender equality within the sector. This partnership led to the development of the “Strategy for the Institutionalization of Gender Integration in the Water Sector (SIIGSE)”, adopted in 2016 with support from UN Women, the French development agency (AFD), GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit), and Enabel (the Belgian Agency for International Cooperation).

SIIGSE focuses on embedding gender equality across Morocco’s water sector, based on a participatory diagnostic conducted within the Ministry in charge of water and selected river basin agencies (MDCE & UN Women, 2017). The strategy prioritises strengthening institutional capacity through dedicated governance mechanisms (a Gender Committee and a Technical Commission),³ internal procedures, and sustained capacity building, with the objective of anchoring gender equality in organisational practices rather than treating it as a standalone issue (MDCE & UN Women, 2017). A central pillar of the strategy is the integration of a gender approach into human resources management, addressing structural inequalities in recruitment, career progression, access to technical and field positions, and representation in decision-making roles within the water administration and basin agencies (MDCE & UN Women, 2017). SIIGSE also seeks to mainstream gender considerations into core water professions and programmes, responding to the diagnostic finding that major planning instruments, such as the National Water Plan (Plan National de l’Eau)^{4,5} and basin-level plans,⁶ had largely overlooked gender dimensions despite their strong social impacts (MDCE & UN Women, 2017). In this context, SIIGSE frames gender integration as an “add-on implementation layer”. Finally, the strategy emphasises gender-responsive planning, budgeting and implementation, including

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- 3 The “gender committee”, composed of central directors and other senior officials, is responsible for ensuring that gender is taken into account in all aspects of the department’s functioning, including internal procedures as well as the design, monitoring, and evaluation of all policies, programmes, and projects it implements. This structure is supported by a technical gender commission responsible for data collection, studies and research, and the monitoring and evaluation of the implementation of the gender institutionalisation strategy within the Ministry (MDCE & UN Women, 2017) – Original text in French. Translation by the author, assisted by Claude (Anthropic).
 - 4 The Plan National de l’Eau (PNE) (National Water Plan), dates back to 2009 and is Morocco’s central long-term planning framework for water resources management, translating national water policy orientations into strategic programmes, investment priorities and implementation pathways. It provides the reference framework for sectoral planning, major hydraulic infrastructure, basin-level water management, and public investment programming, and guides coordination between central government, basin agencies and sectoral actors. A new/revised PNE is currently under revision.
 - 5 Gender was not integrated in the Plan National de l’Eau and SIIGSE did not modify its official text. Rather, it is a subsequent, complementary operational document produced to address a key gap in the PNE: the absence of any explicit reference to gender equality or gender-differentiated impacts in the PNE itself.
 - 6 Plans Directeurs d’Aménagement Intégré des Ressources en Eau (PDAIRE) are the principal strategic and operational planning instruments at river-basin level, developed by the river basin agencies (ABH) (Agences de Bassin Hydraulique) to guide the long-term allocation, protection and management of water resources within each basin. According to the SIIGSE diagnostic, these plans are primarily technical in nature and, although they may include general socio-demographic context, they adopt a gender-neutral approach to needs assessment, failing to distinguish between women’s and men’s differentiated roles, uses and constraints in relation to water access, irrigation, sanitation and risk management (MDCE & UN Women, 2017).

gender-responsive budgeting, the improved participation of women water users, and the integration of gender considerations into partnerships, infrastructure programmes, and climate-risk management initiatives, thereby linking equality objectives with the effectiveness, sustainability and social legitimacy of water policies (MDCE & UN Women, 2017). The strategy further seeks to promote gender-responsive planning and evaluation, ensuring that strategic instruments in the water sector, notably long-term frameworks such as the Plan National de l'Eau (PNE), explicitly consider gendered impacts, differentiated needs, and inequalities in access, participation and empowerment (MDCE & UN Women, 2017).

Finally, in 2017, the Plan Gouvernemental de l'Égalité 2017-2021 (ICRAM II) was launched and the water department actively contributed to the elaboration of this plan (Ravesloot et al., 2019). The measures the Ministry of Equipment and Water commits can be summarised as follows: The Ministry committed to strengthening women's economic empowerment by promoting female expertise in key technical fields, by increasing women's participation in employment and leadership positions, and by supporting work-life balance within public institutions. It pledged to enhance women's representation in decision-making bodies, including senior management and boards, and to promote parity in public appointments. The Ministry also committed to combating discrimination and gender stereotypes through institutional culture change, training on equality and human rights, and awareness campaigns. It further aimed to mainstream gender across all water policies and programmes by establishing gender units, producing sex-disaggregated data, integrating gender into planning, monitoring and budgeting processes, and reinforcing gender-responsive budgeting and accountability mechanisms, including territorial implementation of gender equality measures (Ravesloot et al., 2019).

4.3 Successes of gender mainstreaming

According to the interviews conducted and internal documents provided by the Ministry of Equipment and Water, gender mainstreaming efforts have generated visible institutional, social, and operational progress:

- *Greater women's representation in leadership and technical roles*
Women hold 39 per cent of leadership positions in the central water department (23 out of 59 posts), and their presence in technical fields such as dam engineering, hydrology, and materials control has grown significantly (Interview, General Directorate of Hydraulics (DGH), 2025). The number of women engineers assigned to dam projects increased by 25 to 30 per cent between 2019 and 2021, marking a substantial shift in a traditionally male-dominated sector (Interview, UN Women, 2025).
- *Gender-responsive project planning and infrastructure design*
Diagnostic tools and mandatory gender impact studies⁷ are now applied systematically, addressing past failures such as poorly located rural water points. Women are now included in compensation lists during dam construction.
- *Improved rural living conditions and reduced gender inequalities*
Gender integration in PAGER,⁸ rural sanitation, flood protection, and school water programmes has benefited millions of rural women and girls. Notably, improved water and

7 After checking with the interviewees, it was ascertained that these studies are, however, not always publicly available.

