Farmers transplant rice in Nepal. Photo: CGIAR/LI-BIRD/S. Subedi, CC BY-NC-SA 2.0

Chapter 3

Solutions for gender equality in land and water access, rights and governance within inclusive and resilient food, land and water systems

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Key messages

- Achieving equal access to, rights to and influence over land and water — the most fundamental resources for food production, agricultural livelihoods and human survival — is a matter of justice *and* a precondition for resilient and sustainable food, land and water systems in 2050.
- Women, especially young, Indigenous, rural and poor women, already have limited access and rights to land and water. Climate change, environmental degradation, conflict and other crises compound each other, intensifying competition over these resources and risking deeper inequalities by 2050.
- Technical solutions alone cannot counter this trend. Advancing gender equality in land and water rights hinges on both solving practical challenges and addressing unequal power relations. This requires transforming the social, political and institutional conditions and norms that determine who can use, claim and govern land and water.
- Women's equal participation in the governance of land and water depends on their knowledge, confidence and individual and collective agency to claim and defend their rights. These capabilities grow when women come together in groups and build skills, through capacity strengthening in leadership and legal literacy, for example.
- Other promising approaches include mandatory joint titling that secures women's rights to land; quotas for women in resource governance bodies; and gender-responsive infrastructure, technologies and financing solutions that increase women's access to water for domestic use and irrigation.

A woman draws water at a water point in Gaza Province, Mozambique.
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3.1. CURRENT STATUS AND FUTURE OUTLOOK

Food, land and water systems (FLWS) embed profound **gender** and social inequalities, including in terms of who has rights to the essential elements of land and water. These inequalities are not incidental, but rather systemic expressions of unequal power relations that shape who controls resources, whose knowledge is recognized, and whose voice is heard in FLWS governance. This chapter aims to identify effective strategies, approaches and actions, referred to as *solutions*, that can strengthen women's access and rights to land (including forests and rangelands) and water, to chart more equitable, sustainable and resilient pathways for FLWS. Specifically, we ask: (1) What evidence-based solutions can support women's access and rights to land and water, as well as their full and effective participation in land and water governance? (2) Under what conditions are these solutions effective? And (3) How can research, policies, investments and practice support the adaptation, implementation and **scaling** of these solutions?

To begin, we provide a brief background on gender and **intersectional** equality related to land, water and their governance. Drawing on evidence from diverse contexts, we then outline solutions for addressing gender and intersectional inequalities and the conditions under which these solutions have been effective. Finally, we provide recommendations to adapt, implement and scale these solutions.

Following the **Gendered Food Systems Framework (GFSF)** proposed by Njuki et al.[1] (see introduction for conceptual framing), we organize solutions across four domains of change required to advance **gender equality**: (i) systemic–formal, (ii) systemic–informal, (iii) individual/collective–formal, and (iv) individual/collective–informal. The solutions presented – two per quadrant (figure 18) – are not comprehensive, but rather illustrative of the types of solutions that operate along similar axes of change (informal to formal, individual/collective to systemic) to advance gender and intersectional equality in land and water access, rights and governance.

