

REVIEW ARTICLE

Gender and ecological restoration: time to connect the dots

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Although the human dimension of ecological restoration has increasingly been recognized in recent years, the gender dimension thereof remains largely unexplored. This article aims to fill this gap in the literature by providing an overview of the current knowledge on gender and ecological restoration. Our analysis of selected academic literature on ecological restoration revealed that scholars have only marginally addressed gender issues in their publications. However, in restoration practice, various initiatives that highlight the importance of including a women's rights and gender perspective can be found. These initiatives seem to indicate that applying a gender approach to restoration practice creates a double benefit. First, integrating gender considerations into restoration efforts is desirable from a human rights and gender equality perspective. Second, different case studies suggest that integrating gender considerations can promote the efficiency and effectiveness of restoration work. Integrating a social and gender dimension into restoration policy and practice should therefore be recommended. This integration process can learn from a wide range of literature on gender and the environment, and from existing practices of gender mainstreaming in this field. Furthermore, international law provides useful policy intentions on gender and restoration that could be used as entry points. To conclude, this article summarizes the main challenges for "connecting the dots" between gender and ecological restoration and formulates some recommendations for the Society for Ecological Restoration.

Key words: gender issues, human dimension, international environmental law, restoration practice, SER, women's rights

Implications for Practice

- Restoration efforts should not be assumed to be gender neutral. All restoration projects or initiatives, whether new ones or existing ones, should be screened for possible gender-differentiated impacts.
- Active involvement of both men and women at various levels in restoration efforts is needed. This process could be guided by capacity building, by enabling conditions for participation and/or involvement, and by using quotas.
- Researchers, practitioners, and policymakers should collaborate in order to raise awareness about the link between gender and ecological restoration.
- A gender perspective should be incorporated into the SER guidelines.

Introduction

Ecological restoration has been defined as "the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed" (Society for Ecological Restoration (SER) 2004). Although this process focuses mainly on restoration of ecosystems, close attention should be paid to the interaction with human "systems." This interaction can be approached from two angles. First, people, as individuals or communities, play a crucial role in ecological restoration initiatives, as they are innately part of restoration projects as experts, volunteers, or inhabitants of/near a project area. Second, people can also be

heavily affected by the results of restoration projects (Egan et al. 2011). Consequently, good ecological restoration practice needs to take the human dimension of ecological restoration into account. This article aims to further explore the human dimension of ecological restoration by focusing on one specific aspect thereof, namely the gender dimension. Contrary to the human dimension, which has been recognized in the vast literature on ecological restoration (e.g. Perrow & Davy 2002; Comín 2010; Andel & Aronson 2012), the gender dimension seems to have been largely overlooked and/or neglected. The term "overlooked" suggests that it might have been simply forgotten, whereas the term "neglected" suggests that gender issues have deliberately not been taken into consideration. However, as gender equality and women's empowerment have been recognized as important prerequisites for environmental conservation and sustainable development (UN 2012), a critical examination of the link between gender and ecological restoration is urgently needed. This article is a first attempt to connect the dots between gender and restoration. To set the scene, we will first provide

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an overview of the gender dimension of environmental issues by highlighting the different approaches that have been taken. Thereafter, we will analyze whether, and to what extent, this gender dimension has been considered in both the theory and practice of ecological restoration. Furthermore, we will discuss the role of international environmental law and policy in integrating a gender dimension into ecological restoration. To conclude, we will summarize the challenges facing the integration of a gender dimension into ecological restoration and suggest a number of possible ways forward.

The Gender Dimension of Environmental Issues

The gender dimension of environmental issues has increasingly been explored in both scientific and nonscientific literatures. During the last few years, different environmental issues, such as biodiversity loss, climate change, energy and water, and desertification, have been explored through a gender lens (e.g. UNEP 2004; Dankelman 2010; UNEP 2012). As a result, a wide range of gender issues have been uncovered. To fully understand these issues, the concept of “gender” has to be clarified. Gender refers to the socially constructed roles, behaviors, activities, and attributes that a particular society at a given time and place considers appropriate for men and women and to the relationships between them (OSAGI 2001). In most societies, there are significant differences between women and men with regard to their (household) roles and responsibilities, daily activities, access to and control over (natural) resources, and decision-making opportunities. These differences can lead to gender inequality and pervasive gender-based discrimination in almost all spheres of life. Therefore, incorporating a gender perspective into our understanding of environmental issues is essential.