8 The Grouped Drinking Water Supply Programme for Rural Populations (PAGER) was implemented by the National Office for Drinking Water Supply.

sanitation infrastructure in schools has been associated with a decline in girls' dropout rates, from 13.4 per cent to below 2 per cent by 2023.⁹

- *Greater representation of women in governance spaces*
Women increasingly serve on ABH councils and dam supervision committees, though concrete data on their actual share of seats and the extent to which their presence translates into substantive influence remain largely unavailable. While their representation is reported to be growing, the degree to which this formal presence shapes decision-making outcomes in practice is difficult to assess in the absence of systematic, gender-disaggregated data on governance body composition and participation patterns.

4.4 Key challenges to gender mainstreaming in Morocco's water sector

Despite the existence of a dedicated SIIGSE and multiple gender mainstreaming efforts at different levels, gender mainstreaming across Morocco's water sector remains uneven and fragile, with key challenges persisting at the level of institutionalisation itself.

- A first structural challenge lies in the strong dependence on political leadership and individual persons championing for gender equality. The institutionalisation process relies heavily on the commitment of ministers, senior managers, and gender focal points; changes in leadership or administrative reorganisation often led to discontinuities, loss of institutional memory, and weakening of momentum, despite the formal existence of a Gender Committee and a Technical Commission (MDCE & UN Women, 2017).
- Implementation capacity varies significantly between the central administration and basin-level institutions, particularly the river basin agencies. While the central administration has benefited from closer engagement with international partners and greater exposure to gender mainstreaming tools, interviews suggest that basin agencies – especially in remote or rural regions – face staff shortages, and more difficult working conditions. These constraints limit both the uptake of gender-sensitive planning tools and the retention of women engineers and managers, an issue explicitly identified in the sector-wide diagnostic (MDCE & UN Women, 2017).
- Persistent gender norms and social expectations continue to shape professional trajectories within the water sector. These norms operate at multiple levels. At the household and community level, women – including professional women – are primarily expected to fulfil domestic and caregiving responsibilities, which constrains their availability for fieldwork, mobility, and the informal networking that is often central to career advancement in technical institutions. At the institutional level, engineering and water management have long been constructed as male domains, associated with technical authority, physical presence in the field, and decision-making power that is culturally coded as masculine. Women entering these professions often navigate implicit expectations that they are better suited to office-based, administrative, or social roles, while their male colleagues are assumed to be the natural holders of technical expertise and operational authority. These assumptions, while rarely formalised, shape recruitment, task allocation, mentoring opportunities, and promotion decisions in ways that are difficult to challenge precisely because they appear as common sense rather than as policy. As a result, gender inequalities persist in access to

⁹ While improved water and sanitation infrastructure can contribute to better school attendance, especially for girls, establishing a direct causal link is methodologically problematic. School dropout is a multidimensional phenomenon influenced by economic, social, cultural, and institutional factors. Improved sanitation may play a role, but it rarely acts alone.

decision-making roles: formal opportunities exist but remain difficult to seize in practice (MDCE & UN Women, 2017). Moreover, although women have increasingly entered water domains where they were previously poorly represented, such indicators say little about how masculine norms continue to shape the professional culture of irrigation, where authority, expertise, and decision-making remain closely associated with male identities. Research on irrigation institutions shows that these professional cultures are still largely male-dominated, which limits the extent to which increased female representation translates into deeper institutional change (Zwarteveen, 2017).

- Limited and uneven capacity for gender mainstreaming remains a major constraint. Although the strategy calls for systematic capacity building, concerned staff often lack the time, training, or technical background needed to apply gender analysis to highly engineering-driven domains such as dams, groundwater management, water transfers, or flood protection. This gap weakens the translation of gender commitments into operational project design, implementation, and monitoring across the sector (MDCE & UN Women, 2017). These capacity constraints were also confirmed through interviews conducted for this study, which revealed that gender mainstreaming is frequently perceived by technical staff as an add-on requirement rather than an integral part of project design. This limited understanding of gender also undermines its transformative potential: rather than prompting a critical examination of development logics, project designs, and institutional practices, gender mainstreaming is reduced to a matter of adding women as beneficiaries or participants, without questioning who defines the problem, whose priorities shape the intervention, or whether the underlying approach itself reproduces existing inequalities.
- The strategy underlines the declining continuity of collaboration with international partners, notably UN Women and other technical and financial partners that played a key role during the diagnostic and strategy-development phases. While early support was crucial in developing tools and methodologies, reduced and sporadic engagement limits access to updated expertise and sustained accompaniment for complex sectoral reforms, including gender-responsive budgeting, monitoring systems, and legal texts (MDCE & UN Women, 2017).
- Finally, the water sector faces persistent difficulties in developing meaningful, measurable gender indicators. The strategy recognises that many proposed indicators remain abstract and challenging to operationalise, particularly for large-scale infrastructure and technically complex programmes. Weak availability of sex-disaggregated data, limited monitoring resources, and difficulties integrating socio-economic data into water information systems constrain the ability to track outcomes and assess whether gender integration leads to substantive changes in access, participation, and benefits (MDCE & UN Women, 2017).