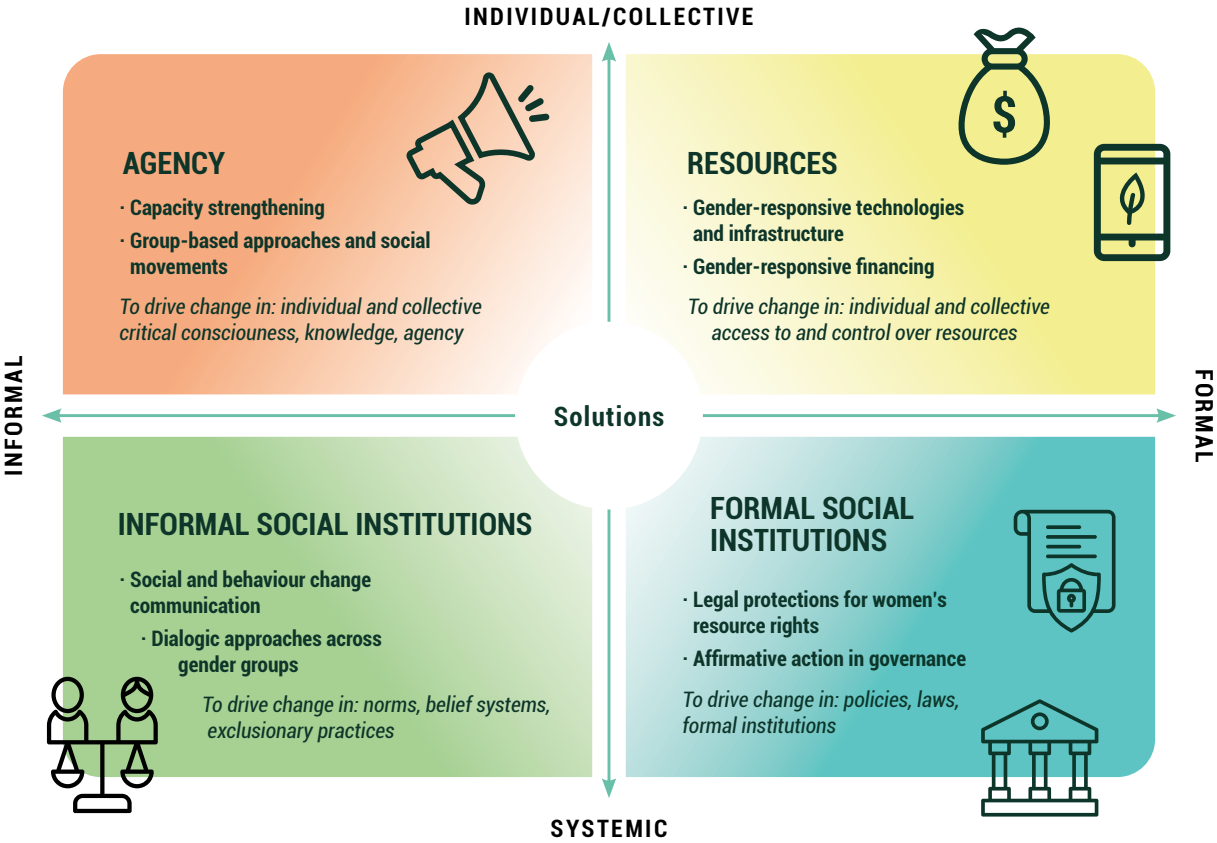

Figure 18. Solutions presented in the chapter, in the (adapted) GFSF

These solutions, presented in section 3.2, were selected following a process described in annex A and summarized in box 6. In analyzing these solutions, we espouse a rights-based approach that targets structural inequalities to ensure that women and other **socially excluded groups** have equal rights to access, own and inherit land in statutory and customary tenure regimes; that they have rights to access water for domestic and productive uses;[2] and that they can **fully and effectively participate** in land and water governance.[3] We take a **feminist political ecology** perspective to examine how gendered power relations shape and are shaped by environmental governance and patterns of **access to and control over resources**.[4,5] The analysis is further informed by an intersectional perspective, where data availability permits.

Box 6. Chapter 3 methods

To select solutions for this chapter, the authors:

- Developed a list of solutions based on a review of salient literature on gender equality in resource governance and women's access and rights to land and water.
- Grouped solutions into categories (e.g., those focusing on capacity strengthening, affirmative action, group-based approaches, etc.).
- Short-listed the solution groups with sufficient evidence (at least five qualitative, quantitative or mixed-methods studies, ideally across regional contexts) of effectiveness in advancing equitable access, rights and governance of land and water.
- Prioritized two solutions per quadrant for which there was the largest availability of evidence as well as information on conditions enabling effectiveness.

Promising, emerging solutions for which there is a smaller evidence base have not been included; but chapter 4 offers a discussion of digital technologies, which are playing an increasing role in land administration, tenure documentation and water governance (e.g., through digital community mapping and land registries).

A potato farmer in Dedza district, Malawi, has increased her yields by accessing clean planting materials and working in a group with other farmers, with whom she exchanges ideas and production skills. Credit: CIP/Hugh Rutherford, CC BY-NC-SA 2.0

3.1.1. Understanding women's rights to land and water: concepts and trends

Fair and just access to land and water are central to gender equality and **social inclusion**, which, in turn, are central to many other development goals. Evidence shows that women's rights to and decision-making over land are linked, among other things, to poverty reduction, improved food security, women's **empowerment**, lower levels of gender-based violence and more sustainable natural resource management.[6,7,8] Rights to land and water extend beyond material access and control (substantive rights) to include representation and participation in decision-making processes (procedural rights) that shape how resources are allocated, used and governed.[9]

Gender and intersectional inequalities are deeply embedded in social norms, power relations, and cultural meanings attached to land. Women's rights to land—an economic asset, but also a source of (masculine) identity tied to history, lineage, and political authority[10] — are commonly mediated through male relatives.[11] These (secondary) rights are conditional and insecure when women lack legal and social recourse to protect them.[12,13] In contexts of collectively held resources, such as some forests, rangelands, and water sources, women's tenure security depends on the group's rights to the resource, as well as women's recognition and rights within the group.[14] Moreover, while collective tenure arrangements can offer opportunities for inclusion, they can also produce "participatory exclusions," whereby women are nominally included but lack voice or influence in decision-making.[15]

Intersectional inequalities linked to marital status, age, indigeneity, caste, ethnicity, socioeconomic status and more compound gender inequality in resource rights, and are power laden and political.[6] As Errico[16] cautions, "Peasant and indigenous women, in many instances, face the compounded impact of the lack of recognition and violation of the collective rights of their communities, which is often the legacy of histories of colonization, conquest, dispossession and discrimination, and **patriarchal** norms, exacerbated by neoliberalism and the commodification of land and natural resources." As such, "Addressing [the barriers they face] requires the respect, protection and fulfillment of both collective and individual human rights of women and a careful analysis of the interaction between these rights."[16 (p1)]

Box 7 and annex B present several concepts used in this chapter to analyze solutions pertaining to these rights.

Box 7. Chapter 3 key concepts

Full and effective participation: Active involvement of individuals or groups in decision-making processes in ways that ensure their opportunities, capacities and power to influence outcomes, rather than their mere presence or consultation.[15,17]

Resource governance: The systems and processes through which decisions are made and implemented, and power is exercised, in the management of (natural) resources.[18,19]

Representation: Process through which individuals or groups are authorized to act on behalf of others in decision-making, making their interests, knowledge and priorities present and influential.[20]

Tenure: The relationships and systems of formal and informal rules that define and regulate rights to access, use, control and transfer natural resources such as land, water and forests.[3]

Chapter 1 of this report provides gender data on land, water and their governance that substantiates the relevance of the solutions presented in this chapter. Legal frameworks (including customary law) guaranteeing women's equal rights to land ownership and/or control remain weak or nonexistent in more than half (58%) of countries with available data.[21] Despite some progress in legal recognition globally, gender gaps in land rights remain pervasive, and are even widening in some cases.[22,23] Where legal frameworks have improved, this has not translated into de facto equality because of the persistence of patriarchal norms, weak implementation and institutional fragmentation.[21,24]

