

# **Intersectional inequalities to consider in action to address environmental degradation**

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## About the report

This scoping paper was written to inform and enhance the focus and research direction for the Reversing Environmental Degradation in Africa and Asia (REDAA) programme. It was commissioned by The Economic and Social Research Council (ESRC). Summaries of all the scoping papers can be found at [www.redaa.org/scoping-studies](http://www.redaa.org/scoping-studies).



## About the REDAA programme

REDAA is a programme that catalyses research, innovation and action at local, national and regional levels across Africa and Asia through a series of grant calls. Funded projects are interdisciplinary, often locally led and focus on solutions for ecosystem restoration and wildlife protection, enabling people and nature to thrive together in times of climate, resource and fiscal insecurity.

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# 1. Introduction

International climate, biodiversity and sustainable development initiatives are coming together around a high-level multilateral agenda to avoid, reduce and reverse global land degradation. An accompanying narrative around sustainable development supports this agenda with the multiple social, economic and cultural co-benefits that interventions can bring for local communities (IPBES, 2019; Schreckenberg et al., 2018). However, synergies between biodiversity and land degradation goals, and reducing gender and intersectional inequalities cannot be presumed, they must be created and nurtured (Elias et al., 2021a; 2021b). Ecosystem services research rooted in natural sciences generally gives little emphasis to the complex social dynamics that accompany interventions for environmental change, and deep analysis of social inequalities is rare. There is an urgent need to build from an extensive and nuanced feminist environmental social science evidence base to undertake this task (MacGregor, 2017; Lau, 2020).

An important step is understanding the factors underlying the diverse, uneven and often gendered responses across and within local communities to environmental degradation and to interventions aimed at its reversal (Rocheleau et al., 1993; Krishna, 2004; Resurrección and Elmhirst, 2008; Resurrección, 2013; Leach, 2015; Baynes et al., 2016; Colfer et al., 2016). A focus on gender equality is enshrined in Sustainable Development Goal 5 (Gender Equality) and in the Rio Conventions. Donor requirements for sex-disaggregated data and the championing of gender-responsive approaches across the programme portfolios of organisations, such as the International Union for Conservation of Nature (IUCN) and the research centres within the Consultative Group on International Agricultural Research (CGIAR), mean there is an increasing volume of research focused on gender analysis and women's empowerment (Arora-Jonsson, 2014; Kristjanson et al., 2017; Pyburn and van Eerdewijk, 2021).

Moving beyond a singular focus on gender (often interpreted as 'women') and simple women-men binaries (for example, Lau et al., 2021), researchers increasingly make the case for approaches built around the analysis of wider social processes through which multiple, **intersecting inequalities** (for example, gender, wealth, ethnicity, religion, sexuality, age and geographical location) are reproduced and perpetuated (Cochrane and Rao, 2019; Colfer et al., 2018). An intersectionality lens helps researchers to understand complex inequalities, and how these endure, deepen or can be resolved in the context of efforts to reverse environmental degradation (Osborne et al., 2021; Elias et al., 2021b; Sigman and Elias, 2021; Sijapati Basnett et al., 2020). An intersectional perspective — which includes analysis around gender — enables researchers to better understand how inequalities may be amplified, retrenched or (optimistically) reduced by large-scale projects (such as offsets, afforestation) and ecosystem or community-based interventions (restorative land management practices).

This briefing explores intersectionality as a critical concept for research and action to reverse environmental degradation. Processes of environmental change are always shaped by power relations involving the disposition, knowledge and experiences of diverse and unequally-positioned actors. An intersectional analysis is a tool for explicitly identifying and addressing dynamic social inequalities in changing environments. This briefing is based on a contextual and theoretical analysis of selected English-language academic literature, identified through

keyword searches in Web of Science and Scopus platforms. It also draws from literature from leading relevant organisations (for example, IUCN, Food and Agriculture Organization, and CGIAR research centres). The review explores the ways in which an intersectional approach has so far been adopted and identifies areas that require further attention for meaningful equity in environmental degradation/restoration contexts. It comes with the caveat that scientific publications are generally located in universities, governments and multilateral agencies, rather than within Indigenous and local communities in Asia and Africa, who have not been consulted for this briefing.

The review begins with a brief overview of intersectional inequality (Section 2) and in Section 3, considers how this concept has been deployed in specific but overlapping fields relevant to the scope of the REDAA programme, notably agrarian studies and feminist political ecology. Section 4 illustrates some of the ways that intersectional inequalities are evident in agricultural and forest contexts. Section 5 discusses key methodological approaches that may be adopted for addressing intersectional inequalities. Finally, Section 6 offers recommendations for funders and for research projects.

#### **Box 1: Terms and definitions**

**Climate-smart agriculture (CSA)** is an approach or set of practices aimed at increasing agricultural productivity and sustainable farm income, while building resilience to climate change and reducing and/or removing greenhouse gas emissions where possible (Lipper et al., 2014).

**Conservation agriculture** is a farming system that promotes minimum soil disturbance (that is, no tillage), maintenance of a permanent soil cover, and diversification of plant species; for instance, through crop rotation.

**Ecological restoration** involves contested definitions, conceptualisations and approaches beyond the scope of this short review. Here, following Martin (2017) it concerns the process of assisting the recovery of a degraded, damaged or destroyed ecosystem to reflect values regarded as inherent in the ecosystem and to provide goods and services that people value (Martin, 2017: 670).

**Gender** is conventionally defined as the socially and culturally constructed roles and attributes associated with men and women, boys and girls, masculinity and femininity, with the recognition that the content of these categories varies across contexts, is mutable and that the distinction between genders may be blurred or non-binary (Connell, 2021). Gender norms, stereotypes and gendered power relations mediate access to resources, how work is divided and decision making (Lau et al., 2021); and shape the recognition of and value ascribed to different activities and spaces by communities, institutions and researchers. Tackling gender inequality means recognising its intersection with other structures of inequality, including but not limited to class, caste, race, ethnicity and coloniality, and (dis)ability.

**Indigenous Peoples and local communities (IPs and LCs)** refers to 'ethnic groups who are descended from and identify with the original inhabitants of a given region, in contrast to groups that have settled, occupied, or colonized the area more recently' (IPBES core glossary, 2022).

## 2. What is intersectionality?

Heralding from Black feminist activism and critical race theory (Hooks, 1984; Crenshaw, 1991; Yuval-Davis, 2006; Collins, 2015), the concept of intersectionality has been described as a way to expose systems of power (Sircar 2021). Intersectional analyses are now widely used as a theory and methodology to understand entrenched social, political and structural inequalities (Cho et al., 2013) and identities shaped at particular intersections of social marginalisation. One type of intersectional analysis considers how different social identities and social categories — such as gender, race, socioeconomic class, cultural and ethnic background, age and disability — combine to create unique modes of disadvantage and oppression, in particular contexts and for specific individuals. A second type of intersectional analysis focuses on structures — the way things work — in terms of sources of injustice across multiple dimensions. Principally, racism, patriarchy and colonialism as these combine in particular geographical and historical contexts (Cho et al., 2013; Collins, 2015). The concept of postcolonial intersectionality is used to describe ‘the way patriarchy and racialised processes are consistently bound in a postcolonial genealogy that embeds race and gender ideologies within nation-building and international development processes’ (Mollett, 2017: 150; Mohanty, 2013).

There are two key challenges for researchers working with intersectionality as theory and method. First, researchers are often required to discern or map which axes of power are dominant under which circumstances: a question that is simultaneously determined according to the perspective of the researcher, and ethical. It is a choice that is reflective of power. Second, the power of intersectional approaches to analyse and address inequalities and injustices is diminished where there is a failure to address racialised and colonial knowledge politics at the outset. In gender, development and environment research and practice, this can result in a Eurocentric bias towards assumed shared values and positionings (Mohanty, 2013; Mollett and Faria, 2018; see Trisos et al., 2021 for a parallel perspective on decolonising ecology). Intersectionality therefore requires researchers to prioritise co-produced or co-constructed knowledge, supported by a deep reflexivity (conscious self-consideration) that addresses intersectional power dynamics within the process of research and action, from the outset (Malin and Ryder, 2018).