4.5 Water, agriculture, and gender: setting the scope

In what follows, the aim is to focus more specifically on gender mainstreaming in the irrigation sector. This focus is justified for several interrelated reasons. First, agriculture is by far the largest consumer of water in Morocco, accounting for approximately 85 to 90 per cent of total water withdrawals, largely for irrigation purposes (Boudhar et al., 2023). Second, agriculture constitutes the primary interface between water policy and end users, particularly in rural areas. Farmers, women and men, are directly affected by irrigation technologies and governance, groundwater regulation, drought management, or, in some cases, the absence of effective regulation. As highlighted in Morocco's water governance framework, irrigation schemes, groundwater contracts (*contrats de nappes*), and basin-level planning instruments represent key arenas where water policy decisions translate into concrete social and economic outcomes (Water Law 36-15, 2016; Ravesloot et al., 2019). Existing gender differences and inequalities in terms of labour divisions, access to land, irrigation equipment, credit, and decision-making power mean that these policies are experienced differently by women and men (FAO [Food and

Agriculture Organization of the United Nations], 2018). Third, women play a central yet often undervalued role in agricultural production and water use, particularly in small-scale farming, family agriculture, and irrigation schemes. Despite their involvement in agricultural labour and everyday water management practices, women remain under-represented in formal water governance bodies and irrigation management institutions. Gender analyses focusing on gender, water and agriculture show that women farmers face structural barriers to benefiting from irrigation modernisation programs (FAO, 2012), even though these programmes are central to water management strategies in Morocco, and are seldom considered as farmers (FAO, 2026).

For these reasons, integrating agriculture into a gender mainstreaming analysis of the water sector is essential, as it allows for a critical examination of how irrigation policies and programmes incorporate gender considerations and shape differentiated access to resources, labour opportunities, and decision-making power for women and men, thereby conditioning the social equity and overall effectiveness of water governance outcomes.

4.6 Gender mainstreaming in irrigation: institutional advances and structural constraints

Although the Ministry of Agriculture has made considerable progress since the mid-2010s in integrating a gender approach into its programmes, gender mainstreaming in irrigation and agricultural policies remains largely project-driven, donor-dependent, and unevenly institutionalised. According to interviews with senior staff and technical services, gender issues began to be discussed within the Ministry around 2015, but only gained concrete practical significance from 2017/2018 onwards, when gender was progressively reframed as a cross-cutting institutional concern (Interview, Ministry of Agriculture; DIAEA [Direction de l'Irrigation et de l'Aménagement de l'Espace Agricole], 2023).

At the institutional level, the Ministry has established a formal gender architecture, including a central gender unit/division and designated gender focal points within each technical directorate, notably within the Directorate of Irrigation and Agricultural Land Development (DIAEA). These focal points are tasked with coordination, reporting, awareness-raising, and communication with international partners. However, this framework remains largely procedural and is not consistently backed by binding operational guidelines applicable across all irrigation programmes. As a result, its practical influence varies widely between directorates and projects (Interview, Ministry of Agriculture).

In practice, gender mainstreaming becomes truly operational mainly in irrigation projects financed by international donors, including the World Bank, AFD, the Green Climate Fund (GCF), the European Union (EU), and the European Bank for Reconstruction and Development (EBRD). DIAEA documentation confirms that donor-financed projects systematically require gender diagnostics, sex-disaggregated indicators, gender-sensitive monitoring frameworks, and targeted capacity-building activities, whereas nationally financed irrigation programmes rarely move beyond generic participation objectives (DIAEA, 2023). In several cases, donor requirements have resulted in the elaboration of comprehensive Gender Action Plans (PAG) in irrigation-related projects. An example of a project where this was the case, and which was referred to during the interview, is the Project for the Development of Irrigation and Adaptation of Irrigated Agriculture to Climate Change Downstream of the Kaddoussa Dam (PDIAA-CC) (see Box 3), implemented under DIAEA leadership with GCF financing and AFD. The project's PAG was developed through participatory gender diagnostics and baseline studies, including women-only consultation spaces that allowed priorities otherwise muted in mixed settings to emerge. The PAG combined dedicated budgets, indicators, women-targeted training, support for women's cooperatives, and measures to strengthen women's representation in Water Users

Associations (WUAs) (DIAEA, 2023; Interview, Ministry of Agriculture). Similarly, irrigation modernisation projects in the Saïss region integrate gender through quotas for women's participation in training activities, targets for women's representation in WUA boards, and inclusion in economic empowerment components such as cooperative development and entrepreneurship support, measures embedded in donor-mandated results frameworks and supported by gender specialists and facilitators.

Box 3: Case study summary – Kaddoussa irrigation project (Boudnib)

Why this case?

The Kaddoussa irrigation project is presented by the Ministry of Agriculture as a flagship example of gender mainstreaming in large-scale irrigation and climate-adaptation programmes, notably through the adoption of a Gender Action Plan (GAP).

What worked?

- Women, particularly *Soulaliyate* (see Footnote 11) beneficiaries, accessed technical training on irrigation efficiency, crop diversification, and palm water management.
- A small group of women farmers gained greater autonomy in managing irrigated plots, including climate-resilient crops such as quinoa.
- Project-linked support to women's cooperatives and non-farming activities strengthened economic participation, especially for landless women, including a gender-based-violence listening centre; a youth theatre initiative; an integrated rural-women programme; and women's/youth entrepreneurship support; by 2023 new self-employed women had also emerged in catering and parapharmacy.

What limited impact?

- Women represented only about one-fifth of beneficiaries and remained largely absent from irrigation governance and water user organisations. Across the nine Water Users Associations created, 23 per cent were women, with women reporting limited influence and concrete participation.
- Information asymmetries, male-dominated networks, and restrictive gender norms limited women's awareness, mobility, and participation in project-related, water governance, and irrigation assemblies.
- Legal access to collective land did not systematically translate into effective agricultural autonomy.