Over the years, the gender dimension of environmental problems has been approached in different ways. A noticeable difference exists between the earlier and later approaches to explore and tackle this gender dimension. Although the term “gender” does not equal “women” or “sex,” the early approaches focused almost exclusively on the relationship between women and the environment (Dankelman & Davidson 1988; Sontheimer 1991). Initially, this resulted in a strong concern for women’s vulnerability to environmental degradation. Examples include women’s increase in workload as a result of resource scarcity (e.g. food, fodder, and water) and women’s special vulnerability in the event of natural disasters. However, it soon became clear that there was a need to move beyond the mere categorization of women as victims. Consequently, the focus widened to the idea of “women as agents of change” in dealing with environmental problems. This approach highlighted not only women’s knowledge on environmental sustainability and environmental management but also their involvement in setting up environmental initiatives (e.g. projects on forest conservation, reforestation, or clean energy). However, when exploring the active roles undertaken by women, it has become apparent that many barriers for women’s involvement and participation still exist. This led to increased attention for participatory issues, including the need

for women’s full, equal, and effective participation, and representation in environmental decision-making, and for securing equal opportunities in leadership roles at all levels.

Although a specific focus on women’s needs and vulnerabilities in the context of environmental degradation remains critical, a broader approach, taking the wider gender dimension of environmental problems into account, has become essential. To discover the reasons behind women’s vulnerability to environmental degradation and to really understand their crucial role as agents of change, the multiple dimensions of gender inequality need to be considered. In this regard, it is vital to look at underlying societal structures, existing inequalities and power imbalances between men and women; for example, looking at the legal or practical barriers in relation to land rights that often prevent women from owning, accessing, or controlling land (FAO 2005). Without taking into account these structural issues, our responses to environmental problems will remain superficial and ineffective. In some cases, they may even intensify existing inequalities (BRIDGE 2011). In the forestry sector, for example, market-based mechanisms without relevant safeguards such as REDD+ risk to undermine local livelihoods and to exacerbate existing inequalities, including gender inequality (WEDO-SES 2013). Furthermore, a broader gender-specific approach would provide a clear entry point to tackle the often assumed homogeneity of women as a group. Although women do share common experiences in the face of environmental degradation, social differentiators such as age, class, ethnicity, religion, education, and others are equally important to consider.

As gender equality is not only a human right but also catalytic to environmental progress, it has become well established, at least in theory, that a gender dimension should be integrated into environmental policies, strategies, and action plans (e.g. UNEP 2012). In the following sections, we will discuss how the gender dimension plays out, specifically in relation to ecological restoration.

Gender in the Theory and Practice of Ecological Restoration

As highlighted in the previous section, gender equality and women’s empowerment should be part and parcel of all efforts to tackle environmental problems at different levels. This should include all efforts to recover ecosystems that have been degraded, damaged, or destroyed. However, in this regard, two important questions need to be addressed. First, what are the exact linkages between gender and ecological restoration? And second, what would a gender-specific approach contribute to the efficiency and effectiveness of restoration work? For this purpose, we conducted a review of both theory and practice on ecological restoration.

Our review of specific, academic literature on ecological restoration clearly showed that, to date, gender issues have only been marginally addressed. Recent handbooks on ecological restoration either have no references to gender issues (e.g. Allison 2012) or only make a single mention of “women” (e.g. Perrow & Davy 2002; Comín 2010; Andel & Aronson

2012; Clewell & Aronson 2013). The scarce references to “gender” issues that can be found in this literature are limited to mentioning women as “participants” in specific ecological restoration initiatives (see Perrow & Davy 2002, p 66; Comín 2010, p 264; Clewell & Aronson 2013, p 66). Even in Egan et al.’s (2011) handbook on the human dimensions of ecological restoration, “gender” references are limited to mentioning the participation of women in one or two specific restoration projects without going into further detail. This gap in selected, scientific literature on ecological restoration, however, does not necessarily imply that the gender dimension is not taken into consideration in restoration practice.