Inequalities in land tenure are closely intertwined with inequalities in water access, control and governance, as formal land ownership is often a prerequisite for claiming water rights.[25] Land ownership typically dictates access to canal irrigation, well ownership and the ability to capture rainwater, as well as voice and influence in water governance.[26,27,28] As such, women's control over water resources and irrigated land remains limited.[29,30]

Like land,[31] water infrastructure and technology are typically associated with masculinity,[32] while household water provisioning, allocation and safeguarding are highly feminized, particularly in rural contexts.[33] Globally, household water access depends heavily on women's (unpaid) labor, and women are the primary users and managers of community water resources such as water pans and boreholes.[26,34]

Women's central roles, knowledge, labor and **lived experiences** in domestic and agricultural water management are rarely reflected in formal governance structures and decision-making spaces, at any level.[35] Policies and programming often fail to recognize the feminized care work underpinning water access and use, thereby reinforcing existing gender inequalities in labor burdens and limiting women's capacity to exercise agency in water-related decision-making. Many development interventions intended to improve water access and security continue to rely upon, exploit or intensify women's **unpaid care work**, thereby perpetuating rather than transforming unequal gender relations.[34,36]

3.1.2. Future outlook

As pressure on resources becomes more acute against the backdrop of the **polycrisis** (see **introduction**), populations with weaker tenure security, such as women, Indigenous Peoples and poorer and rural groups, are particularly at risk of displacement, exclusion and "land and water grabs."[37,38] Processes such as decentralization and the rise of polycentric governance can, in principle, enhance local participation and accountability, but they may also reproduce entrenched power hierarchies.[39,40] Simultaneously, democratic backsliding in some contexts constrains meaningful participation, such that increases in formal representation — such as women's presence on committees — do not necessarily translate into real influence.

Looking ahead, climate change (see **chapter 2**) and competition over scarce water resources may increase women's time collecting water by up to 30%.[29] Demographic pressures may accentuate land fragmentation (with implications for young women and men — see **chapter 5**) and increase competition for land, thereby reinforcing women's (and men's) movement toward off-farm livelihoods (see **chapter 1**). Other emerging drivers — including the energy transition, demand for critical minerals, the rapid expansion of data centers and **AI**-related water use, urban expansion and demographic shifts — are likely to further intensify these trends, raising pressing questions about equity and justice in resource governance.[41,42] To prevent further erosion of gender equality, **structural barriers**, such as unequal tenure systems, discriminatory norms, and exclusionary institutions, must be addressed. In the following section, we present evidence-based solutions to support this goal.

A woman on her cassava farm in Vietnam. Forages are grown to prevent soil erosion, improve soils, and provide livestock feed, supporting both income generation and a healthier diet. Credit: ©2016CIAT/Georgina Smith, CC BY-NC-SA 2.0

3.2. PATHWAYS TO EQUALITY AND INCLUSION

3.2.1. Solutions driving formal–systemic changes

Formal–systemic challenges to women's land rights include insufficient legal protections and limited representation in formal decision-making spaces and processes. Here, we present *legal and policy solutions* to secure and strengthen women's land rights and increase women's representation, participation, and influence in formal land and water governance processes through *affirmative action*.

LEGAL PROTECTIONS TO STRENGTHEN WOMEN'S LAND RIGHTS

Legal recognition and protection of women's land rights promote programming and administration in support of women's tenure security. Analysis of data reported for SDG 5.a.1 (women's ownership or secure rights to agricultural land) and SDG 5.a.2 (extent of recognition and protection of women's rights to land in the law) suggests that robust protections for women's land rights in the law can help prevent gender gaps in land ownership. This includes laws and policies that fully recognize women's and girls' inheritance rights in estate successions, as well as those that limit discriminatory customary rights.[21] Most notably, "mandatory joint titling has been consistently identified as a crucial gender-progressive compensatory mechanism that gives women rights to land, even when inheritance may favor men."[21 (p8)] For example, including joint spousal registration in land tenure reforms in Ethiopia has increased registration and certification of women landowners.[43] In Rwanda, a 1999 inheritance law with provisions to eliminate gender bias underpinned a government-led tenure regularization program that resulted in increased tenure security and land investments by women-headed households.[44]

Despite their critical importance, legal protections for women's land rights still fall short in over half of countries with available data.[21] Where it does exist, ***the effectiveness of legislation depends on the extent to which the law is implemented and accompanied by awareness-raising and incentives to drive change.*** In Bolivia and Brazil, where agrarian reforms mandated joint spousal land titling, national-level rural women's movements helped ensure that gender-progressive legislation was implemented, resulting in significant shares of women beneficiaries.[45] In Ethiopia, awareness-raising through staff engagement with women throughout the registration and joint titling process enhanced women's perceived tenure security and strengthened their participation in land-related decision-making.[46,47] Likewise, successful joint titling schemes in Asia have actively involved women and women's groups in meetings and outreach activities during project implementation.[48] Demand for joint titling has also increased where financial incentives, such as pro-poor and gender-sensitive credit schemes and price subsidies contingent on registering the wife as co-owner, are combined with information on the benefits of co-titling.[21,49]

AFFIRMATIVE ACTION TO STRENGTHEN WOMEN'S VOICE IN RESOURCE GOVERNANCE

Extensive evidence shows that increasing women's representation in resource governance bodies through quotas can enable them to contribute to agenda-setting and decision-making. Formal mandates reserving seats for women in decision-making institutions at multiple levels (e.g., forest, rangeland or water user associations, state and national legislatures) have increased women's presence in deliberations and introduced issues aligned with their expertise and priorities. Cross-country evidence shows that when quotas produce substantial increases in women's national-level legislative representation, measurable changes in government spending toward issues prioritized by women follow.[50] At a community level, evidence from village council reservations in India shows that villages with women leaders invested more in public goods that women prioritized.[51] Similarly, in Kenya and Tanzania, reserved seats on rangeland management committees provided women more scope to voice their concerns and contribute to decisions on rangeland management.[52]