Key insight

Despite formal gender integration, gender mainstreaming remained largely project-based, with gender considerations addressed in a separate, bounded sphere of the project. The project prioritised technical and infrastructural objectives, with gender treated as a parallel social component, reflected structurally in the fact that the gender component was financed through a distinct, ring-fenced grant (a 0.8 million EUR GCF-funded sub-component, against a total project cost of roughly 836 million MDH)¹⁰ with its own dedicated consultant, separate from the main infrastructure and governance components, even though a gender-sensitive logical framework and indicator set were formally incorporated. As a result, while participation increased, shifts in power, resource control, and decision-making authority remained limited.

Source: Author, based on report of DIAEA (2023)

10 The Ministry of Economy and Finance states the project's total cost is 836 million dirhams (MDH), which converts to roughly 78 million EUR today, a figure also given on the Ministry of Agriculture's own project page <https://www.agriculture.gov.ma/fr/projet/amenagement-aval-du-barrage-de-retenu-e-kaddoussa>.

Based on the interviews conducted and the documentation that was shared, practitioners consistently underline that gender integration is most effective when it operates through pragmatic entry points, notably capacity building, long-term follow up, and women's economic empowerment. Training, coaching, agricultural advisory services, gender-adapted farmer field schools, and women-only training sessions are described as far more impactful than one-off sensitisation activities in addressing socio-cultural constraints and information asymmetries (Interview, Ministry of Agriculture). Women's cooperatives and income-generating activities, particularly in processing, valorisation, and agri-food chains, are widely seen as the most socially acceptable and scalable pathways for strengthening women's position within irrigation projects, even if indirectly.

At the same time, interviews point to persistent structural limits, particularly within core irrigation domains. Irrigation management, especially water distribution and technical operations, remains historically a masculine domain. Interviewees note that even when women formally manage farms, irrigation tasks are often delegated to men due to distance, safety concerns, and the timing of irrigation activities, which restrict women's direct involvement. This structural configuration continues to constrain women's effective participation and voice within WUA boards and other irrigation governance bodies, even where formal representation is encouraged.

Practitioners also express clear reservations regarding gender quotas as a standalone tool. While numeric targets are considered necessary, especially within donor frameworks, they are widely viewed as insufficient to transform power relations. Projects may formally meet participation targets while women's decision-making power remains limited. As one interviewee notes, "*Cela devient un indicateur parmi d'autres... mais cela ne suffit pas*" [It becomes one indicator among others... but it is not enough] (Interview, Ministry of Agriculture). This highlights a broader tension between indicator-driven compliance and substantive gender transformation in technically complex and politically sensitive sectors such as irrigation.

In conclusion, gender mainstreaming in irrigation remains institutionally fragile. Outside donor-financed projects, systematic gender analysis is largely absent from project design and sustainability depend on whether other entities (the National Office of the Agricultural Council (ONCA), the Agency for Agricultural Development (ADA), value-chain programmes) can absorb activities once projects close (DIAEA, 2023). This reinforces the perception that gender integration is still layered onto projects through external pressure rather than embedded as a routine, enforceable requirement across irrigation policy. Moreover, as also highlighted in the previous section on gender mainstreaming in the water sector more broadly, leadership support plays a decisive role in opening institutional space for gender-sensitive approaches and improving women's access to positions of responsibility. In the absence of stronger formalisation through binding rules, incentives, and accountability mechanisms, there is a substantial risk that progress may stall or may even be reversed following ministerial or senior management changes, undermining the long-term institutionalisation of gender equality within the irrigation and agricultural sectors.

5 Changing gendered water and farming realities: insights from two case studies

The preceding section analysed how gender mainstreaming has been institutionalised within Morocco's water and agricultural governance frameworks, highlighting both significant progress, particularly in donor-supported programmes, as well as persistent structural limitations related to project-based implementation, uneven institutional anchoring, and fragile sustainability. Building on this institutional analysis, the present section shifts scale to examine how gender,

water, and farming intersect in everyday life and local governance, and to what extent national policies and programmes resonate with, or fall short of, the challenges faced on the ground. The analysis focuses primarily on the agricultural sector, as access to drinking water is largely achieved in the selected field study areas. While some issues related to potable water were reported, interviewees primarily highlight changes in the availability of irrigation water and the impacts of drought on farming activities and livelihoods.

Fieldwork was conducted in two oasis regions, the Boudnib area and the Drâa Valley, and is based on eight years of previous fieldwork activities in the area (Bossenbroek et al., 2024; Bossenbroek & Ftouhi, 2024a, 2024b). Both regions lie in Morocco's arid southeast, downstream of the High Atlas Mountains, where rainfall is low and erratic. Annual precipitation is often below 100 mm, combined with intense evapotranspiration rates. These oases depend on a delicate balance of surface flows, groundwater recharge, and a communal irrigation system, yet are under growing pressure from prolonged droughts, declining groundwater tables, and the over-exploitation of groundwater resources. In the Drâa Valley, for example, the riverbed ran dry in parts during the summer of 2021, and local farmers reported that a well originally eight meters deep in 1982 had to be deepened to eighteen meters in 2021 to maintain water access (Fico, 2021). Climate change projections and land-use dynamics further point to declining rainfall, rising water demand, and increasing salinisation.

Whereas the oases in both Boudnib and the Drâa Valley face increasingly water shortages the surrounding lands are marked by expanding irrigation frontiers and newly irrigated lands, where mostly export oriented crops are cultivated (see Bossenbroek et al., 2023; Elder, 2022). Since the early 2010s, Boudnib has experienced rapid agrarian transformation driven by the expansion of groundwater-fed, drip-irrigated agriculture promoted under the Green Morocco Plan. Formerly characterised by small-scale oasis farming, the area has seen a sharp increase in irrigated date-palm plantations relying on deep borehole wells, facilitated by state incentives, land privatisation, and external investment. While framed as water-efficient and development-oriented, this expansion has accelerated groundwater depletion and produced uneven livelihood outcomes, with local populations often benefiting mainly through precarious agricultural labour while bearing the long-term ecological costs of water over-extraction (Elder, 2022).