To find out whether and to what extent the gender dimension has been considered in restoration initiatives, we screened and analyzed existing case studies of ecological restoration projects for references to the terms “women” or “gender.” We collected these case studies through an analysis of specific literature both on ecological restoration and on gender and the environment in general. Furthermore, we searched for restoration projects listed in the Global Restoration Network (GRN) Database and those mentioned on the website of the International Union for Conservation of Nature (IUCN). Our search only resulted in a limited number of restoration projects that address certain aspects of the gender dimension of ecological restoration. Therefore, it is impossible to draw any general conclusions from these case studies. However, they do offer useful, first insights into the connection between gender and ecological restoration and how gender can be integrated into restoration projects. As such, we have chosen to briefly summarize some of these case studies. These restoration projects could be grouped into two categories: (1) projects that highlight the participatory aspects of the gender dimension and (2) projects that move beyond these participatory aspects to address the wider gender dimension. Under each category, some examples will be discussed.

Participatory Aspects of the Gender Dimension

In this category, we found different projects that highlight the active role that individual women or women’s organizations play in the restoration of their environments. One of the most well-known examples is the Green Belt Movement founded by Wangari Maathai, which started as a tree planting initiative by women to restore their degraded environments and has grown into a wider movement for human rights, gender equality, and democracy (Green Belt Movement 2014). In addition, less well-known examples of women or women’s organizations setting up local ecological restoration projects were found, such as women’s groups that try to restore drylands (IFAD 2010). A number of case studies that appear online in the GRN highlight the role of women and women’s organizations in the setup and management of ecological restoration projects. The *Ker Cupaam Community Space Project in Senegal*, for example, was strongly based on women’s involvement in the restoration process. Local women, wanting to restore their degraded environment, joined hands by establishing women’s groups to undertake a number of successful restoration activities (GRN, Senegal 1987). In another restoration project for

the *Rehabilitation of Semi-Arid Lands in the Ukambani Region in Kenya*, small-scale nurseries were set up as one of the main project activities. Of these nurseries, 70% were managed by women and the remaining 30% were managed by mixed men/women groups, which highlighted the importance of joint involvement of men and women in restoration project activities (GRN, Kenya 1985). A case study focusing on the restoration of an urban dump site in Cuba, *Restoring the Isleta dump*, provides a good example of the need for equal labor opportunities for men and women in restoration projects. An even number of men and women were employed to run the project’s nurseries, process waste, and recycle usable materials (GRN, Cuba 2000). Furthermore, two other case studies used quotas to involve women in restoration projects. The *Andhra Pradesh Forestry Project in India* wanted to introduce people’s participation in the protection and management of degraded forests. Under the joint forest management (JFM) approach, important forest resources were restored and jointly managed between the Forestry Department and grassroots village organizations or Vana Samrakshna Samithi (VSS). Each VSS was instructed to elect a managing committee consisting of (at least) 30% women (GRN, India 1994). In the *Attappady Wasteland Comprehensive Environmental Conservation Project in India*, restoration activities were implemented by using a participatory approach, which ensured involvement of women in the preparation and implementation of project activities through the use of quotas in user associations, tribal hamlets, and joint forestry management committees (GRN, India 1996). These two projects clearly highlight the importance of using a participatory and community-based approach to ecological restoration. However, at the same time, it should be recognized that some of these approaches, in particular the JFM approach, have been criticized for different reasons. Research in South Asia, for example, has shown that the JFM tends to undermine local institutions for forest management (Edmunds & Wollenberg 2003), and is often less inclusive of women in forest management (Agarwal 2001).

Outside the GRN, a number of other relevant case studies can be found. The first one is a *study on participatory approaches to ecological restoration in Hidalgo, Mexico*. Prior to the start of the restoration project, the state of degradation, its causes, and possible solutions were evaluated through regional and local community workshops. At these workshops, the participants were 59% male and 41% female. According to the study, the participation of men and women in the workshops might have been influenced by power relationships as well as by emigration problems in the region (Montagnini et al. 2008). In several cases, women participated in the workshops because of their own interest in restoration. In other cases, their participation was influenced by the fact that their husbands were away. The use of participatory methods in this case study not only led to a broader understanding of the relationship between the rural communities and the degradation of forested ecosystems but also uncovered different reasons for women’s participation. Another example is a *case study of the restoration of a High Andean Cloud Forest*. The primary results of the study suggest that decisions made by men on land use and restoration will be critical in defining whether and how families are to be involved

in restoration activities. According to this study, this is closely related to the fact that men and women have different roles in the household and the community (Báez et al. 2010). Hence, these different roles will need to be taken into consideration when developing strategies for ecological restoration. Furthermore, women's involvement in restoration initiatives also depends on capacity building. In a case study about mangrove restoration on Costa Rica's Chirra Island, for example, a women's collective received environmental training in mangrove management. This training enabled them to become close observers of environmental management on their island and to scale up their restoration activities (IUCN 2014).