Women's proportional representation affects whether they can participate effectively (e.g., attending meetings, speaking, holding office) in decision-making bodies.[53] Although numbers vary by context, a critical mass ("threshold effect") of at least one-quarter to one-third women members has been associated with their increased active participation and influence,[54] with each woman's influence improving as the share of women rises.[55] To ensure this critical mass, quotas should be supported by appropriate process requirements. For example, in Tanzania, statutory quotas increased the number of women appointed to village land councils, but weak procedural provisions (especially a 50% quorum rule allowing meetings to proceed without any women in attendance) undermined their influence.[56]

To be effective, quotas must be embedded within customary and legal frameworks that ensure that women can exercise the authority implied by their representation. For instance, quotas for women in land administration bodies are more prevalent in countries with weaker marriage and inheritance law protections.[21]

In these cases, quotas alone are insufficient without addressing the underlying policy context. Likewise, in India, where forest user committees lack decision-making authority, quotas have limited effect on women's influence in forest governance.[57] In Malawi, women outnumber men on local forest governance committees but remain less influential because of the informal authority these committees derive from male traditional leaders.[58]

Translating women's presence into influence requires strengthening their capacities to fully and effectively participate in governance. Otherwise, their participation may remain nominal or tokenistic.[15,54] In water user associations in Nepal, women met quota requirements but often deferred to male family members in decision-making.[59] Women's ability to influence irrigation management rules improved when participation in women's cooperatives strengthened their organizational skills.[59] Similarly, in India, the participation of women occupying reserved seats is shaped by intersecting factors, including education, caste and ethnicity.[57] Intersectional issues are also evident in the water sector, where better-off women often have more available time to take advantage of gender quotas in water user associations, but may be unfamiliar with the water needs of poorer women who face higher participation barriers.[27]

3.2.2. Solutions driving informal–systemic changes

Formal–systemic solutions such as **gender-responsive** land reforms, however critical, are insufficient to move the needle in practice, and can create risk of backlash unless discriminatory norms and customs shift in tandem.[60] To this end, the solutions presented here focus on engaging women and men in rights awareness and critical collective reflection to challenge discriminatory attitudes, and over time, shift **gender norms** through *social and behavior-change communication (SBCC)* and *dialogic approaches*. Out of the solutions presented in the four quadrants, the solutions presented in this section (3.2.2) are the least well studied in the literature reviewed.

SOCIAL AND BEHAVIOR CHANGE COMMUNICATION TO SHIFT NORMS

In addition to an enabling policy environment, ***shifting discriminatory norms is critical for achieving equality in rights to and governance of land and water, and reducing risks of backlash to women's increased resource rights.*** SBCC, which uses information, messaging and engagement strategies to influence individual attitudes and practices, can be an entry point for such normative change. In Rwanda, an SBCC campaign shifted men's support for daughters' equal inheritance from 71% to 91% acceptance over 10 months.[61] Similarly, in Liberia, use of portable audio devices ("Talking Books") to deliver messages on the 2018 Land Rights Law over two years significantly increased knowledge and acceptance of women's land rights in both law and practice.[62]

Effective SBCC interventions have combined accessible information with broader, long-term community engagement and supportive policies. In Rwanda, the SBCC campaign translated legal concepts into locally relevant narratives and stimulated community dialogue through radio dramas, talk shows and community cultural competitions that encouraged reflection on discriminatory land norms.[61] In Liberia, Talking Books were coupled with facilitated town hall discussions, fostering collective reflection on land governance and women's rights.[62] Similarly, in Tanzania, interactive broadcasts improved legal literacy while fostering dialogue on gender norms shaping land rights and inheritance. This strengthened men's support for women's land ownership, encouraged youth to challenge discriminatory inheritance practices and increased demand for legal tools, such as wills and joint land registration.[63] In Kosovo, a three-year SBCC campaign combining public outreach, community engagement and awareness-raising on women's equal property rights with legal reforms significantly increased the proportion of women initiating inheritance proceedings and reporting property inheritance.[64,65]

DIALOGIC APPROACHES TO SHIFT DISCRIMINATORY NORMS

Community-level dialogues can support critical reflection to shift discriminatory norms around land and water by addressing power imbalances within communities and their institutions. For instance, in India, women and men from different castes and social groups engaged in facilitated community dialogues on forest governance, resulting in more inclusive participation and collective action in community forest management.[66] In Uganda, adaptive collaborative management, which combines iterative cycles of action and dialogue-based collective reflection among local women, men and external stakeholders, enabled women to challenge restrictive tenure norms and strengthen claims over resources.[67] Across sub-Saharan Africa, FAO's Dimitra Clubs have created safe, inclusive spaces for dialogue among women, men, youth and community leaders, supporting normative change and strengthening women's access to and decision-making over land and water.[68,69] In Morocco, a forum theatre intervention engaged rural communities in participatory performances addressing women's land inheritance rights, economic autonomy and gender-based violence, and facilitated a dialogue with the audience to propose solutions and reflect on real-life scenarios, resulting in significantly more support for women's economic rights and more equitable inheritance practices.[70]

Women farmers in central Cameroon formed a cooperative to support one another and take advantage of a new road connecting them with larger markets. The cooperative provided new access to partners, finance, seeds, and the ability to commercialize their products.Photo: UN Women/Ryan Brown, CC BY-NC-ND 2.0

Research shows that successful norm change interventions, sometimes referred to as gender-transformative approaches, target collective beliefs rather than individual behavior alone; employ participatory and dialogic approaches; engage key reference groups and influential actors, including men, leaders and youth; are implemented over time to allow new behaviors to become socially accepted; and are reinforced by structural changes such as legal frameworks and economic opportunities.[71] In Uganda and Nigeria, community discussions on gender roles and unpaid care work led to men's increased engagement in water collection and other household chores.[72] In the Morocco case, forum theatre occurred in the context of ongoing legal reforms, which provided a formal basis to legitimize and reinforce women's rights alongside the simultaneous targeting of both knowledge and social norms.[70]

3.2.3. Solutions driving informal–individual/collective changes

While challenging discriminatory systems is critical for effecting and sustaining change, women as individuals and collectives must possess the skills and **agency** to successfully claim their rights and fully and effectively participate in governance. Solutions presented in this section focus on *capacity strengthening* and *group-based approaches* to enhance women's individual and collective **critical consciousness**, capacities, confidence and agency to strengthen rights and influence.