To analyse fieldwork realities in these two regions, an analytical grid derived from the gender-sensitive actions of the Plan National de l'Eau (Ravesloot et al., 2019) was mobilised to structure the analysis (see the methodology section for a full presentation of the grid and its construction).

In what follows, a set of grounded portraits and case studies are presented illustrating how gendered roles and activities in water management and farming are shifting across Morocco's oasis regions. The cases highlight how women navigate profound environmental and socio-economic transformations, marked by groundwater depletion and overexploitation, water scarcity, agrarian change, and the growing precariousness of oasis agriculture, whether through individual farming trajectories or collective initiatives such as cooperatives. Across these varied contexts, women seek new income opportunities and develop forms of resilience in response to tightening water constraints.

Throughout the section, the analysis is explicitly structured around the grid's main dimensions. This allows local experiences to be situated within national gender mainstreaming frameworks, while progressively revealing aspects of gender relations that the PNE only partially captures, or does not (yet) address.

5.1 Portrait of a female farmer in the Boudnib area

The following portrait of a female farmer in the Boudnib area is presented as a detailed individual portrait, complemented by insights from additional interviews conducted in the same area.

Fatima's trajectory is not presented as representative in a statistical sense, but as analytically illuminating, revealing mechanisms, tensions, and adaptive strategies.

Fatima (pseudonym) grew up in the oases of Boudnib. During her youth, she was not directly involved in agricultural work, but the emergence of a "new" form of agriculture in the 2010s in the Boudnib area, driven by groundwater-irrigated Majhoul date plantations, sparked her interest in farming. When the state formally recognised access to collective land for *Soulaliyate*¹¹ women, she applied despite lacking prior farming experience, income, and resources. Out of a group of 35 applicants, only six or seven were women, and most eventually transferred their land to male relatives. Fatima was one of the few who chose to cultivate her land herself, directly challenging local expectations that farming is a male activity.

In 2016, Fatima obtained a five-hectare parcel located approximately five kilometres from her home. With the support of state subsidies, she planted two hectares with Majhoul date palms and later diversified into olives, vegetables, and fodder. The first years were marked by significant difficulties: irrigation failures, lack of technical knowledge, and the absence of income. Fatima progressively learned through informal exchanges with neighbouring farmers and by participating in some of the training workshops linked to the Kaddoussa Dam irrigation project, which provided guidance on irrigation efficiency and crop water requirements.

Yet her work on the land is significantly constrained by the distance of her plot from her home and the absence of reliable transport, which limits the frequency of her visits to the farm. These mobility constraints are compounded by her domestic responsibilities, including caregiving and household tasks, which compete directly with the time and energy required to manage an irrigated farm, particularly during labour-intensive periods such as irrigation, harvesting, or crop maintenance.

In addition, Fatima faced strong gender-based barriers. Some men discouraged her from continuing, suggesting she would "get tired" and should sell her land. Male labourers sometimes ignored her instructions or arrived late, assuming she was "still sleeping". These behaviours reflect deeper gender norms documented in Boudnib, where women's mobility, public presence, and access to decision-making spaces remain largely male-dominated. In response, Fatima increasingly chose to hire women labourers, whom she found more reliable and more respectful of her authority.

Today, Fatima is locally recognised as a hard-working farmer. She is expanding her olive plantation, transitioning toward organic agriculture, and co-leading a women's cooperative experimenting with quinoa production, which is according to her a climate-resilient, low-water crop particularly suited to water-scarce contexts. She also participates in a mixed-gender organic farming group, contributing to the diffusion of environmentally sustainable practices in response to declining groundwater resources.

Beyond her farming activities, Fatima plays a leadership role in local development. She is the president of the Chorouk Association for Women, Family, and Local Development (*Association Chorouk pour la femme, la famille et le développement local*), which works to strengthen women's capabilities, organise health-awareness campaigns, and provide listening and support

11 In Morocco, *Soulaliyate* land refers to collectively held land attributed to tribal communities and governed through lineage-based customary systems (*sulala*). Although community members hold usufruct rights, these have historically been mediated through male lineage, leading to the systematic exclusion of women. As shown in the work of Ftouhi, women's collective mobilisations around *Soulaliyate* land since the 2000s have challenged these gendered norms, making these lands a key site of contestation over gender equality, citizenship, and collective action in Morocco. These mobilisations culminated in a 2019 government communication formally recognising women's right to benefit from *Soulaliyate* land on an equal footing with men (Ftouhi, 2024).

services for women facing different forms of violence. Her longer-term project, to develop a rural eco-tourism initiative linked to organic farming, aims to diversify income sources while valorising oasis landscapes under threat from climate change and new large-scale export-oriented irrigation projects.

5.2 Linking Fatima's story to the different elements of the analytical grid

Fatima's trajectory offers a rich entry point for assessing the analytical grid derived from the PNE's gender report. Her experience as a woman farmer in a groundwater-dependent, capital-intensive irrigation system illuminates how the dimensions of the grid play out in practice, and where the PNE's gender mainstreaming framework captures, partially addresses, or remains silent on the realities women navigate on the ground.