## 3. Intersectional analyses in environmental contexts

Intersectional analyses have been introduced within several fields relevant to research on the avoidance, reduction and reversal of environmental degradation at different scales and the REDAA programme more specifically. Two distinct but overlapping approaches can be discerned across a diverse research area.

### 3.1 ‘Enriching gender programming’

Building from analyses that use gender as a classification to understand the different experiences of land users, intersectional perspectives are introduced to add nuance and to break down homogeneous categories that can eclipse the experience of the most marginal (Thompson-Hall, 2015; Thompson-Hall et al., 2016; Lau et al., 2021). Identity categories such

as age or seniority, ethnicity, caste, class and marital status are brought into play alongside gender. This approach is being introduced in several major research programmes (for example, from the CGIAR research centres, see Pyburn and van Eerdewijk, 2021; Sijapati Basnett et al., 2017). The focus is on identity markers that intersect with or mediate gender (Carr and Thompson, 2014; Tavenner and Crane, 2019) in specific ways across a range of contexts.

Intersectional categories that are highlighted in the literature to date include the intersection of gender with marital status (Van Aelst and Holvoet, 2016; Agarwal, 2010), youth (Rietveld et al., 2020; Elias et al., 2019), caste (Onta and Resurrección, 2011; Sugden et al., 2014) and migrant status (Sijapati Basnett, 2016; Lawson and Thompson-Hall, 2020). Others show how rurality, poverty and landlessness intersect in complex ways with gender norms to create disadvantages, including the ongoing gendering and devaluation of 'liminal' spaces and species (home gardens, field margins, chickens) (Leahy and Jean Brown, 2016).

Intersecting identity categories helps us to understand particular vulnerabilities and exclusions relating to resource access, rights and tenure (Nightingale, 2011; Doss, 2014; Maharani et al., 2019), agricultural practices and therefore the adoption of or exclusion from restorative land management (Rao et al., 2017; Djoudi et al., 2016) and effective participation in decision making at various scales (Elias et al., 2020).

Advocates of this approach argue that it is a valuable way to address the simplifications of single axis approaches, that promote unhelpful narratives around women as victims of environmental degradation or natural caretakers in restoration projects (Resurrección, 2013; Sijapati Basnett et al., 2017; Lau et al., 2021). The focus on intersecting identity categories can give emphasis to lived experiences of marginalisation and vulnerability, particularly where research uses qualitative or mixed method approaches.

Gender researchers working across disciplines (for example, as part of natural sciences-led research projects or programming within scientific and technical organisations) find that a focus on intersectional categories (sometimes applied as 'variables' in quantitative studies) enables them to communicate across disciplinary divides (Resurrección and Elmhirst, 2020). This can, however, limit opportunities for understanding and addressing the root causes of inequality, poverty and vulnerability. Overall, the emphasis of this approach is on addressing complex and intersecting social differences within communities and recognising multiple strands of identity that situate actors in particular ways.

### 3.2 Feminist political ecology – environmental justice and chains of explanation

Feminist political ecology (FPE) approaches explain how intersections of gender, class, race, and other relevant axes of power, shape access to and control over natural resources. Emphasis is given to how these axes of power are situated in intertwined histories of colonialism, patriarchy, racism and capitalism in particular contexts. This also underpins who counts as a knowledge producer, what counts as knowledge and how knowledge is produced (Sundberg, 2017 page 27; Mollett, 2017; Sultana, 2021). FPE approaches have thus broadly adopted a more structural reading of intersectionality theory and methods, which re-centres an emphasis on power and sources of injustice across multiple dimensions, typically, patriarchy,

capitalism, racism and colonialism (Agarwal, 2010; Sundberg, 2017; Mollett and Faria, 2017; Nightingale, 2011; Sultana, 2021).

Within FPE, intersectional analyses have developed in several ways. First, contributions from early political ecology frameworks that build 'chains of explanation'; tracing root causes of environmental degradation through intersecting and compounded systems of disadvantage. This approach highlights the ways social-ecological vulnerabilities may be created or deepened where relationships between people and landscapes are transformed (Rocheleau, 1993; Sultana, 2021; Djoudi et al., 2016; Kaijser and Kronsell, 2014). Second, FPE researchers highlight the contextual, spatial dimensions of intersectionality to demonstrate how structural oppressions within systems are maintained, reproduced and expressed within particular landscapes (Mollett, 2017; Elmhirst et al., 2017). Third, researchers within FPE aim to explicitly link intersectionality to ecological relations, developing concepts around environmental subjectivities (Gururani, 2002; Nightingale, 2011).

FPE approaches to intersectionality are being engaged directly to research the power, politics, science and values that are shaping ecological restoration agendas (Malin and Ryder, 2018; Elias et al., 2021b). Specifically, this incorporates the dynamics of poverty, underdevelopment, dispossession and violence resulting from processes and practices of capitalism and colonialism, that underpin many forms of conservation programming (Woroniecki et al., 2020; Trisos et al., 2021). Recent 'manifestos' (Collard and Dempsey, 2020), playbooks (Osborne et al., 2021) and journal special issues (Elias et al., 2021b) see the approaches within this field as an important antidote to the biophysical focus of sustainability science and its definitions of 'expertise'. In doing so, it illuminates the politics of problem framing in research programming from the outset (Mollett and Kepe, 2018).

In practical terms, there is a strong orientation within FPE intersectionality approaches to work with and through activist, local community and Indigenous knowledge (Harcourt and Nelson, 2015), and through collaborative methodologies that are attuned to intersectional dynamics within these broad groupings. Intersectional inequalities are not only significant within local communities. Critical multi-scalar approaches bring intersectional analysis into spaces where power shapes how research is framed, how resource decisions are made by state and other actors, on what basis and by whom (Nightingale, 2015). The emphasis therefore should be on what intersectionality 'does', rather than what it is (Mollett, 2017). Therefore, intersectional analyses within an FPE framing avoid an 'adding variables' approach. Instead, they develop methods that are simultaneously deeply contextual and multi-scalar, highlighting multiple social locations and intragroup differences; and more directly and critically, identifying and analysing not only powerful (or marginalised and excluded) actors, but the **systems and processes of power** in these dynamics (Malin and Ryder, 2018).

Both these approaches to intersectional inequality produce a knowledge base for policies and projects that reveal and seek to address socio-ecological inequities. But they have contrasting emphases, explanatory power and potential for achieving transformational and equitable impact in research programming that meets the challenge of environmental degradation.

## 4. Intersectional inequalities and the impact of environmental interventions

The link between reversing environmental degradation and transformative social change is often assumed, but poorly understood. Substantial literature urges caution: actions to reverse environmental degradation necessarily involve altering local and Indigenous People's control over and access to changing resources. As Elias et al. (2021b) point out, efforts to restore ecosystems hold great transformative potential, as well as very high risks for deepening intersectional inequalities and failing to support sustainable human livelihoods equitably (see McElwee et al., 2020 for a systematic review). Interventions potentially reinforce, redistribute and introduce new forms of vulnerability that follow the social divides that create inequalities in the first place (Karlsson et al., 2018). Several recent reviews highlight examples where interventions to reverse environmental degradation fail to take account of — and therefore deepen — contextual intersectional differences and inequalities (Lunstrum et al., 2016; Mollett and Kepe, 2018; Osborne et al., 2021).

This section focuses on two areas where interventions aimed to reverse degradation, and explores some of the lessons that emerge where an intersectional approach is undertaken. Intersectional analysis is used to draw attention to uneven risks and benefit sharing within communities (Ravera et al., 2016; Elias et al., 2021b), but also has the potential to draw attention to underlying structures and institutional factors that form the root of inequities and intersectional injustices. A commonly used framing in these kinds of analyses draws on the principles of equity and social justice (see Box 2).

### Box 2: Intersectional inequalities and social equity

Environmental governance research is increasingly underpinned by rights-based approaches and draws on a theory of social justice based around three key dimensions:

**Recognition** – refers to the unequal experience and rights of different groups and intersecting identities (for example, gender, ethnicity, caste), and involves recognising diverging world views, value systems and stakes in environmental interventions. Inequalities may entrench where marginalised identities and histories are erased or not considered.

**Representation** – means removing obstacles that prevent some people from participating in decision making in meaningful ways. This may also include strategies for safeguarding rights through human rights mechanisms such as Free and Prior Informed Consent (FPIC).