Moving Beyond Participatory Aspects of the Gender Dimension

A second set of ecological restoration projects move beyond the participatory aspects to address the wider gender dimension. One of the most comprehensive projects in this regard is IUCN's *Azraq Oasis Restoration Project in Jordan*. The Azraq Oasis is a unique ecosystem located in a fragile environment that has been designated as a Ramsar site. From the outset, attention was paid to the possible gender dimension of this restoration project (IUCN 2008). According to the project outline, a gender analysis involves the assessment of three aspects: the distribution of tasks, activities, and rewards associated with the division of labor at a particular locality or across a region; the relative positions of women and men in terms of representation and influence; and the benefits and disincentives associated with the allocation of tasks to women and men. This analysis has been conducted throughout the Azraq Oasis restoration process. During the stakeholder analysis, the Arab Women Organization (AWO) was identified as one of the key non-governmental organization (NGO) stakeholders in the restoration process. As a result, this organization was closely involved in both the preparatory and implementation stages. The AWO executed a socioeconomic baseline study to obtain information about the pilot project's target groups before the implementation of project activities (IUCN/AWO 2010). The study revealed a number of gender issues such as women's involvement and participation in the local community, the exercise of their rights and interests of others in the community, women's willingness to introduce new ideas to enhance living standards, and the importance of women's participation in the field of awareness raising and encouraging the change of attitudes and practices. Consequently, these gender issues were taken into consideration when implementing the restoration project activities. Furthermore, this project also provides an interesting example of how international law can guide the integration of a gender dimension into ecological restoration practice. The Convention on the Elimination of Discrimination against Women (CEDAW) was used by the AWO to guide the implementation of the restoration project. According to article 14 of CEDAW, parties shall take all appropriate measures to eliminate discrimination against women in rural areas in order to ensure that they participate in and benefit from rural development. In this regard, the article calls upon parties to ensure women the right to participate in development planning, to have access to healthcare services, to benefit

from social security, to obtain training and education, and so on (CEDAW 1979). Based on this article, the AWO launched the *Monitoring CEDAW implementation* project for restoring the Azraq Oasis. The project tested practical approaches and mechanisms to ensure that all stakeholders, including women, were involved in the decision-making process on water resources management. The project was highly successful in terms of participation as it convinced the local community of the necessity of women's involvement in the planning and decision-making process and highlighted the crucial role women play in the community. After the implementation of the project, a significant change emerged in the behaviors and tendencies of the local community, such as the acceptance and support of women's roles. Furthermore, the project was also quite successful from a restoration perspective. Although many ecological challenges remain for the Azraq Oasis, including prolonged droughts and salinization, the project has contributed to the improvement of the threatened ecosystem in that area and to the livelihood and environment of the local community (IUCN 2011).

The above-mentioned restoration projects clearly highlight the importance of recognizing the participatory aspects of the gender dimension. They show that women and women's groups have been active participants in different restoration initiatives. In addition, they provide some examples of how to ensure full and effective participation in restoration projects and point out the possible barriers for women's involvement. Furthermore, some of these case studies emphasize the importance of understanding the different roles, rights, and responsibilities of men and women in order to conduct an efficient and effective restoration project. Integrating gender into restoration projects could also help to uncover underlying social and structural inequalities and power imbalances between men and women. These case studies also seem to indicate that women's (active) involvement would lead to more successful restoration activities.

However, women's full, equal, and effective participation in future restoration initiatives does not provide a silver bullet for efficient and effective restoration efforts. In the end, guaranteeing women's participation in itself will not be enough. The *Azraq Oasis Restoration Project* demonstrated that a comprehensive gender analysis needs to take place throughout the restoration process, not only to ensure women's involvement but also to uncover existing social and gender inequalities in the affected regions or project sites. Furthermore, a transition toward more equal policymaking and decision-making on ecological restoration and environmental management in general will be crucial.