- **Exposure to water-related risk and vulnerability:** The early years of Fatima's farming activity were marked by high exposure to risk: irrigation failures, delayed returns on investment, and income insecurity. These risks were compounded by her position as a woman farmer operating outside established male networks of support. Fatima's experience shows that water scarcity and reliance on groundwater do not affect all farmers in the same way. In groundwater-dependent irrigation systems, access to water depends on financial resources, technical knowledge, and (informal) support networks that help manage risks such as pump failures, declining water tables, or fluctuating yields. Women entering these capital-intensive systems often have more limited access to credit, labour, technical advice, and access to networks, which increases their exposure to water-related risks.
- **Access to land and water:** Fatima's trajectory illustrates the distinction between formal and effective access to productive resources. While legal reforms granting *Soulaliyate* women access to collective land enabled her to obtain a parcel, this formal inclusion did not automatically translate into farming autonomy. Distance from her home, irrigation failures, limited capital, and lack of prior experience constrained her effective access. Fatima's case shows that access is not merely a legal condition but a socially and technically mediated process, shaped by infrastructure, knowledge, labour relations, and gendered legitimacy, dimensions that the PNE's lack of focus on land access, control and irrigation programme eligibility does not fully capture.
- **Control over decisions and resources:** Despite holding land rights, Fatima initially faced challenges in exercising authority over her farm. Her experience illustrates how control over irrigated agriculture remains gendered, even when women are formal landholders. Fatima's decision to recruit women labourers represents a strategic reassertion of authority and highlights how control is negotiated through everyday practices rather than secured through formal rights alone.
- **Labour organisation and gendered hierarchies:** Fatima's experience underscores the gendered nature of labour relations in irrigated agriculture. Male labourers' behaviour, arriving late, ignoring instructions, reflects entrenched norms positioning men as legitimate farmers and women as secondary actors. By reorganising labour along gender lines, Fatima not only improved farm reliability but also challenged prevailing labour hierarchies. Her case also illustrates the double burden characteristic of women farmers: managing productive agricultural work alongside reproductive responsibilities, a dimension largely absent from PNE monitoring frameworks.
- **Participation versus empowerment:** While Fatima remains largely excluded from formal irrigation decision-making arenas, she has developed alternative forms of participation and leadership through cooperatives, farmers' groups, and civil society. Her role as president of

the *Association Chorouk pour la femme, la famille et le développement* illustrates how empowerment may occur outside water governance institutions yet still contribute to territorial resilience, a dimension that has also been taken up by the Kaddoussa project. Yet, this is a central limitation of current gender mainstreaming approaches: PNE indicators tend to count women's participation in project-linked activities, training sessions, cooperative membership, beneficiary lists, without capturing whether this translates into voice, leadership, or negotiating power in irrigation governance.

Taken together, these dimensions reveal some of the structural conditions that make women's effective participation in irrigated agriculture both possible and persistently constrained. The PNE's gender-sensitive framework captures some of these conditions, notably through its attention to water access, training, and climate adaptation, but remains largely silent on land tenure, social legitimacy, labour relations and responsibilities, and everyday decision-making dynamics that determine whether formal inclusion translates into meaningful agricultural autonomy.

Land, in particular, is addressed only incidentally in the PNE gender report, either as an unexamined precondition, assuming that some women already hold or manage agricultural land without analysing how such access is acquired, contested, or denied, or as compensable property in cases of infrastructure-related expropriation (dam and water-transfer projects). The report contains no dedicated diagnostic, action, or indicator on land tenure, ownership, or inheritance. Given that water access in irrigated systems – including oases – is frequently contingent on land tenure or a recognised share in a collective irrigation scheme, this absence constitutes a significant blind spot in the PNE's gender-mainstreaming framework, one that the “access to water and land” dimension in this study's analytical grid is designed to make visible.

Fatima's case thus illustrates both the reach and the limits of current gender mainstreaming approaches in Morocco's water and irrigation sector: her access to irrigation water is shaped as much by an unrecognised claim to land as by the water governance arrangements the PNE addresses directly.

5.3 Changing gendered farming activities and collective adaptation in the Drâa Valley

In the oases of the Drâa Valley, gendered farming activities are undergoing profound changes driven by water scarcity, male migration, and the declining viability of oasis agriculture. While irrigation has traditionally been considered a male task, several women reported being responsible for irrigating the fields, particularly in households where male family members have migrated. Many remain reluctant to openly identify with this practice, reflecting persistent social norms around gender and agricultural labour (Bossenbroek et al., 2024). These norms are partly rooted in the historical organisation of water governance in the oases, where the *jma'a*, the traditional collective institution responsible, amongst others, for managing surface water distribution, has long been an exclusively male domain. Water Users Associations, introduced in the valley from the 1990s onwards as part of irrigation modernisation reforms, have not had their functioning evaluated – what is clear, however, is that women were largely left out, rarely recognised as farmers or water users in their own right. As a result, women have historically been absent from the formal governance structures that regulate water access. This exclusion is now further compounded by a growing shift toward groundwater-based irrigation, which tends to favour individual and privately managed access, through privately owned pumps and deep wells, over collective governance arrangements. This individualisation of water access increasingly bypasses the collective institutions from which women were already excluded, while simultaneously demanding capital investments and technical knowledge, to operate pumps,

manage boreholes, and maintain drip irrigation systems, that women are far less likely to possess or control, pushing effective water governance further beyond their reach.

Water shortages have further reduced livelihood opportunities, pushing some women towards alternative activities while others find themselves confined to the domestic sphere. In this context, women's cooperatives have emerged as important spaces of engagement, income generation, and collective resilience, though their reach remains uneven. Although cooperatives have been promoted under the Green Morocco Plan (2008-2020) and the National Human Development Initiative (INDH), access to these support mechanisms is far from guaranteed. Accurate and timely information remains a key prerequisite, yet a considerable share of rural women – particularly those with limited literacy, weak institutional networks, or restricted mobility – struggle to access it, leaving part of the female population effectively excluded from opportunities that are formally available to them.