**Distribution** – refers to the sharing of benefits, costs and risks associated with environmental interventions such as biodiversity conservation, climate-smart agriculture or carbon offsets. This can include costs such as reduced access to land and increased labour burdens, or benefits such as direct payments, improved ecosystem services, new livelihood opportunities and knowledge/social capital.

Each of these dimensions is shaped through formal and informal institutions, which create the conditions of resource distribution, and limit or enable the capacities of particular individuals and groups (Schreckenberget al., 2018; Elias et al., 2021c; Karlsson et al., 2021)



#### 4.1 Reversing environmental degradation in forest landscapes: intersectional inequalities

Large-scale landscape transformations include afforestation, reforestation and revegetation (ARR) programmes, ecological offsets (for example the mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC) on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, known as REDD+) and community forestry management projects. These interventions range from top-down initiatives undertaken at scale (the Great Green Belt initiative), through to programming that is community based. All have featured in emerging studies that investigate the intersectional dimensions of risks and benefits (Elias et al., 2021a; Osborne et al., 2021). Social issues that coalesce around intersectional inequalities may be found at all stages of such interventions and cut across the three dimensions of equity outlined above. Three key themes emerge across the literature. First, studies have shown how stakeholder engagement can erase the **representation** of the most marginalised. This occurs when local leaders speak on behalf of diverse communities and where intersectional identities linked to gender, age and class shape access and rights, priorities, and abilities to engage with and benefit from restoration (Elias et al., 2021b; Kariuki and Birner, 2021; McElwee and Nghi, 2021). When projects target stakeholders with simplistic preconceived categories and without understanding the complexities of local resource use, there is evidence that intersectional inequalities are deepened (Eriksen et al., 2021; Turner et al., 2021). For example, in both pastoral and forest contexts, migrants and seasonal land users may be overlooked, further entrenching intersectional inequalities associated with ethnicity, class and livelihood (Turner et al., 2021; Chomba et al., 2016).

Second, tenure issues underpin the risk of deepening and reinforcing intersectional inequalities, particularly where initiatives are being undertaken in areas dominated by informal land ownership or use rights (Larson et al., 2013). **Recognition** of local rights, especially those of Indigenous People and women have been overlooked in some instances, particularly in forest and pastoralist contexts where enduring colonial legacies frame landscapes as underutilised (Maharani et al., 2019; Djoudi et al., 2019).

Third, the observation that one person's improvement in landscape functioning may be another's degradation, shows how reversing environmental degradation is relational, may bring an **uneven distribution of benefits** and represents a reworking of intersectional inequalities. For example, in their research on the Great Green Wall afforestation initiative in the Sahel, Turner et al. (2021) show the ecosystem benefits of tree planting reduced the access of specific groups to important livelihood spaces: livestock grazing (marginalised herders) and culinary wild herb collection (older women).

### **Box 3: REDD+ and intersectional inequalities**

Evidence on REDD+ and intersectional inequalities highlights a range of issues. REDD+ focuses on addressing forest degradation, which involves a diverse range of programming and therefore diverse outcomes (Larson et al., 2013). Deliberate efforts to address equity focus on gender and have used the language of 'safeguards' and 'co-benefits' (McDermott et al., 2012). The latter is not always clearly defined, but it generally focuses on women's empowerment through the creation of income-generating activities or labour-saving technologies (for example, cookstoves) (Westholm and Arora-Jonnson, 2018). Various studies (Chomba et al., 2016, Bee and Sijapati Basnett, 2017; Larson et al., 2018; Westholm, 2016) point to the need for scrutiny through a FPE intersectional lens, in evaluating existing programmes and in designing similar approaches. For example, in a Burkina Faso case study, a lack of acknowledgement of intersecting relations of inequality led to crucial aspects of non-timber forest product resource use being overlooked, and risked increased marginalisation of certain groups (Westholm, 2016). Local norms around gender, age and ethnicity may combine to create institutional disadvantage and exclusions within communities through forms of uneven participation in REDD+ programming. For example, REDD+ mechanisms to clarify tenure, when not done carefully, can miss the complex resource access arrangements of women and other marginalised groups (Bee and Sijapati Basnett, 2017; Larson et al., 2018). Where tenure is used as a basis for accessing REDD+ benefits, this may have direct and indirect impacts on women and other marginalised identities (Kariuki and Briner, 2016; Satyal et al., 2020; Khadka et al., 2019). Angelson et al. (2018) note that limited awareness at local level and lack of time for careful Free and Prior Informed Consent (FPIC) processes underlie unequal risk and benefit sharing. Remedies emerging from these studies include enhanced local participation in the design, implementation and evaluation of REDD+ and similar payment for ecosystem services projects, largely in response to protests by Indigenous Peoples and local communities (Larson et al., 2021; Dehm, 2021). Deeper contextual investigations provide broader lessons: intersectional inequalities are present across geographical scales of engagement (who decides, who funds in top-down programming) and across local landscape and resource access histories and struggles (which underlie intersectional powers of inclusion and exclusion). For example, in Kenya, the distribution of REDD+ benefits accrued first and disproportionately to larger landowners, with patterns of land ownership reflecting land dispossession processes rooted in colonial times (Chomba et al., 2016). In Vietnam, local state-community relationships are shaping the outcomes of top-down REDD+ programming in unexpected ways (To et al., 2018). Here, the REDD+ project uses 'Red Books', a state-administered land titling instrument, to clarify property rights for the carbon market to function. For the local community, 'Red Books' provide an opening for gaining access to forest land for commodity production and timber revenue. The authors suggest that this institutional 'co-production' limits the intended REDD+ outcome of strengthening tenure to secure carbon as this is outweighed by local aspirations to secure land for commodity production. REDD+ is thus being politically reimagined in line with state institutions and local desires for new economic opportunities in remote highland areas (op.cit. p. 165) with attendant risk of deepening and reworking intersectional inequalities within and across communities.

Inequalities embedded within communities (and following norms around ethnicity and other hierarchies, for example, caste), may be reproduced in community-based natural resource management institutions, as Agarwal's work on forest user groups has described (2010). Myers et al. (2018) found that low-caste members and minorities being under-represented in natural-resource management derives from high opportunity costs to participating

meaningfully in such processes. Similar issues apply in other cases where participatory requirements further marginalise women whose patriarchal marginalisation leaves them with heavy workloads that restrict their engagement (Buchy and Rai, 2008). The dynamics of marginalisation contribute to elite capture — of decision making, conservation narratives and distributive benefits. In community-based forest management in Tanzania, intra-village inequalities (associated with gender, class and education) were reproduced because of project demands for ‘expertise’, which had the effect of favouring village elites (Sijapati Basnett et al., 2019). Whereas in Indonesia, efforts to participate with existing community groups initially reinforced gendered and class hierarchies (Brown et al., 2014, see also Thompson, 2018).

Deeper insights are drawn when researchers engage with intersectionality as social power at wider scales rather than intersectional ‘variables’ within households and communities. In Nepal, where programmes such as REDD+ serve as a context for people to leverage access and control of resources, or to gain social power to exclude others, localised relations have political implications beyond individuals, households and communities. This is because political transition cements forms of patronage as a ‘normal’ way of conducting business (Nightingale, 2018).

To summarise, the literature on intersectional inequalities in forest contexts is patchy, contextual and is clustered around community-based natural resource management interventions. Analyses concerning intersectional inequalities within mechanisms such as REDD+ tend also to focus on the engagement of and impacts upon local communities, in some cases supplementing this with data on gender differences. There is some cross-learning between these areas, but this has tended to settle around issues concerning representation, recognition and distributive justice at community level. Valuable insights emerge where inter-scalar analyses around governance bring an intersectional perspective to questions of resource access and tenure, and especially where these are steered by Indigenous Peoples and local communities. However, there is a heightened risk of deepening inequalities where simple stakeholder categories are used, where intersectional power relations limit the inclusion of those of marginal identities in problem framing and decision making, and where there is limited attention paid to the root causes of inequalities. This includes pre-existing resource struggles, patronage and politics that continue to play out at governance scales beyond the local community.