CAPACITY STRENGTHENING TO ENHANCE WOMEN'S VOICE AND AGENCY

Evidence prominently shows that capacity strengthening to enhance knowledge, skills, critical consciousness and agency is foundational for women's ability to claim resource rights and participate effectively in resource governance. In India, exposure to women role models had limited effects on its own, but when combined with participatory skills training that strengthened women's capacity to articulate their goals, it increased women's aspirations, self-efficacy, asset demands and knowledge.[73] Effects were strongest among older women and in villages where community decision-making was more open and less dominated by elites.[73] In Egypt, technical training on irrigation technologies, combined with institutional support, formal education and landownership, was linked to women's capacity to participate effectively in WUAs.[74] When surveyed, participants involved in multistakeholder platforms focused on land and water in Zambia considered that capacity development was the primary resource needed to enable local women's equitable participation.[75] Likewise, in Ghana, capacity strengthening was considered a foundation for establishing committees and tenancy agreements that together strengthened women's ability to claim their rights.[76]

Effective training has combined rights awareness with "soft" (e.g., leadership, public speaking, negotiation, goal articulation) and technical skills (e.g., technical understanding of forest management or water systems, legal literacy, understanding of governance processes), and has adopted experiential learning techniques. In Ghana, capacity strengthening on land rights and governance increased women's confidence and rights awareness, enabling them to claim larger plots from family heads.[76] In Nigeria, group-based training on rights awareness, collective efficacy and political engagement strengthened the level and quality of women's participation in community governance, economic and financial inclusion and local elites' responsiveness to women's needs.[77] Experiential learning techniques, such as visual and interactive training, roleplays and guided reflections, have built technical and soft skills that have enabled women to claim their rights (e.g., Sutz et al.,[76] Adida et al.[77]).

While focusing on women's capacities is key, inclusive engagement through training men, including husbands, traditional leaders and customary authorities who hold decision-making power, alongside women has been effective. In Ghana, Sutz et al.[76] indicate that including men and customary authorities in training, and positioning women and men as "partners in progress," were success factors for women's ability to claim their rights. In Kenya, community-wide information campaigns and legal training were linked to a significant increase in men's recognition of women's constitutional rights to land and a greater probability of women inheriting land.[78] Similarly, involving women and men in water management training has led to more gender-equitable access to and control over water resources.[6]

GROUP-BASED APPROACHES TO STRENGTHEN COLLECTIVE AGENCY AND ACTION

Women coming together as groups is one of the best documented pathways through which rural and Indigenous women secure, defend and expand their rights to land, forests and water. Group-based approaches can enhance women's empowerment in ways that directly and indirectly improve their access to and control over land. At the community level, a cross-country systematic review[79] shows that self-help groups positively impact women's economic empowerment (including women's ownership of assets and land) and social empowerment, with spillovers into political engagement (including women's legal rights to land) and rights awareness. Across sub-Saharan Africa, grassroots women's organizations have played a pivotal role in supporting and advocating for gender justice in relation to land and property by working within or influencing customary legal frameworks, helping women to access and navigate the court system, building women's knowledge of their resource rights and monitoring progress in women's land rights.[80,81]

A woman in Niger carries water pots for sale. Credit: ILRI/Stevie Mann, CC BY-NC-ND 2.0

By strengthening women's rights awareness and knowledge, confidence and individual and collective agency, groups can help women claim or protect their resource rights. Women's groups have helped widowed members defend themselves from land grabbing and have successfully petitioned chiefs to access land collectively,[82] and to protect such lands from private sector interests.[76] In some pastoral areas, women's councils enforce women's access and rights to land, particularly for the most **vulnerable** women.[83]

Collective organizing and advocacy can also provide leverage to further women's legal resource rights at higher levels of governance. Collective organizing enabled women to advance their land rights in 12 Latin American countries in the 1990s, building on legal reforms aligned with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and organized feminist movements.[84] Similarly, community-led resistance and advocacy by women's grassroots organizations in Chile challenged water privatization and led to policy reforms prioritizing water for subsistence, sanitation and ecosystem protection.[85,86] In India, the Self-Employed Women's Association (SEWA) mobilized grassroots women through village water committees to negotiate with public authorities for water for domestic use and irrigation.[87]

Group-based approaches also help women overcome barriers to accessing land and water, including structural constraints related to institutional recognition and access to complementary resources and services. As a group, women, including very poor women and widows, have been able to buy and lease land they could not otherwise access.[88] In India, women's farming collectives have leased larger plots, achieved productivity equal to or greater than individual farms and accessed formal credit otherwise unavailable to women.[89] In Zambia, cooperatives enabled women to access collective, irrigated lands and water technologies, such as solar-powered pumps.[90]