Box 4: Women's economic adaptation through collective action: the case of the Tissergate Bread Cooperative

The women's cooperative of Tissergate, located in the oasis of Ternata in the Drâa Valley, illustrates how women collectively navigate water scarcity, economic precarity, and gender norms (see also Bossenbroek et al., 2024; Houdret et al., 2025). Established around 2014, the cooperative initially aimed to develop livestock breeding but redirected its efforts toward bread production with the support of an external advisor. Despite a difficult start, one small oven, high workloads, and family opposition that led some of the original 37 members to withdraw, the cooperative has stabilised at 17 active members operating through a rotating work system. Earnings remain modest, ranging from 100-150 MAD (Moroccan dirhams) (9-14 euros) in slow months to 300-400 MAD (29-36 euros) in peak periods, with sales confined largely to the local *douars* (villages) and neighbouring areas due to transportation costs that make broader market access financially unviable.

Despite these material constraints, interviews with cooperative members reveal benefits that extend well beyond income. The cooperative functions as a vital social space at a time when shared agricultural labour – long a central site of female sociality in the oasis – has collapsed under drought conditions. Women who once visited fields regularly, working alongside others in moments combining labour with collective life, now go only once or twice a year if at all. The cooperative partially reconstitutes this collective dimension in a non-agricultural setting. It has also expanded members' mobility, confidence, and administrative capacities, with some women describing the experience as giving them a new sense of their own capabilities and, in some cases, a stronger negotiating position within the household.

5.4 Linking the experiences of the Drâa Valley to the analytical grid

The Drâa Valley case study shifts the analytical focus from an individual farming trajectory to a collective adaptive response, while remaining anchored in the same analytical grid derived from the PNE gender report. The Tissergate bread cooperative provides a particularly illuminating lens: while it predates the most acute phase of recent droughts, it has taken on increased importance as agricultural livelihoods have declined under intensifying water scarcity, offering women an alternative space for collective activity and income generation at a time when opportunities in farming are shrinking. Placing this experience in dialogue with the PNE's gender report allows the analysis to ask – from the ground up – how far national gender mainstreaming commitments resonate with, or remain distant from, the everyday realities of women in drought-affected oasis communities.

- **Exposure to water-related risk:** The case illustrates how water scarcity directly reshapes women's livelihoods and daily practices in ways that are not uniformly experienced. Reduced surface water and declining agricultural viability push women either toward alternative income-generating activities or back into the domestic sphere. Women's active responses, reallocating labour, joining cooperatives, seeking non-farm income, reveal that exposure to water-related risk is mediated through gendered livelihood strategies, a dimension that PNE risk assessments do not systematically capture.
- **Access to water and land:** Several women now irrigate fields de facto, yet remain reluctant to publicly identify as irrigators, reflecting persistent norms that limit social legitimacy even where physical access exists. This gap between effective and socially recognised access reveals a core limitation of PNE monitoring: policy instruments track formal inclusion in irrigation schemes without capturing whether women can exercise that access in practice or claim it as part of their identity as farmers.
- **Control over decisions and resources:** Women exercise significant everyday decision-making power within households and feminine cooperatives, yet remain largely excluded from formal water management arenas, a historically rooted exclusion reproduced through the male-dominated *jma'a* and WUAs. The shift toward individually managed groundwater access tends to further marginalise them, bypassing collective governance spaces while requiring capital they rarely control and technical knowledge that they do not necessarily have access to. The cooperative offers a partial corrective, but one disconnected from the irrigation governance structures that ultimately determine water access in the oasis.
- **Labour organisation and workload:** Water scarcity is reconfiguring gendered agricultural labour, with some women taking on irrigation tasks despite the social coding of irrigation as male work. Pathways out of agriculture remain strongly gendered: men more readily access wage labour or migration opportunities, while women's options are largely confined to small-scale, collective, or informal activities. The double burden of productive and reproductive labour is compounded as water scarcity simultaneously may increase domestic water-fetching tasks and reduces agricultural income, a dynamic absent from PNE gender-sensitive action plans.
- **Participation versus empowerment:** The cooperative case makes particularly visible the distinction between numerical participation and substantive empowerment. Women have gained administrative skills, mobility, and confidence, outcomes that matter for their position in households and communities, yet these gains are not captured by PNE indicators focused on membership counts, training attendance, and beneficiary lists. The deeper processes through which women renegotiate social positions and household dynamics remain invisible in the monitoring framework (Ravesloot et al., 2019, pp. 45-56).

Taken together, the Drâa Valley case reveals a mixed picture. Women have actively developed collective strategies to navigate declining agricultural viability, in this case, through their own initiatives and with limited institutional support. The Tissergate cooperative illustrates this adaptive capacity in practice: beyond generating modest income, it reconstitutes a collective female space that partially compensates for the erosion of shared agricultural labour under drought, and expands members' mobility, confidence, and standing within the household – outcomes that fall outside the technical and economic outputs that PNE indicators are intended to track. Yet the structural conditions that most constrain them – historical exclusion from water governance bodies, the growing individualisation of groundwater access, and norms that deny them legitimacy as farmers and irrigators – remain largely unaddressed. Current gender mainstreaming approaches focus on participation, training, and economic empowerment while remaining silent on the governance arrangements and institutional cultures that determine who controls water, on what terms, and with what degree of social recognition – essential conditions that shape the boundaries of women's adaptive capacity.

6 Conclusions and recommendations

This study set out to examine how gender mainstreaming has been integrated within Morocco's water and irrigation sector, and how national strategies and commitments resonate – or fail to resonate – with gendered water and farming realities on the ground. To do so, the analysis combined i) a review of legal, strategic, and policy frameworks shaping gender equality in water governance; ii) an institutional analysis of gender mainstreaming mechanisms across the water and irrigation sectors; and iii) in-depth case studies conducted in two oasis regions, analysed through an analytical grid derived from the gender-sensitive actions of the Plan National de l'Eau (Raveslout et al., 2019). This multi-level approach made it possible to systematically link national policy commitments to everyday practices in water-scarce agricultural systems.