#### **4.2 Reversing environmental degradation in agricultural contexts: intersectional inequalities**

There are myriad examples of interventions to improve land management and prevent or reverse land degradation in farms, villages and communities in agricultural contexts. And there is longstanding literature on the ways such interventions address or amplify gender inequalities (Wekesah et al., 2019; Pyburn and van Eerdiwijk, 2021). Almost three decades ago, FPE analysis of agricultural interventions — aimed at reversing degradation while improving livelihoods — were highlighting gendered and intersectional exclusions. These (and many similar studies) showed how gender inequities related not only to inequalities in the access and control of resources, but also to gendered exclusions dominating international agricultural research (framing problems, defining solutions) and through gender stereotypes

circulating in national-level extension services (Carney, 1993; Rocheleau et al., 1996, Schroeder, 1997; Elmhirst, 1998).

Some of the key issues raised in this earlier work reverberate in more recent research on gender equality in agricultural settings. Here variations in programme outcomes are attributed to culturally-established norms around roles in smallholder livelihoods, access to and control of resources, and care responsibilities/domestic work (Carr and Thompson, 2014). The contexts for such interventions range from improved seeds with short-term welfare gain, improving environmental conditions through practices such as no-till cultivation, intercropping (temporal and spatial), agroforestry and improved water saving techniques. To gain traction within science-led research for development organisations, such as those within the CGIAR, research was premised on exploring gender differentiated factors to prevent the adoption of agricultural innovations. But in doing so, research has expanded the understanding of the relationship between innovations and gender equality more broadly (Pyburn and van Eerdewijk, 2021). For example, the analysis of gender inequalities include security of access to and control of resources, such as land and natural resources (Beuchelt and Badstue, 2013; Elias et al., 2021b); paid or exchange labour (Murray et al., 2016; Rao et al., 2019) and engagement in seed systems (Puskur et al., 2021); shifting gendered labour demands and burdens of specific crops and land management practices (Elias et al., 2021a; Farnworth et al., 2016, Joshi et al., 2019; Khatri-Chhetri et al., 2020), and the power to be heard and to make strategic decisions (Kandel et al., 2021).

While an intersectional analysis in this area remains relatively rare, it is evident there is no automatic link between reversing environmental degradation and reducing gender inequality. An intersectional analysis helps demonstrate why this might be so in particular contexts. (Carr and Thompson, 2014; Ravera et al., 2016). For example, Beuchelt and Badstue (2013) show how the intersection of gender and class inequalities explains the **uneven distribution of benefits and risks** when technologies to protect soil carbon were introduced in one community. The use of low tillage techniques meant using herbicides on landholder's fields. Women landholders felt the benefits of this (a social location given **recognition** within the scope of the project). But this intervention added to their burden and reduced their access to an important source of livelihood for landless and land-poor women, whose reliance on 'weeds' as a subsistence crop was **erased** (Beuchelt and Badstue, 2013). In this instance, class and gender inequalities intersected, influencing roles, responsibilities and power dynamics, but also disempowering marginalised identities. By contrast, in a Sri Lanka case study, specific circumstances around support for common pool resources and home gardens empowered poor and marginalised women as an indirect co-benefit from an ecological benefits project (Woronieki, 2019). Adopting an **intersectional** gender analysis in research and programme design can help address equity issues from the start.

### 4.3 Summary and conclusion

To date, there is no definitive evidence that 'nature based solutions' allow more for inclusion than other technical approaches (see Neimark et al., 2020). Indeed, post-colonial intersectional reviews argue that ecology, conservation, and other scientific disciplines have colonial histories built on the oppression of marginalised groups of people. This oppression is yet to be dismantled, and continues to shape contemporary practice (Chaudhury and Colla,

2021; Mollett and Kepe, 2018; Trisos et al., 2021). Some suggest that more locally-scaled interventions carry less risk of amplifying intersectional inequalities (McElwee and Nghi, 2021). But this may depend on the logics through which localised interventions are implemented, as Karlsson et al. (2021) note for climate-smart agriculture.

Much of the research outlined above 'uses' an intersectional gender perspective to improve decision making and enhance programming within existing goals and paradigms. However, an emerging **transformative agenda** within agricultural and natural resource-based research for development seeks to move beyond investigating gendered barriers to adoption of innovations, and towards transforming inequalities (Pyburn and van Eerdewijk, 2021; Elias et al., 2021b). This acknowledges that interventions sit within wider processes, such as privatisation, commercialisation and market-based solutions, and these contribute to and are contingent upon intersectional inequalities through wider systems of power and marginalisation. Returning to Mollett and Kepe's (2017) remark that it is not what intersectionality 'is', but what it 'does', intersectionality is a conceptual tool to be used within a transformative agenda. In parallel with paradigm shifts in conservation, a transformative approach challenges assumptions, values and power structures that underlie policy and practice (Massarello et al., 2022; Blythe et al., 2018). As Larson et al. (2021) note, traditional development and conservation solutions, as well as agricultural extension models like those described above, still favour uniform, top-down models of change. These fail to address or engage with the diversity of local contexts, or with multiple understandings and perceptions from diverse actors. The recently completed TAPESTRY project illustrates what this might look like in practice: using bottom-up transformation, researchers adopted a transdisciplinary approach to challenge wider systems entrenched in unequal power relations, landscapes and ecological changes (Mehta et al. 2022).

## 5. Methodologies for addressing intersectional inequalities

Various methodologies have been applied to analyse the impacts of intersectional inequalities, to understand why and how interventions to reverse environmental degradation do not automatically enable empowerment and the reduction of inequities. As Woroniecki et al. (2020) note, there is growing recognition that epistemic pluralism (incorporating knowledge and ways of knowing of Indigenous Peoples and local communities) is an important goal in transformative responses to environmental degradation (IPBES, 2019). However, the uncritical recognition of pluralism is insufficient without understanding how processes of change are shaped by political decisions, subjectivities (the dispositions of specific actors forged through intersecting and unequal relations of power), and diverse and situated knowledge (gained from living and working within ecosystems). FPE approaches take this as a starting point, and are explicit in showing how gender, class, race and other relevant axes of power are placed in histories of colonialism, patriarchy, racism and capitalism in particular contexts (Mollett and Kepe, 2017; Sultana, 2021; Nightingale, 2011). This includes an intersectional consideration of what counts as knowledge and how (and by whom) knowledge is produced (Rocheleau et al., 1996; Resurrección and Elmhirst, 2020). While the specifics of research design, methodologies and tools vary in the studies reviewed in this report, there are some common elements associated with studies that adopt an intersectional approach to research design:

**Co-production or co-construction methodologies where different forms of knowledge and non-researcher ways of understanding are brought to bear on real-life challenges.**

Although participatory research tools are used to elicit data in agricultural research (including climate-smart agriculture) (see Pyburn and van for a review), fully co-produced and intersectional research designs are rare. Transdisciplinary co-production methodologies have, however, gained traction in other domains and are being developed with an intersectional approach in environmental degradation contexts. Such approaches move beyond 'knowledge integration' models and towards broader adaptive co-management or co-governance models that aspire to share power, equality and support for social learning (Apgar et al., 2016; Mehta et al., 2022; see Colfer et al., 2021 for reflections on earlier precursors to this approach). In practice, this means researchers attend to intersectional power relations when deciding 'who' to collaborate with, taking a reflexive and intersectional perspective on problem definition (Malin and Ryder ,2018) rather than fitting women and poor people into pre-determined agendas. This involves co-producing research with non-state actors who become part of decision making processes throughout, including research design and in policy conversations, with tools incorporated to address power differences faced by disadvantaged research partners (Osinski, 2020). For example, in the TAPESTRY project, action-oriented research is guided by reflexivity, dialogue and negotiation between all the partners where research is also treated as being part of the design for steering and realising changed outcomes on the ground (Mehta et al., 2022). Writing specifically about ecosystem restoration, Elias et al. (2021c) note that intersectional considerations also involve diversifying research partnerships: instead of focusing narrowly on sector-specific organisations (for example, forestry, agroforestry organisations), research teams can engage collaborations that reflect the spaces in which negotiations are already occurring (see also chapters in Resurrección and Elmhirst, 2021; Colfer et al., 2021).