The effectiveness of these groups depends on the capacities of the women involved and of the groups and institutions themselves, as well as on enabling conditions. Women's rights awareness, knowledge and leadership and negotiation skills underpin their critical consciousness, capacities and confidence to claim their rights.[82] The presence of strong grassroots institutions,[76] the ability of such groups to unite across social (caste and other) differences and their continuous dialogue with the state have also been critical to the success of women's collective action (e.g., Panda[87]). Long-term financial resources, alliances and supportive collaborations, social accountability (holding duty bearers to account) and (customary and legal) instruments (at multiple levels) protecting women's rights are also needed to support the efforts of women's land rights organizations, networks and platforms[25] (see also Caron[82]). Sustained support from nongovernmental organizations and government programs has also been critical to assist women's groups with land identification, intermediation, technical support, coordination and access to complementary resources and services.[88,91] Finally, enabling conditions include the presence or creation of favorable gender norms and of men's allyship in support of women's initiatives, which has been reported to increase as women's groups demonstrate their achievements.[87,92,93]

Linking local women's groups with higher order associations, actors and processes (state, national, international) has been key for leveraging policy spaces and frameworks governing resource rights. Higher order associations or federations of women's groups have had the legitimacy and capacity to engage governments to strengthen women's access to water[87,94] and forests,[95] while promoting change in gender norms and women's participation in public spaces. Feminist movements articulated through women's groups have shown: (1) the importance of connecting grassroots organizing to national legislative advocacy, (2) the role that international instruments such as CEDAW can play in providing an enabling policy environment and (3) the influence women's movements can have over resource governance and policies at national and international levels.[84,86]

3.2.4. Solutions driving formal–individual/collective changes

A substantial body of research has focused on gender-responsive land and water technologies to advance gender equality in the formal–individual/collective sphere. In particular, water technologies are critical for enabling women to access water and use land productively. Below, we provide examples of effective *gender-responsive technologies and infrastructure* for enabling women to access water, as well as *gender-responsive financing* that allows women to individually and collectively access these technologies.

GENDER-RESPONSIVE TECHNOLOGIES AND INFRASTRUCTURE TO ENHANCE WOMEN'S ACCESS TO RESOURCES

Ample evidence substantiates that improved water sources and infrastructure, such as piped water, boreholes, water pans and pumps, are at the heart of women's ability to access quality water, particularly in the context of domestic water provisioning. A 2017 Oxfam survey in the Philippines, Uganda and Zimbabwe[96] found that a single intervention to improve water sources can reduce women's average unpaid care workload by one to four hours a day. In India, the construction of check dams that eased water extraction via wells and pumps reduced women's daily time spent collecting water by about 29%.[97] Access to electricity for water pumps, such as through affordable and easy-to-use solar pumps,[98] has further dramatically

reduced the time and drudgery required for women to collect water, and increased men's involvement in household water provisioning.[99] Small-scale irrigation technologies can also improve women's access to water, provided that enabling conditions are met (see *gender-responsive financing*).

Because women are often responsible for many types of water-related activities, ***multiple-use water systems (MUS), which include infrastructure and services for both domestic and productive water needs, align more closely with their daily water needs and livelihood strategies than single-purpose water infrastructure.***[100,101] In Nepal, community-led MUS have increased women's access to water for productive activities, reduced the time women spent on water collection and created opportunities for income generation from homestead-based enterprises.[99] MUS have also been associated with improvements in food security, women's and household income and women's empowerment.[101,102,103]

However, evidence from Ghana[104] and Nepal[105] highlights the importance of context, implementation quality and responsiveness to user demands and values, local practices and meanings for achieving positive outcomes. In Nepal, factors such as a woman's caste or land ownership significantly influenced whether women spent less time collecting water or improved their incomes through MUS.[105] MUS are most effective for women when implemented as part of a broader sociotechnical system that combines water infrastructure with supportive institutions, governance arrangements and capacity-building measures.[99,100] Access to water infrastructure alone does not automatically result in equitable benefits; women benefit most when they participate meaningfully in the planning, governance, operation and management of water systems and when water services are located close to homesteads, reducing time and labor burdens.[99,100] Positive outcomes for women also depend on access to complementary resources, such as land, productive assets, agricultural inputs, training, extension services and market opportunities.[106] Long-term effectiveness hinges on reliable operation and maintenance systems and governance arrangements that ensure water services remain functional and responsive to users' multiple needs over time.[100]

GENDER-RESPONSIVE FINANCING TO FACILITATE WOMEN'S ACCESS TO TECHNOLOGY FOR RESOURCE USE AND ACCESS

Gender-responsive financing systems that adapt financial products to women's economic realities can play a critical role in expanding women's access to technologies, including small-scale irrigation. Studies from South Asia and Africa show that irrigation subsidies and financing mechanisms disproportionately benefit wealthier men farmers, as women and socially excluded groups often lack collateral and access to information and formal credit markets.[107,108,109] Case studies from diverse contexts[110,111] show that targeted financing schemes can meaningfully improve women's access to irrigation technologies when they account for women's specific financial constraints, such as limited access to credit, irregular income streams and lack of collateral. Such schemes may be provided by public actors (e.g., governments and development agencies), private actors (e.g., financial institutions and irrigation technology providers) or **community-based organizations** (e.g., self-help groups and cooperatives).[110,111]

In addition to accounting for and accommodating women's specific needs and realities, inclusive financing mechanisms must include complementary interventions to address structural resource constraints and shift gender norms that ascribe irrigation technologies and related decisions to men.[108,112] Irrigation technologies are often perceived as "male" assets, limiting women's uptake and control even when financing is available.[113,114] Without safeguards, women may lose control over loans or irrigation assets due to household power dynamics, reducing incentives to invest in irrigation.[108,115,116]

Women dairy farmers participate in a session about women's and men's roles in livestock rearing, management and asset ownership. Photo credit: Akram Ali/CARE Bangladesh Strengthening the Dairy Value Chain (SDVC) project 2011, CC BY-NC-ND 2.0

3.3. PRIORITY ACTIONS

The evidence presented above shows that advancing gender equality in land and water rights and governance requires ***bundled solutions that address barriers across domains and levels of change***, from individual agency to systemic structures (see also Morgan et al.[117]). From a feminist political ecology perspective, inequalities are (re)produced through the interaction of policies, institutional arrangements and everyday social practices that determine who is recognized as a legitimate resource user or decision-maker. Through processes of **institutional bricolage**,[39,118] formal rules are mediated by, and often reinforce, informal norms and power relations. As a result, policies frequently reproduce gender biases embedded in patriarchal customs and tenure regimes, such that women's land rights lack adequate legal protections on a global scale.[21] Legal reform is therefore a critical priority for ensuring that women's land rights are safeguarded.