Overall, the findings point to significant, yet uneven, progress in gender mainstreaming across Morocco's water sector. At the central and strategic level, gender equality is now formally anchored in constitutional principles, sectoral strategies (SIIGSE), sector-specific projects, as well as gender-responsive budgeting frameworks. Dedicated governance mechanisms, such as gender committees and technical commissions, along with the improved representation of women in technical and leadership positions, signal a genuine institutional shift compared to earlier periods. In donor-supported programmes, particularly in irrigation and climate-adaptation projects, gender diagnostics, action plans, and targeted measures have contributed to concrete improvements in access to training, economic opportunities, and visibility for women.

At the same time, the study highlights persistent structural limitations. Gender mainstreaming remains strongly project-driven, unevenly implemented across institutions and territories, and weakly embedded in core water and irrigation governance functions, particularly at basin- and local levels. Formal inclusion often translates into participation without power, while deeper issues – such as changing professional cultures, gendered labour divisions, prevalent gendered norms, care burdens, and social legitimacy – remain insufficiently addressed.

Taken together, the case studies show that women's growing role in adapting to water scarcity is occurring largely outside formal irrigation/water governance structures. Women absorb risks, reorganise labour, diversify livelihoods, and sustain agricultural and household economies under conditions of declining water availability, yet these contributions remain weakly recognised in the arenas where irrigation rules, water allocation, and infrastructure priorities are defined.

Applying the analytical grid across the two case studies reveals a consistent pattern: national gender mainstreaming efforts are most effective where they address formal access and institutional representation, through legal reforms, cooperative support, and participation targets, and least effective where they confront social norms, everyday power relations, and the structural conditions that determine whether formal inclusion translates into meaningful autonomy. Across all dimensions of the grid, a gap persists between what national frameworks commit to, or aims to commit to, and what women farmers and cooperative members actually experience on the ground. Participation has increased numerically but rarely amounts to substantive empowerment. Labour reorganisation and the double burden remain largely invisible in policy frameworks.

A critical finding concerns the changing political economy of gender mainstreaming. In Morocco, progress in integrating gender into the water sector has been closely linked to sustained engagement by international donors and technical partners, who provided financial resources, expertise, tools, and long-term support. As donor attention shifts and external funding becomes less predictable, the future of gender mainstreaming in the water sector appears uncertain. Without stronger domestic institutionalisation, binding incentives, and accountability mechanisms, there is a real risk that gender integration will lose momentum, becoming symbolic or confined to isolated projects rather than shaping water governance in a transformative way.

Based on these findings, the following recommendations outline priority actions to strengthen and sustain gender mainstreaming in Morocco's water and irrigation governance. They are addressed primarily to the national institutions responsible for water and agricultural policy, notably the MEE and the MA, as well as to international donors and technical partners supporting gender mainstreaming in the sector.

i) Strengthen the binding institutional anchoring of gender mainstreaming

Gender mainstreaming should move beyond strategies and action plans toward clear, enforceable institutional requirements. This includes integrating gender objectives and indicators into core water planning instruments (PNE revisions, basin plans), performance contracts, and senior management accountability frameworks. Formalising gender responsibilities within mandates and evaluation criteria would reduce dependence on individual champions and outside support. Rather than operating in institutional silos, gender mainstreaming in the water sector should actively build linkages with actors already present in the same territories, notably INDH, the National Agency for the Development of Oasis and Argan Zones (ANDZOA), and agricultural extension services, using existing coordination frameworks such as regional development plans to align activities and avoid duplication.

ii) Reinforce basin-level and territorial implementation capacity

Dedicated resources and long-term capacity building should be allocated to basin agencies to enable consistent application of gender-sensitive planning, consultation, and monitoring tools. Strengthening links between ABHs, local authorities, and women's organisations would improve the relevance and legitimacy of gender mainstreaming on the ground.

iii) Reframe gender mainstreaming beyond participation metrics

Gender mainstreaming in irrigation and water governance should shift from a focus on numerical participation toward tracking effective influence, labour conditions, voice, legitimacy, and control over resources. This would require both a reorientation of programme design, systematically addressing gendered labour relations, access to information networks, mobility constraints, and everyday decision-making practices within irrigated agriculture, and a corresponding reform of PNE monitoring frameworks, moving beyond counting women beneficiaries, training participants, and cooperative members toward substantive empowerment indicators such as women's role in irrigation decision-making, control over income, leadership positions in water-user organisations, and self-reported negotiating power.

iv) Reduce donor dependence through national financing and ownership

To ensure sustainability, gender mainstreaming must continue to be supported through national budget allocations and domestic expertise, rather than relying primarily on donor-funded projects. Strengthening gender-responsive budgeting in the water and irrigation sectors, investing in national training capacities, and institutionalising learning mechanisms could help preserve and consolidate gains made during donor-supported phases.

v) Understanding institutional cultures, and changes in the water sector

Further research is needed on masculine institutional cultures within the water sector, particularly within the Ministry of Equipment and Water and its decentralised services. While the Ministry has committed to promoting women's participation, leadership, and work-life balance, and to combating discrimination through training and awareness (see Ministère de l'Équipement, du Transport, de la Logistique et de l'Eau, 2019), limited evidence exists on how these

measures interact with changes in everyday organisational norms and professional hierarchies. Strengthening this understanding would help ensure that formal commitments translate into sustained changes in women's participation and influence.

In sum, Morocco has laid important foundations for gender mainstreaming in the water sector. The challenge ahead is to transform these foundations into a durable, domestically owned, and territorially grounded practice, capable of addressing gendered inequalities in an era of deepening water scarcity and reduced external support.

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