**Chains of explanation across scales.** Methodologies include tracing broader structures of power and marginalisation. Effective research designs recognise the importance of understanding structures and processes beyond the local scale and through longer time frames (Mehta et al., 2022). This includes histories around resource access and governance linked to colonialism or changing political regimes, which may favour certain ethnic groups or modes of livelihood above others, as well as being associated with patronage and social class (Nightingale, 2015; 2018). To understand gender relations, patriarchal ideologies and norms may be traced through laws (around marriage and inheritance), policies (around care or wages) and historical norms that are reproduced within institutions, such as formal land tenure arrangements (Doss and Meinzen-Dick, 2020). Rather than bracketing wider social processes as 'background', an intersectional approach means research designs attend to scales and spaces beyond the local rural community. Within a co-production context, chains of explanation across scale mean explicitly acknowledging territories, knowledge and rights of Indigenous Peoples and local communities and the restoration of past ecological damages when mediating co-construction processes (Apgar et al., 2016; Nightingale, 2015).

### **Bringing intersectional analysis into Adaptive Collaborative Management (Governance) approaches**

Adaptive Collaborative Management (ACM) is an approach to research and/or action in which shared learning, experimentation, and adaptation are key principles, as are inclusivity and shared decision making at various levels (Colfer et al., 2022: 1). Unlike top-down strategies such as the Million Tree Initiatives, Forest Landscape Restoration (FLR) and REDD+, which may claim to involve local communities in decision making on forest governance and land use through FPIC and community consultations (Delabre et al., 2021; Larson et al., 2013), ACM is an approach that places local peoples and communities as partners, not beneficiaries or people to be safeguarded. Since its inception in the late 1990s, the approach has been adapted and fashioned across a range of contexts and at broader scales, maintaining and developing an emphasis on equity. Although there are criticisms that ACM does not explicitly engage with power (Ojha et al., 2013), the potential to shift intersectional inequalities through ACM is evident in case studies from Nepal and elsewhere (McDougall and Ojha, 2021; Staddon, 2020). In this instance, researchers adopted an approach drawn from intersectional FPE that addressed pervasive and persistent multifaceted social hierarchies (gender and caste) through reflexivity (conscious self-consideration), deliberative decision making and social learning. McDougall and Ojha (2021) describe how this shifted forest user groups from centralised to decentralised visioning, planning, monitoring and decision making. At the same time, less powerful actors and other overlooked aspects of everyday life (for example, in-between cultivation spaces, care work) became more visible as their 'outlier' status shifted. Future research projects should build from the insights that emerge by integrating intersectional feminist political ecology with ACM (or Adaptive Collaborative Governance) approaches to avoid the creation of a gendered experience, where communities take on disproportionate risks and precarious low wage jobs (Neimark et al., 2020; Delabre et al., 2021).

**Building a focus on intersectional identities.** In their manual for 'operationalising' an intersectional analysis, Colfer et al. (2018) identify six steps: (a) understanding how the local system works; (b) identifying who the marginalised really are at the time of research/action and what institutions contribute to sustaining that marginalisation; (c) estimating the level/significance of discrimination for individuals with multiple marginalising identities; (d) analysing how the institutions, norms and narratives function to sustain inequitable systems; (e) strengthening collaboration within and among community members to reduce adverse impacts on multiply-marginalised individuals; and (f) changing policies and inequitable systems (Colfer et al., 2018). The authors note that navigating interactions between knowledges, social processes and power dynamics among the most disempowered is time-consuming and an explicit effort to seek them out will be required. These assessments will require more interaction with local community members than is typical in forest-related research (Colfer et al., 2018).

**Tools for data gathering.** Methods used in intersectional analysis are often qualitative and deeply contextual where the combination of different forms of marginalisation may be handled at case study or community level. Beyond a commonly used suite of participatory qualitative

methods adapted to capture diverse perspectives (for example, focus groups, ranking exercises and semi-structured interviews) (Ravera et al., 2016, Badstue et al., 2018), transdisciplinary co-production research designs increasingly make use of art-based and visual methods (for example, photovoice). These have enabled researchers and communities to explore diverse narratives of environmental change and the socio-ecological relationships on which change is based (Mehta et al., 2022). Qualitative Comparative Analysis has been used in some studies to generalise. While this contributes to the synthesis of deeply contextual case-based studies, it requires strong theoretical insights and knowledge of field contexts (Rao et al., 2019). The CGIAR's GENNOVATE study has developed an evidence base made up of multiple case studies that use a standardised qualitative toolkit and questions (Badstue et al., 2018; Pyburn and van Eerdewijk, 2021). While this has produced comparisons across sites around various intersectional modalities (gender and youth, gender and marital status), there are risks when working across markedly different contexts without the deep contextual knowledge required for interpreting shifting norms and power relations, and where data is 'extracted' in non-collaborative ways.

## Recommendations for funders

From this briefing on intersectional inequalities and their relevance for REDAA programming, the following recommendations are made:

- Consensus around the need to address environmental degradation can mask plural framings of 'the problem', what constitutes relevant evidence, and what, therefore, are considered appropriate solutions (Blythe et al., 2018). Foregrounding social science perspectives that analyse socio-political dimensions of problem-framing, and that engage communities as actors, not just beneficiaries, is an important start. However, this does not go far enough. An intersectional approach to social differentiation and disaggregation at multiple scales of analysis and action (including within communities and in building research teams) needs to be written into REDAA programming.
- Programming should be resourced in a way that supports the time required to build relationships, trust and communication within adaptive collaborative/co-production teams across varied knowledges in reflexive, adaptive and non-linear process-oriented ways. In research involving those at the most marginalising intersections of power and inequality (for example, poorest women from unrecognised ethnicities).
- Resources should be made available to cover the additional time, care and use of creative methodologies that effective research and practice entail. Additionally, funders should require projects to include a strategy for addressing intersectional inequalities within research practice and processes (discussion around transdisciplinary and adaptive collaborative management/governance through intersectional perspectives).
- Addressing intersectional inequalities means working through a multi-level, multi-scalar perspective rather than restricting analyses to the household or community level. More convincing intersectional research programmes are designed to examine how social norms, formal laws, regulations and institutions sustain inequalities across arenas and scales, including within institutions, the state (including its local manifestations) and in research projects/teams.



### **Intersectional identities at risk in REDAA framings**

An intersectional analysis that takes historically-embedded structures of power and marginalisation as a starting point may unsettle and complicate the emphasis on engaging Indigenous Peoples and local communities that is premised in REDAA programme development: questions around who is Indigenous may generate contested answers. Moreover, some of the most marginal intersectional positionings in rural areas include those who are not defined in this way: itinerant migrant workers, landless labourers, displaced peoples. Poorly designed programmes which address the concerns of local and Indigenous communities may indeed generate new vulnerabilities for those people who do not 'fit' emerging transformative research agendas.

## **Recommendations for future projects/researchers**

Key points for consideration in future projects:

- Research designs built around co-production and adaptive collaboration in teams that represent plural ways of knowing (science, social science, the ontologies of Indigenous and local communities) are best placed to explore and address intersectional inequalities and relations within specific ecological contexts. At the same time, an intersectional analysis is required in building research teams: in identifying and finding a way of working with the most marginalised, in attending to power relations so dominant ways of knowing (biophysical science, quantitative findings, social science theorisations) are decentred throughout the project.
- Project design should pay careful attention to the ways that vulnerable or marginalised social groups — defined through intersecting modalities such as gender, class, ethnicity, coloniality — already use, benefit, and derive benefits from resources and to how that might change under different regimes of access under transformative change. These more structural issues should not be bracketed as 'background' information in projects designed around technical fixes, but instead should be a starting point for building collaborative relationships.
- Intersectional analysis requires researcher programmes to confront and embrace the contested politics of social and environmental change – this is an uncomfortable but necessary challenge and requires carefully constructed collaborations to succeed (discussion about what intersectionality 'does' in revealing and addressing structural and historical power relations).
- Research projects should request sufficient resources and skills to support the time and care required for building collaborative relationships, trust and communication across plural knowledges and ways of knowing for research undertaken through co-production/co-construction. In research involving those at the most marginalising intersections of power and inequality (for example, poorest women from unrecognised ethnicities), resources should be made available to cover the additional time, care and

use of creative methodologies that effective research and practice will entail (discussion around transdisciplinary and adaptive collaborative management/governance through intersectional perspectives).