Unfortunately, the large majority of ecological restoration projects today are still completely gender blind, meaning that they do not consider gender to be an important factor in restoration practice. As a result, gender issues are often overlooked and/or neglected in restoration practice. Our review of specific ecological restoration practice has shown that projects that do integrate a gender dimension remain the exception rather than the rule. However, the projects mentioned above clearly indicate that a gender dimension could and should be integrated into restoration practice.

However, additional research is needed to further map the linkages between gender and ecological restoration and to understand what the integration of gender consideration can offer to the effectiveness of restoration efforts. In this regard, lessons can be learned from a wider range of literature on gender and the environment. From the literature on gender and forests, for example, it is clear that important differences exist between men's and women's perspectives on and approaches to using forest resources for the well-being of their households and communities. Taking a gender perspective would help to ensure that these resources are used sustainably and equitably. IUCN and WEDO therefore conclude that "the institutionalization of gender equity in the current and projected practices of forestry may help improve both the socioeconomic conditions of women and the effectiveness of natural resources management" (IUCN/WEDO 2011). Interesting lessons can also be learned from the area of water management. The differences and inequalities between women and men, for example, will influence how individuals respond to changes in water management. Understanding societal structures, existing inequalities, and power imbalances between men and women can help explain the choices people make. Involving both women and men in integrated water resources initiatives can also increase project effectiveness and efficiency (UN 2014).

Gender and Ecological Restoration in Law and Policy

International law and policy can be a valuable, and probably indispensable, ingredient in a larger toolbox for integrating gender considerations into restoration efforts. Although international law and policy does not provide a panacea for integrating gender into restoration efforts, it can offer useful policy intentions in this regard. The *Azraq Oasis Restoration Project* showed that international human rights law devoted to women's rights and gender equality can play a guiding role in the process of integrating a gender dimension into ecological restoration practice. However, not only international human rights law but also international environmental law and policy, relevant for ecological restoration, could guide this process. In this section, the international environmental instruments most relevant for ecological restoration practice will be discussed.

The Convention on Biological Diversity

From the outset, the Convention on Biological Diversity (CBD) (1992) recognized the relevance of women's empowerment for the realization of its main goals. Its preambular paragraph 13, which highlighted the vital role of women in biodiversity conservation and affirmed the need for their full participation, provided a strong mandate for the CBD secretariat and the parties to continued working on women's/gender issues. Initially, this "mandate" only led to the integration of women's issues and gender considerations into the CBD's existing programs and strategies (Broeckhoven 2014). Since 2008, however, the CBD has adopted a more comprehensive and scaled-up approach to gender issues through the elaboration of a gender plan of action

(CBD 2008). Recently, the parties to the CBD also started to pay attention to the gender dimension of ecological restoration. In this regard, the 10th and 11th meetings of the conferences of the parties (COP) to the CBD have been critical. During the 10th meeting, parties adopted the strategic plan for biodiversity 2011–2020 (CBD 2010). The purpose of this plan was to promote the effective implementation of the convention through a strategic approach, encompassing a shared vision, a mission, and strategic goals and targets (the Aichi Biodiversity Targets) that would inspire broad-based action by all parties and stakeholders. Two of these targets specifically referred to restoration. Target 15 stated that the ecosystem resilience and the contribution of biodiversity to carbon stock should be enhanced by 2020, through conservation and restoration, including restoration of at least 15% of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification. Target 14 specified that "by 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities and the poor and vulnerable." This target provided the first mention, within the context of the CBD, of the importance of women's needs when restoring ecosystems. This recognition has been reiterated during the 11th CBD COP meeting in a decision on ecosystem restoration (CBD 2012). This decision emphasized that the CBD's strategic plan and its Aichi Biodiversity Targets provide the overall framework of the convention until 2020 and should guide the future work of all the CBD's cross-cutting issues and thematic areas. The decision urged parties to make concerted efforts to achieve these targets through a range of activities that included "identifying opportunities to link poverty eradication and ecosystem restoration ... through the rehabilitation or restoration of ecosystems that provide services upon which women ... are directly dependent."

The two explicit mentions of gender issues, in the Aichi Biodiversity Targets and the COP decision on ecosystem restoration, focus only on women's needs and vulnerabilities and not on the wider gender dimension of ecological restoration. However, as the CBD has adopted a comprehensive gender plan of action, gender should be mainstreamed into all programs of work under the convention. As such, gender mainstreaming efforts should become part and parcel of all policies and programs on ecosystem restoration. In that regard, international biodiversity law and policy could guide the integration of a gender dimension into ecological restoration practice. At the moment, the gender plan of action is being updated to 2020. With regard to Aichi target 14, the draft version of the updated plan states the following: "There are gender differences in exposure to disturbances and reliance upon natural resources." It seems that Aichi target 14 is seen broader than only "taking into account the needs of women," as it is literally put in the text of target 14 (CBD 2014).