Yet, ***while legal reforms, gender-responsive financing and technologies are critical, they often fail to translate into equitable outcomes when social norms and power relations continue to privilege men's authority over resources.***[119,120] Effective approaches therefore combine interventions across formal institutions and informal norms, creating space for collective reflection, renegotiation of roles and more equitable decision-making. Moreover, strengthening women's rights awareness, capacities and agency and supporting women's groups and movements are pivotal to enabling women to claim their rights, participate in governance and sustain change.

Applying and scaling the above solutions is not simply a matter of replication or expansion. It requires confronting structural inequalities, such as patriarchal tenure systems, intersecting forms of marginalization and extractive development models, underpinning unequal resource governance. Since these social, political and institutional relations are deeply contextual, solutions must respond to local tenure arrangements, power dynamics and social norms rather than act as one-size-fits-all, standardized packages. Context-specific gender and tenure assessments can help guide the selection of appropriate combinations of technological, institutional and governance interventions in a given setting (e.g., see guidance in Jhaveri[121]). Without engaging these dynamics, scaling efforts risk expanding coverage while reproducing or even reinforcing existing inequities.[6,122]

Building on the evidence presented in this chapter, we outline priorities for research, policy, investment and practice. Critically, achieving and sustaining gender equality in water and land rights and governance requires centering grassroots women and their collectives within coordinated partnerships with governments, researchers, civil society, men and customary authorities, as well as funders, private sector actors, the media and others. In this way, and "with the requisite knowledge and confidence, women can become active agents for change, progressively working to claim more space in governance practices and in the community more broadly."[76](p38)

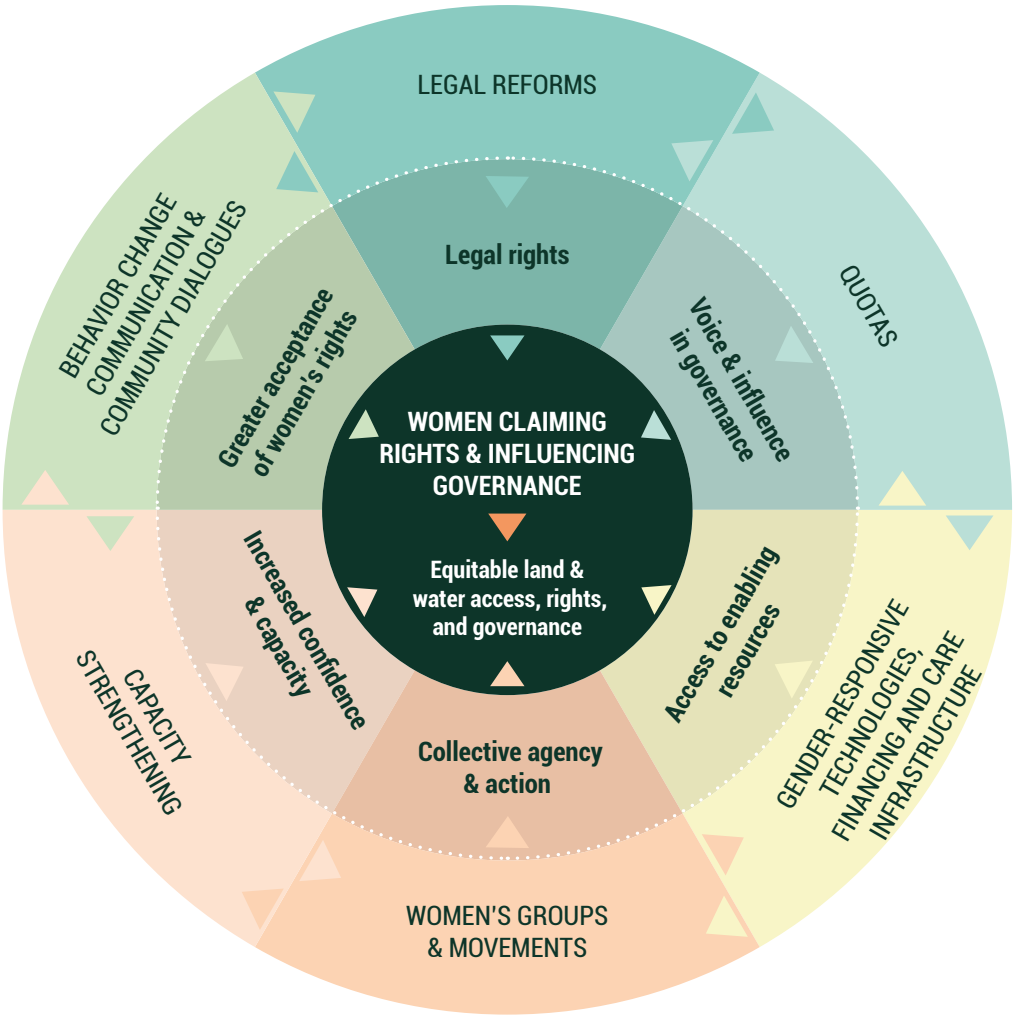

Figure 19. Advancing gender equality in land and water rights and governance requires bundled solutions