## References

- Agarwal, B. (2010). *Gender and green governance: The political economy of women's presence within and beyond community forestry*. Oxford: Oxford University Press
- Angelsen, A., Martius, C., De Sy, V., Duchelle, A.E., Larson, A.M. and Pham, T.T., (2018). *Transforming REDD+: Lessons and new directions*. Bogor, Indonesia: CIFOR.
- Apgar, J. M., Mustonen, T., Lovera, S., & Lovera, M. (2016). Moving beyond co-construction of knowledge to enable self-determination. *IDS Bulletin*, 47(6), 55-72.
- Arora-Jonsson, S., (2014), November. Forty years of gender research and environmental policy: Where do we stand? In *Women's Studies International Forum* 47, pp. 295-308
- Badstue, L.B., Petesch, P., Feldman, S., Prain, G., Elias, M. and Kantor, P., (2018). Qualitative, comparative, and collaborative research at large scale: An introduction to GENNOVATE. *Journal of Gender, Agriculture and Food Security* 3(1),1-27
- Baynes, J., J. Herbohn and W. Dressler. (2016). Power Relationships: Their Effect on the Governance of Community Forestry in the Philippines. *Land Use Policy* 54:169–176
- Bee, B.A. and Sijapati Basnett, B., (2017). Engendering social and environmental safeguards in REDD+: lessons from feminist and development research. *Third world quarterly*, 38(4), 787-804.
- Blythe, J., Silver, J., Evans, L., Armitage, D., Bennett, N.J., Moore, M.L., Morrison, T.H. and Brown, K., (2018). The dark side of transformation: latent risks in contemporary sustainability discourse. *Antipode*, 50(5), pp.1206-1223.
- Brown, B., Fadillah, R., Nurdin, Y., Soulsby, I., & Ahmad, R. (2014). Community Based Ecological Mangrove Rehabilitation (CBEMR) in Indonesia. *SAPIENS (Surveys and Perspectives Integrating Environment and Society)* 7: 53-64.
- Buchy, M. and Rai, B., (2012). Do women-only approaches to natural resource management help women? The case of community forestry in Nepal. In Resurreccion, B. and Elmhirst, R. (eds). *Gender and natural resource management* (pp. 143-166). London: Routledge.
- Carney, J., (1993). Converting the wetlands, engendering the environment: The intersection of gender with agrarian change in the Gambia. *Economic Geography*, 69(4), 329-348.
- Carr, E.R. and Thompson, M.C., (2014). Gender and climate change adaptation in agrarian settings: Current thinking, new directions, and research frontiers. *Geography Compass*, 8(3), pp.182-197.
- Chaudhury, A. and Colla, S., (2021). Next steps in dismantling discrimination: Lessons from ecology and conservation science. *Conservation Letters*, 14(2), p.e12774.
- Cho, S. Crenshaw, K. and McCall, L. (2013). "Toward a Field of Intersectionality Studies: Theory, Applications, and Praxis." *Signs: Journal of Women in Culture and Society* 38 (4): 785–810
- Chomba, S., Kariuki, J., Lund, J. F. and Sinclair, F. (2015). Roots of inequity: How the implementation of REDD+ reinforces past injustices. *Land Use Policy* 50:202–13

Cochrane, L. and Rao, N. (2019) Is the Push for Gender Sensitive Research Advancing the SDG Agenda of Leaving No One Behind?, *Forum for Development Studies*, 46:1, 45-65, DOI: 10.1080/08039410.2018.1427623

Colfer, C.J.P., Sijapati Basnett, B. and Ihalainen, M., (2018). *Making sense of 'intersectionality': A manual for lovers of people and forests* (Vol. 184). CIFOR.

Colfer, C. J. P., Ihalainen, M., & Sijapati Basnett, B. S. (2021). Intersectionality. In *Handbook of Critical Agrarian Studies*. Edward Elgar Publishing.

Colfer, C.J.P., Prabhu, R. and Larson, A.M., (2022). *Adaptive Collaborative Management in Forest Landscapes: Villagers, Bureaucrats and Civil Society* London: Taylor & Francis.

Collard, R.C., Dempsey, J. and Sundberg, J., (2015). A manifesto for abundant futures. *Annals of the Association of American Geographers*, 105(2), pp.322-330.

Collins, P.H. (2015). "Intersectionality's definitional dilemmas." *Annual Review of Sociology* 41: 1–20

Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241–1299

Dehm, J. (2021). REDD at the 'Local' Level: Between Rights and Responsibilisation. In *Reconsidering REDD : Authority, Power and Law in the Green Economy* (Cambridge Studies on Environment, Energy and Natural Resources Governance, pp. 294-350). Cambridge: Cambridge University Press. doi:10.1017/9781108529341.007

Delabre, I., Boyd, E., Brockhaus, M., Carton, W., Krause, T., Newell, P., Wong, G.Y. and Zelli, F., (2020). Unearthing the myths of global sustainable forest governance. *Global Sustainability*, 3. e16, 1–10. <https://doi.org/10.1017/sus.2020.11>

Djoudi, Houria, Bruno Locatelli, Chloe Vaast, Kiran Asher, Maria Brockhaus, and Bimbika Basnett Sijapati. 2016. "Beyond Dichotomies: Gender and Intersecting Inequalities in Climate Change Studies." *Ambio* 45 (S3): 248–262.

Doss, C. and Meinzen-Dick, R., (2020). Land tenure security for women: A conceptual framework. *Land Use Policy*, 99, p.105080.

Elias, M., Ihalainen, M., Monterroso, I. Gallant, B. Paez Valencia A.M. (2021a). Enhancing synergies between gender equality and biodiversity, climate and land degradation neutrality goals: Lessons from gender-responsive nature-based approaches. Bioversity International. Rome, Italy 28p.

Elias, M., Joshi, D., & Meinzen-Dick, R. (2021b). Restoration for whom, by whom? A feminist political ecology of restoration. *Ecological Restoration*, 39(1-2), 3-15.

Elias, M., Kandel, M., Mansourian, S., Meinzen-Dick, R., Crossland, M., Joshi, D., Kariuki, J., Lee, L.C., McElwee, P., Sen, A. and Sigman, E., (2021c). Ten people-centered rules for socially sustainable ecosystem restoration. *Restoration Ecology*, p.e135-74.

Elias, M., Grosse, A. and Campbell, N., (2020). Unpacking 'gender' in joint forest management: Lessons from two Indian states. *Geoforum*, 111, pp.218-228.

Elias, M., Mudege, N.N., Lopez, D.E., Najjar, D., Kandiwa, V., Luis, J.S., Yila, J., Tegbaru, A., Ibrahim, G., Badstue, L.B. and Njuguna-Mungai, E., (2018). Gendered aspirations and occupations among rural youth, in agriculture and beyond: A cross-regional perspective. *Journal of Gender, Agriculture and Food Security* 3(1), 82-107

Elmhirst, R., 1998. Reconciling feminist theory and gendered resource management in Indonesia. *Area*, 30(3), pp.225-235.

Elmhirst, R., Siscawati, M., Basnett, B.S. and Ekowati, D. (2017). Gender and generation in engagements with oil palm in East Kalimantan, Indonesia: insights from feminist political ecology. *The Journal of Peasant Studies*, 44(6), pp.1135-1157.

Elmhirst, R., & Resurrección, B. P. (2020). The gender professional as ethnographer: Working for equitable forests: interview with Carol Colfer. In *Negotiating Gender Expertise in Environment and Development* (pp. 144-160). Routledge.

Farnworth, C.R., Baudron, F., Andersson, J.A., Misiko, M., Badstue, L. and Stirling, C.M. (2016). Gender and conservation agriculture in East and Southern Africa: towards a research agenda. *International Journal of Agricultural Sustainability*, 14(2), pp.142-165.

Eriksen, S., Schipper, E.L.F., Scoville-Simonds, M., Vincent, K., Adam, H.N., Brooks, N., Harding, B., Lenaerts, L., Liverman, D., Mills-Novoa, M. and Mosberg, M. (2021). Adaptation interventions and their effect on vulnerability in developing countries: Help, hindrance or irrelevance? *World Development*, 141, p.105383.