The Convention to Combat Desertification

Another instrument that is highly relevant for ecological restoration is the United Nations Convention to Combat

Desertification (UNCCD 1994). Similar to the CBD, the UNCCD recognizes the vital role of women and the importance of ensuring effective participation of both men and women for the realization of its main goals. As a result, a number of references to women's participation in efforts to combat desertification, including policymaking, decision-making, and implementation, can be found throughout the convention text. Although initially the UNCCD focused primarily on participatory barriers for women, it has since widened its approach to include the broader gender dimension of desertification through the adoption of a comprehensive advocacy policy framework (APF) on gender (UNCCD 2011). This framework came in response to global commitments on gender equality and women's empowerment and is a reflection of increased awareness that gender equality is an important prerequisite for promoting sustainable development in drylands. The APF on gender recognizes that gender mainstreaming has to take place at different levels and has to involve multiple stakeholders, in particular women. As a result of this comprehensive APF on gender, all policies, programs, and projects on dryland restoration should integrate a gender dimension.

The Ramsar Convention on Wetlands

A final international environmental instrument with great relevance for ecological restoration is the Ramsar convention on wetlands (Ramsar 1971). Although the Ramsar convention itself contains no references to women or gender, gender language has slowly started to make its way into decisions of the COP to Ramsar. A first reference to women's issues in the context of Ramsar can be found in the guidelines for establishing and strengthening local communities' and indigenous people's participation in the management of wetlands (Ramsar 1999). These guidelines highlight that all sectors of the population, especially the women and the youth of the community, should be involved in participatory processes. Furthermore, women's groups, among others, were mentioned as organizational structures that facilitate local and indigenous people's involvement. A second reference can be found in a 2012 COP resolution on wetlands and health (Ramsar 2012a). In its annex 1, the resolution discusses the possible contribution of wise use and wetland management to achieving the millennium development goals (MDGs). With regard to the third MDG on promoting gender equality and empowering women, the annex states that addressing degradation in wetlands will contribute to the health of women and girls. The annex also recognizes that improved wetland management should involve women and girls in a meaningful way. Unfortunately, the resolution does not provide clear mechanisms for women's increased involvement. An indirect reference can also be found in an appendix to the Ramsar strategic plan 2009–2015 (Ramsar 2008). In this plan, parties address the fact that Ramsar strategies contribute to the delivery of aspects of several Aichi Biodiversity Targets. As such, target 14 is also mentioned. Unfortunately, the appendix does not provide a clear indication of how the Ramsar strategies

could contribute to the needs of women, which are mentioned in this specific Aichi target.

The examples mentioned above clearly show that women and gender issues are discussed as a side issue rather than a cross-cutting issue within the framework of the Ramsar convention. However, there are signs that parties to the Ramsar convention increasingly start to see the importance of taking gender issues into account. For example, during the last COP meeting, Peru recommended targeting specific CEPA (communication, education, participation, and awareness) efforts toward older women in indigenous communities as it was often these women who played a key role (Ramsar 2012b). Although this recommendation did not end up in a COP resolution, it is an indication of parties growing awareness on gender issues. As shown in the case study of the *Azraq Oasis Restoration Project*, integrating gender considerations at every stage of a wetland restoration project can be highly beneficial, not only for the outcome of the project itself but also for the inhabitants of/near a project area. Moreover, the case study highlighted some concrete tools (e.g. gender analysis) that can be used in this regard. The Ramsar convention and its subsequent COP decisions could further guide this process.

To operationalize international policy intentions on gender and environment, an extensive set of tools and methodologies have been developed by specialized UN agencies (e.g. FAO and UNEP), by international organizations (e.g. IUCN), and by NGOs (e.g. WEDO). Although these are not specifically developed to integrate gender considerations into restoration policy and practice, they can serve as a concrete basis for further research.