3.3.1. Research priorities: evidence that makes inequalities visible and guides transformative action

Several data gaps surfaced while researching this chapter. Overall, there was an insufficiency of studies taking a systems approach, and of data and analysis on how context influences the efficiency of solutions. Given the complexity of implementation contexts and interventions, especially when bundled, few studies clearly explained the relative contribution of specific parts of the intervention (among other factors) or of specific combinations to the outcomes. There was a lack of longitudinal studies to assess long-term effects, and geographic unevenness in the literature. Moreover, there was little attention to backlash and resistance to interventions (e.g., intrahousehold conflict, **elite capture** of women's groups), even though certain interventions directly challenged entrenched power relations over land and water. Finally, few studies explicitly engaged with **intersectionality**, and with how solutions are experienced by women and men in all their diversity. These gaps are also reflected in the chapter analysis.

Entry points:

- Conducting longitudinal studies and case studies to understand how integrated approaches work in practice and engage systems-level change and power dynamics.
- Assessing, using mixed methods, the outcomes and impacts of bundled interventions, such as approaches combining legal reform, capacity strengthening, collective action, gender-responsive delivery services and normative change.

- Understanding the contextual conditions that enable gender-equitable outcomes in resource rights and governance.
- Gathering and analyzing intersectional data on governance and tenure, capturing differences by gender, age, ethnicity, caste, marital status and other relevant factors of social differentiation to reveal compounding inequalities.
- Advancing action research on normative and institutional change, including participatory approaches that challenge and can be used to monitor changes in discriminatory norms and practices.
- Improving the geographic evenness of data with a focus on underrepresented regions, such as North Africa, and West and Central Asia.
- Fostering inclusive research systems, where **diverse forms of knowledge**, including grassroots and Indigenous knowledge, shape research agendas, methods and interpretations.

3.3.2. Policy priorities: policies that redistribute power, rights and resources

Because transformative change in FLWS governance is inherently political, change pathways must challenge dominant development paradigms and advance more justice-centered approaches to sustainability. Feminist agendas for natural resource governance offer action-oriented visions for more just, relational approaches to human-nature interactions and resource governance (e.g., La Via Campesina[123]).

Entry points:

- Adopting rights-based and feminist policy frameworks that advance gender equality, human rights and **social justice** and recognize care and collective well-being as central to sustainability.
- Strengthening legal protections for women's resource rights, such as through mandatory joint titling and inheritance rights, and establishing women's rights within collective tenure arrangements, alongside safeguards for effective implementation.
- Promoting policy coherence across gender, land, water and related (agriculture, climate, environment) policies, and embedding gender equality targets and accountability mechanisms within land, water and natural resource governance reforms.
- Strengthening "care infrastructure" and equitable access to technologies and financing that reduce women's unpaid water-related care burdens, enable their productive use of land and water through irrigation and other relevant technologies and enhance household water security.
- Establishing meaningful quotas for women with attention to intersectionality in land and water decision-making bodies at all levels of governance and ensuring that these institutions hold real authority and that quotas are paired with capacity strengthening.
- Supporting women's grassroots organizations and movements, including their access to policy spaces.
- Strengthening policy monitoring and evaluation, including participatory approaches to monitoring and learning, to ensure that policies are meeting their gender goals.
- Complementing legal reforms with measures to strengthen the enabling environment for their successful and sustained implementation.

A palm oil vendor at the weekly Yanonge market, Tshopo, DRC.
Photo: Axel Fassio/CIFOR, CC BY-NC-ND 2.0

3.3.3. Investment priorities: financing integrated and transformative change

Achieving transformative change requires sustained investments in coordinated approaches to address overlapping barriers to women's land and water rights and governance.

Entry points:

- Financing long-term, integrated programs that combine legal and institutional reforms, gender-responsive resource (technologies, finance) delivery, capacity strengthening, collective action and normative change.
- Providing sustained, flexible funding to grassroots women's organizations, federations and social movements, including those representing marginalized groups, recognizing their central role in advocacy and social change.
- Expanding investment in gender-responsive financing, technologies and services that strengthen women's access to land and water for diverse livelihood strategies.
- Investing in participatory approaches that strengthen women's leadership, collective agency and decision-making to support context-specific solutions.
- Investing in the research agenda outlined above to strengthen evidence-based decision-making on women's land and water rights.

3.3.4. Practitioner priorities: supporting integrated and locally led action

Practitioners play a critical role in translating policies and investments into meaningful change on the ground. Practitioners should partner across sectors and **scales** to implement coordinated, context-specific approaches that strengthen women's agency and collective action while addressing institutional and normative barriers.

Entry points:

- Delivering bundled interventions that combine capacity strengthening, access to resources and services, collective action and social norms change.
- Strengthening women's individual and collective rights awareness, leadership, negotiation skills and agency.
- Supporting women's collective action, including through women's groups, **community institutions** and high-order associations.
- Engaging customary authorities, local governments, men and boys as partners in promoting gender-equitable land and water rights and governance.
- Facilitating SBCC and dialogic approaches, including community radio and participatory theatre, to translate legal rights into locally meaningful messages, stimulate community dialogue and reflection and foster normative change.
- Building partnerships across government, civil society, community organizations and the private sector to support coordinated implementation.

The polycrisis raises the urgency of addressing justice in resource governance to achieve equitable, sustainable FLWS. Meeting this challenge requires integrated approaches that place women and their organizations at the center of transformation to address the discriminatory norms, institutions, policies and power relations that perpetuate exclusion.

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