Gururani, S., (2002). Forests of pleasure and pain: Gendered practices of labor and livelihood in the forests of the Kumaon Himalayas, India. *Gender, Place and Culture: A Journal of Feminist Geography*, 9(3), 229-243.

Hooks, Bell. (1984). *Feminist Theory from Margin to Center*. Boston, MA: South End Press.

Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) (2019) *The global assessment report on biodiversity and ecosystem services*. Bonn: IPBES

Kandel, M., Agaba, G., Alare, R.S., Addoah, T. and Schreckenber, K., (2021). Assessing Social Equity in Farmer-Managed Natural Regeneration (FMNR) Interventions: Findings from Ghana. *Ecological Restoration*, 39(1-2), pp.64-76.

Kariuki, J. and Birner, R., (2021). Exploring Gender Equity in Ecological Restoration: The Case of a Market-Based Program in Kenya. *Ecological Restoration*, 39(1-2), pp.77-89.

Karlsson, L., Naess, L.O., Nightingale, A. and Thompson, J., (2018). 'Triple wins' or 'triple faults'? Analysing the equity implications of policy discourses on climate-smart agriculture (CSA). *The journal of peasant studies*, 45(1), 150-174.

Khadka, M., Karki, S., Karky, B.S., Kotru, R. and Darjee, K.B., (2014). Gender equality challenges to the REDD initiative in Nepal. *Mountain Research and Development*, 34(3), pp.197-207.

Khatri-Chhetri, A., Regmi, P.P., Chanana, N. and Aggarwal, P.K., (2020). Potential of climate-smart agriculture in reducing women farmers' drudgery in high climatic risk areas. *Climatic Change*, 158(1), pp.29-42.

Krishna, S. (Ed.). (2004). *Livelihood and gender: Equity in community resource management*. Delhi: Sage Publications India.

Kristjanson, P., Bryan, E., Bernier, Q., Twyman, J., Meinzen-Dick, R., Kieran, C., Ringler, C., Jost, C. and Doss, C., (2017). Addressing gender in agricultural research for development in the face of a changing climate: where are we and where should we be going? *International Journal of Agricultural Sustainability*, 15(5), pp.482-500.

Larson, A.M., Brockhaus, M., Sunderlin, W.D., Duchelle, A., Babon, A., Dokken, T., Pham, T.T., Resosudarmo, I.A.P., Selaya, G., Awono, A. and Huynh, T.B., (2013). Land tenure and REDD+: The good, the bad and the ugly. *Global environmental change*, 23(3), pp.678-689.

Larson, A.M., Mausch, K., Bourne, M., Luttrell, C., Schoneveld, G., Cronkleton, P., Locatelli, B., Catacutan, D., Cerutti, P., Chomba, S. and Djoudi, H., 2021. Hot topics in governance for forests and trees: Towards a (just) transformative research agenda. *Forest Policy and Economics*, 131, p.102567.

Lau, J.D., Kleiber, D., Lawless, S. and Cohen, P.J., (2021). Gender equality in climate policy and practice hindered by assumptions. *Nature climate change*, 11(3), pp.186-192.

Leahy, T. and Jean Brown, D., (2016), September. 'People are Trying to be Modern': Food Insecurity and the Strategies of the Poor. In *Forum for Development Studies* (Vol. 43, No. 3, pp. 489-510). Routledge.

Lebel, L., Wattana, S. and Talerngsri, P., (2015). Assessments of ecosystem services and human well-being in Thailand build and create demand for coproductive capacity. *Ecology and Society*, 20(1).

Lipper, L. et al. (2014) Climate-smart agriculture for food security. *Nat. Clim. Change* 4, 1068–1072.

Lunstrum, E., Bose, P. and Zalik, A., (2016). Environmental displacement: the common ground of climate change, extraction and conservation. *Area*, 48(2), pp.130-133.

MacGregor, S., Arora-Jonsson, S. and Cohen, M., (2022). Caring in a changing climate: Centering care work in climate action. OXFAM Research Backgrounder Series (2022). <http://policy-practice.oxfam.org.uk/publications/caring-in-a-changing-climate-centering-care-work-in-climate-action-621353>

Maharani, C.D., Moeliono, M., Wong, G.Y., Brockhaus, M., Carmenta, R. and Kallio, M., (2019). Development and equity: A gendered inquiry in a swidden landscape. *Forest Policy and Economics*, 101, pp.120-128.

Malin, S.A. and Ryder, S.S., (2018). Developing deeply intersectional environmental justice scholarship. *Environmental Sociology*, 4(1), pp.1-7.

Martin, D.M., (2017). Ecological restoration should be redefined for the twenty-first century. *Restoration Ecology*, 25(5), pp.668-673.

Martinez-Alier, J., Temper, L., Del Bene, D., & Scheidel, A. (2016). Is There a Global Environmental Justice Movement? *The Journal of Peasant Studies*, 43, 731–755.

Massarella, K., Nygren, A., Fletcher, R., Büscher, B., Kiwango, W.A., Komi, S., Krauss, J.E., Mabele, M.B., McInturff, A., Sandroni, L.T. and Alagona, P.S., (2021). Transformation beyond conservation:

How critical social science can contribute to a radical new agenda in biodiversity conservation. *Current Opinion in Environmental Sustainability*, 49, pp.79-87.

McDermott, M., S. Mahanty, and K. Schreckenber. (2013). Examining equity: A multidimensional framework for assessing equity in payments for ecosystem services. *Environmental Science and Policy* 33: 416–27

McDermott, C.L., Coad, L., Helfgott, A. and Schroeder, H., (2012). Operationalizing social safeguards in REDD+: actors, interests and ideas. *Environmental Science & Policy*, 21, pp.63-72.

McDougall, C., Badstue, L., Mulema, A., Fischer, G., Najjar, D., Pyburn, R., Elias, M., Joshi, D. and Vos, A. (2021). Toward structural change: gender transformative approaches. Pp 365-481 In Pyburn, R. and van Eerdewijk, A., eds. 2021. *Advancing gender equality through agricultural and environmental research: Past, present, and future*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/9780896293915>

McElwee, P., Calvin, K., Campbell, D., Cherubini, F., Grassi, G., Korotkov, V., Le Hoang, A., Lwasa, S., Nkem, J., Nkonya, E. and Saigusa, N., (2020). The impact of interventions in the global land and agri-food sectors on Nature's Contributions to People and the UN Sustainable Development Goals. *Global Change Biology*, 26(9), 4691-4721.

McElwee, P. and Nghi, T.H., (2021). Assessing the social benefits of tree planting by smallholders in Vietnam: lessons for large-scale reforestation programs. *Ecological Restoration*, 39(1-2), pp.52-63.

Mehta, L., Srivastava, S., Movik, S., Adam, H.N., D'Souza, R., Parthasarathy, D., Naess, L.O. and Ohte, N., (2021). Transformation as praxis: Responding to climate change uncertainties in marginal environments in South Asia. *Current Opinion in Environmental Sustainability*, 49, pp.110-117.

Mohanty, C.T. (2003). "Under Western Eyes" Revisited: Feminist Solidarity through Anticapitalist Struggles'. *Signs*, 28(2), 499–535

Mollett, S. (2017). 'Gender's critical edge: feminist political ecology, postcolonial intersectionality and the coupling of race and gender'. In S. McGregor (Ed.) *Routledge Handbook of Gender and Environment* (146-158). London: Routledge.

Mollett, S. and Kepe, T. eds., (2018). Introduction. IN *Land Rights, Biodiversity Conservation and Justice*. London: Routledge.

Murray, U., Gebremedhin, Z., Brychkova, G. and Spillane, C., (2016). Smallholder farmers and climate smart agriculture: technology and labor-productivity constraints amongst women smallholders in Malawi. *Gender, Technology and Development*, 20(2), 117-148.

Myers, R., Larson, A.M., Ravikumar, A., Kowler, L.F., Yang, A. and Trench, T., (2018). Messiness of forest governance: How technical approaches suppress politics in REDD+ and conservation projects. *Global Environmental Change*, 50, pp.314-324.

Neimark, B., Mahanty, S., Dressler, W. and Hicks, C., (2020). Not just participation: the rise of the eco-preariat in the green economy. *Antipode*, 52 (2), 496-521.