Challenges and Ways Forward

Over the years, awareness and recognition of the gender dimension of environmental issues have grown significantly. Different case studies, mentioned in the previous sections, have indicated that ecological restoration is not gender neutral. They seem to imply that integrating gender considerations into restoration practice requires us to start asking more gender-sensitive questions and to make changes to the way restoration initiatives are set up, executed, and evaluated. However, many challenges still lie ahead for gender considerations to be fully integrated into ecological restoration efforts. In this last section, we will discuss the main challenges and suggest a number of possible ways forward.

Recently, both the CBD and the UNCCD adopted a comprehensive gender action plan. These plans require the mainstreaming of gender issues in all programs and policies under the respective conventions. As such, they provide a strong basis for the integration of a gender dimension into the ecological restoration process. However, the implementation of the policy objectives on gender, which are made in the convention texts and in the action plans, is still lagging behind. Moreover, the gender dimension of ecological restoration and the benefits of mainstreaming gender in ecological restoration remain underexplored. As a result, a number of key steps need to be taken.

- (1) The gender aspects related to ecological restoration need to be further explored, documented, and recognized as soon as possible. This includes the collection of gender-disaggregated data and raising awareness among restoration practitioners and policymakers on the relevance of a gender-specific approach to ecological restoration. Initiatives such as the IUCN case study series on gender and restoration provide a useful platform for dialogue and exchange of good practice in this area. This recent IUCN blog series has the goal to collect ideas and perspectives on how to advance restoration by incorporating women and men into the process and to ensure that women and men benefit equally from the restoration of degraded land (IUCN 2014). In addition, existing practices of gender mainstreaming in environmental policies, strategies, action plans, and practices can be excellent tools to operationalize a gender approach to ecological restoration.
- (2) Specific references to the link between gender and ecological restoration need to be included in international environmental instruments relevant to ecological restoration. These references should be as concrete, strong, and comprehensive as possible and not limited to one aspect of the gender dimension such as participatory issues.
- (3) Mechanisms for monitoring and reporting of the gender commitments need to be put in place. The indicators provided in the CBD and UNCCD's gender action plans can serve as an example.
- (4) In terms of implementation of the above-mentioned policy intentions on gender and restoration, national action plans, such as the national biodiversity strategies and action plans (NBSAPs), can be useful instruments. Therefore, it will be critical to mainstream gender considerations in the development and implementation of national action plans.
- (5) A gender-specific approach should be promoted in all restoration-related initiatives from the start. These initiatives include, for example, climate change adaptation and mitigation efforts with a clear ecological restoration dimension (e.g. mangrove or forest restoration).
- (6) Human rights instruments can be used and applied as a legal basis for better involvement of women in restoration practice and for addressing underlying social and gender inequalities. The *Azraq Oasis Restoration Project* has shown the merits of using rights-based approaches to restoration. Only the inclusion of a gender dimension will ensure that ecological restoration efforts respect women's human rights and gender equality.

The authors also wish to make a number of recommendations to the SER. At the moment, the SER foundation documents do not pay attention to gender issues. The SER international primer on ecological restoration recognizes the interaction between human activities and ecosystems (SER 2004). It also notes that ecological restoration may depend upon long-term participation of local people. However, no mention is made of the need for women's involvement and participation in ecological restoration processes. The primer also fails to pay attention to the wider gender dimension of ecological restoration such as underlying

social and gender inequalities, which could either be remedied or worsened through the execution of ecological restoration projects. The SER guidelines for developing and managing ecological restoration projects also lack a gender perspective (SER 2005). Although they highlight the importance of public participation and stakeholder participation on numerous occasions, the guidelines remain completely gender blind. To remedy this shortcoming, a number of steps are suggested.

- (1) SER could play an important role in awareness raising and in the education and training of practitioners, policymakers, stakeholders, and the broader public on the importance of including a gender dimension in every stage of the ecological restoration process.
- (2) SER could actively engage in the process of integrating a gender dimension into ecological restoration policy and practice by reviewing or supplementing its primer and guidelines to include references to gender. In this regard, IUCN's manual on ecological restoration for protected areas can be taken as an example (IUCN 2012). In the manual, it is argued that ecological restoration needs to take into account impacts on local livelihoods. Gender-specific issues and opportunities for labor are deemed important determinants for local acceptability of restoration activities. The manual further states that it is important to recognize that restoration has potential social and cultural impacts, including gender-related impacts, both positive and negative that need to be identified and addressed early in the planning process. This is an "essential" step in the restoration process for protected areas.

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