Nightingale AJ. (2011). Bounding difference: Intersectionality and the material production of gender, caste, class and environment in Nepal. *Geoforum* 42(2),:153–62.

Nightingale, A. J. (2015). A socio-nature approach to adaptation: political transition, intersectionality and climate change programmes in Nepal. Pages 219-234 in Inderberg, T.H., Eriksen, S. O'Brien, K. and Sygna, L. (Eds) *Climate Change Adaptation and Development: Transforming Paradigms and Practices*. London: Routledge.

Nightingale, A.J., (2018). The socioenvironmental state: Political authority, subjects, and transformative socio-natural change in an uncertain world. *Environment and Planning E: Nature and Space*, 1(4), pp.688-711.

Ojha, H. R., A. Hall and R. Sulaiman, eds. (2013). *Adaptive Collaborative Approaches in Natural Resource Governance: Rethinking Participation, Learning and Innovation*. London: Routledge

Osborne, T., Brock, S., Chazdon, R., Chomba, S., Garen, E., Gutierrez, V., Lave, R., Lefevre, M. and Sundberg, J., (2021). The political ecology playbook for ecosystem restoration: Principles for effective, equitable, and transformative landscapes. *Global Environmental Change*, 70, p.102320.

Osinski, A., (2021). Towards a critical sustainability science? Participation of disadvantaged actors and power relations in transdisciplinary research. *Sustainability*, 13(3), p.1266.

Puskur, R., Mudege, N.N., Njuguna-Mungai, E., Nchanji, E., Vernoooy, R., Galiè, A. and Najjar, D. (2021) Moving beyond *reaching* women in seed systems development. Pp 113-146 in Pyburn, R. and van Eerdewijk, A., eds. (2021). *Advancing gender equality through agricultural and environmental research: Past, present, and future*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/9780896293915>

Pyburn, R. and van Eerdewijk, A., eds. (2021). *Advancing gender equality through agricultural and environmental research: Past, present, and future*. Washington, DC: International Food Policy Research Institute (IFPRI). <https://doi.org/10.2499/9780896293915>

Rao N. (2017). Assets, agency and legitimacy: Towards a relational understanding of gender equality policy and practice. *World Development* 95:43–54.

Rao, N., Mishra, A., Prakash, A., Singh, C., Qaisrani, A., Poonacha, P., Vincent, K. and Bedelian, C., (2019). A qualitative comparative analysis of women's agency and adaptive capacity in climate change hotspots in Asia and Africa. *Nature Climate Change*, 9(12), pp.964-971.

Ravera, F., Martín-López, B., Pascual, U. and Drucker, A., (2016). The diversity of gendered adaptation strategies to climate change of Indian farmers: A feminist intersectional approach. *Ambio*, 45(3), pp.335-351.

Resurrección, B. P. (2013). Persistent women and environment linkages in climate change and sustainable development agendas. In *Women's Studies International Forum* (Vol. 40, pp. 33-43). Pergamon.

Resurrección, B.P. and Elmhirst, R., (2008). *Gender and natural resource management: Livelihoods, Mobility and Interventions*. London: Earthscan.

Resurrección, B.P. and Elmhirst, R., (2020). *Negotiating Gender Expertise in Environment and Development: Voices from Feminist Political Ecology* (p. 272). Taylor & Francis.

Rietveld, A.M., van der Burg, M. and Groot, J.C., (2020). Bridging youth and gender studies to analyse rural young women and men's livelihood pathways in Central Uganda. *Journal of Rural Studies*, 75, pp.152-163.



Rocheleau, D., Thomas-Slayter, B. and Wangari, E., (1996). *Feminist political ecology: Global issues and local experience*. London: Routledge.

Satyal, P., Corbera, E., Dawson, N., Dhungana, H., & Maskey, G. (2020). Justice-related impacts and social differentiation dynamics in Nepal's REDD+ projects. *Forest Policy and Economics*, 117, 102203.

Schreckenberg, K., Poudyal, M. and Mace, G., (2018). *Ecosystem services and poverty alleviation: trade-offs and governance* London: Taylor & Francis.

Schroeder, R.A., (1997). "Re-claiming" land in the Gambia: Gendered property rights and environmental intervention. *Annals of the Association of American Geographers*, 87(3), pp.487-508.

Sigman, E. and Elias, M., (2021). Three approaches to restoration and their implications for social inclusion. *Ecological Restoration*, 39(1-2), pp.27-35.

Sijapati Basnett, B.S., (2016). Gender, migration and forest governance: Rethinking community forestry policies in Nepal. In Colfer, C. et al. *Gender and Forests: Climate Change, Tenure, Value Chains and Emerging Issues* (pp. 313-329). London: Routledge.

Sijapati Basnett, B. S., Elias, M., Ihalainen, M., & Valencia, A. M. P. (2017). Gender Matters in Forest Landscape Restoration. *CIFOR: Bogor, Indonesia*.

Sijapati Basnett, B. S., Myers, R., & Elias, M. (2019). SDG 10: reduced inequalities—an environmental justice perspective on implications for forests and people. *Sustainable Development Goals: Their Impacts on Forests and People*. Edited by P. Katila, C.J.P. Colfer, W. De Jong, G. Galloway, P. Pacheco and G. Winkel. Cambridge: Cambridge University Press, 315-48.

Sircar, S. (2021). Emplacing intersectionality: autoethnographic reflections on intersectionality as geographic method. *Gender, Place & Culture*, 1-20.

Staddon, S. (2021). Recognising and Resisting Injustice: Knowledge Practices and Politics Amongst Nepal's Community Forestry Professionals. *Rural Landscapes: Society, Environment, History*, 8(1).

Sultana, F., (2021). Climate change, COVID-19, and the co-production of injustices: a feminist reading of overlapping crises. *Social & Cultural Geography*, 22(4), pp.447-460.

Sundberg, J. (2017). Feminist Political Ecology. *International Encyclopedia of Geography: People, the Earth. Environment and Technology*. Wiley Online Library.

Tavener, K., & Crane, T. A. (2019). Beyond "women and youth": Applying intersectionality in agricultural research for development. *Outlook on Agriculture*, 48(4), 316-325.

To, P., Dressler, W. and Mahanty, S., (2017). REDD+ for Red Books? Negotiating rights to land and livelihoods through carbon governance in the Central Highlands of Vietnam. *Geoforum*, 81, pp.163-173.

Trisos, C.H., Auerbach, J. and Katti, M., (2021). Decoloniality and anti-oppressive practices for a more ethical ecology. *Nature Ecology & Evolution*, 5(9), pp.1205-1212.

Turner, M.D., Carney, T., Lawler, L., Reynolds, J., Kelly, L., Teague, M.S. and Brottem, L., (2021). Environmental rehabilitation and the vulnerability of the poor: The case of the Great Green Wall. *Land Use Policy*, 111, p.1057-50.

Van Aelst, K. and Holvoet, N., (2016). Intersections of gender and marital status in accessing climate change adaptation: Evidence from rural Tanzania. *World development*, 79, pp.40-50.

Wekesah, F.M., Mutua, E.N. and Izugbara, C.O., (2019). Gender and conservation agriculture in sub-Saharan Africa: a systematic review. *International Journal of Agricultural Sustainability*, 17(1), pp.78-91.

Westholm, L., (2016). Fruits from the forest and the fields: forest conservation policies and intersecting social inequalities in Burkina Faso's REDD+ program. *International Forestry Review*, 18(4), pp.511-521.

Westholm, L. and Arora-Jonsson, S., (2018). What room for politics and change in global climate governance? Addressing gender in co-benefits and safeguards. *Environmental Politics*, 27(5), pp.917-938.

Woroniecki, S., (2019). Enabling environments? Examining social co-benefits of ecosystem-based adaptation to climate change in Sri Lanka. *Sustainability*, 11(3), p.772.

Woroniecki, S., Wendo, H., Brink, E., Islar, M., Krause, T., Vargas, A.M. and Mahmoud, Y., (2020). Nature unsettled: How knowledge and power shape 'nature-based' approaches to societal challenges. *Global Environmental Change*, 65, p.102132.

Yuval-Davis, N. (2006). Intersectionality and feminist politics. *European Journal of Women's Studies*, 13(3), 193–209