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CHAPTER 14: GENDER AND INCLUSIVE DEVELOPMENT

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# Table of Contents

Chapter Overview.............................................................................................................. 3

14.1 Context and particularities to gender and social inclusion in the HKH............................... 8

14.2 Climate change and gender: Experiences from below ........................................................... 10
  14.2.1 Cases ................................................................................................................................ 11
    14.2.1.1 Bangladesh – Women vulnerable to disaster ................................................................. 11
    14.2.1.2 China – Recognizing farming women’s contributions ................................................... 12
    14.2.1.3 India — Gender structure shaping women’s knowledge and experience of changing climate
      13
    14.2.1.4 Myanmar – Need for a holistic, coherent, and integrated approach ......................... 14
    14.2.1.5 Nepal — Climate variability and gendered differentiation ............................................. 16
    14.2.1.6 Pakistan ........................................................................................................... 18
  14.2.2 Social structure, gender, and climate change: Differential vulnerabilities .................... 19

14.3 Environmental governance and gender in the HKH: Towards green economic growth for all ........ 21
  14.3.1 The green economy: New and old problems of governance ........................................... 21
  14.3.2 The status of gender mainstreaming at the policy and institutional levels ........................... 23
    14.3.2.1 Pakistan ........................................................................................................... 23
    14.3.2.2 China ............................................................................................................ 24
    14.3.2.3 How policies for gender mainstreaming and social inclusion unfold on the ground .... 25
    14.3.2.4 China............................................................................................................ 25
    14.3.2.5 Nepal ............................................................................................................ 26
    14.3.2.6 Hydropower development and issues of gender and social inclusion ......................... 28
    14.3.2.7 Nepal ............................................................................................................ 29
  14.3.3 Professionals, knowledge, and masculinities: A scale challenge in NRM governance ...... 30

14.4 Conclusion....................................................................................................................... 31

14.5 References....................................................................................................................... 32
CHAPTER OVERVIEW

KEY FINDINGS

1. Women in the Hindu Kush Himalaya (HKH) are a heterogeneous group, with overlapping identities that allow for multiple and conflicting relationships of inequality and exclusion — complexities that do not appear in the available national data. Discussions on gender and social inclusion in the HKH are distorted by country statistics that use deceptive aggregate measurements, obscuring the diversity of women in the region.

2. Only grounded and context-specific studies can illuminate complex gender relations and reveal how these relations are affected by climate change — and by adaptation efforts and interventions. Women’s specific roles, identities, and needs vary with their situation. Explaining these differences and how they interact with particular changes and interventions requires a flexible mix of qualitative and quantitative approaches.

3. Notwithstanding the diversity among women’s experiences, case studies from six countries suggest that many women in the HKH are increasingly losing access to resources and opportunities — even as male outmigration continues to shift male-specific responsibilities onto women. This trend is reinforced by established formal institutions and cultural norms.

4. Policies on land tenure and employment have disadvantaged rural women, especially in poor and remote mountain areas. Such policies typically undervalue rural women’s critical roles in food security, sustainable agriculture, and natural resource management.

5. Making development and adaptation efforts more gender inclusive and socially inclusive will require addressing contextually determined relations of inequality at the household, community, and other institutional levels. Such efforts are more likely to lead to sustained, transformative outcomes when based on longitudinal studies that explore how climate change affects various groups of women and men, both separately and jointly.

POLICY MESSAGES

1. Policy makers speak of climate change impacts, climate mitigation, and adaptation strategies and interventions and yet there are few detailed analyses of how climate change coexists with other changes and the impacts of these on the everyday lives and livelihoods of different groups of women and men across the diverse HKH. Therefore, policy makers need to acknowledge that experiences of climate change, and responses to climate change, reflect intersecting factors of age, caste, class, gender, and ethnicity.

2. Policies for climate change adaptation must not further feminize responsibilities in ways that cause women to be even more disproportionally affected.

3. Women’s engagement and participation in climate change policy making and on-the-ground interventions should follow a logic that is empowering and promotes women’s rights — not one that is dictated solely by efficiency. Engaging women in climate interventions that add
to their burdens or assuming simplistic women-environmental links have long been shown to be disproportionately negative for women.

4. Development actors should question the heavy reliance of policy on techno-scientific and managerial solutions — a bias that can prevent adaptation efforts from addressing context-specific human dynamics and needs (and that may be traced in part to the field’s masculine working culture).

Climate change and extreme weather events in combination with socioeconomic processes and opportunities have an especially severe impact on groups living in remote mountain areas of the Hindu Kush Himalaya (HKH). Along with climate, the socioeconomic processes and opportunities often have much bigger, and much more immediate effects, on the livelihoods of poor people. For instance, urbanisation and globalisation has led to aspirations and consumerism, which is a big push factor for migration. Unreliable rural and agricultural outcomes are seen to result in an increasing outmigration of men seeking better livelihoods for their families. This can leave women with heavier work burdens — increasing responsibilities in agriculture, the household, and community life. It might also provide women with a complex, newfound ‘independence’. (well established)

This shift in women’s and men’s responsibilities has not been matched by a corresponding shift in policies and attitudes about gender. Further, even as gender inequalities develop in an increasingly complex manner — the contextual political and economic situations across different HKH countries intersecting with class, caste, religion, age and ethnicity — there are continued assumptions made around a single homologous class of ‘mountain’ women.

Nonetheless, there is evidence that across the HKH women, and often also men, of poor households are losing access to resources and opportunities: a trend reinforced by the changing nature of development as well as by conservative cultural norms. For example, policies on land tenure and employment disadvantage rural women and men — especially those in poor remote mountainous areas — by undervaluing their critical roles in food security, sustainable agriculture, and natural resource management. (established but incomplete)

Featuring six country case studies (Bangladesh, China, India, Myanmar, Nepal, and Pakistan), this chapter presents a grounded view of diverse climate change impacts on women and on men in various parts of the HKH. It also explores the further influence of other social differentials such as age, class, caste, religion, and ethnicity. Although we still know less than we should about the gender-differentiated effects of climate change, particularly in the context of limited economic opportunities in mountain areas, our case studies begin to illuminate the relative quality of women’s and men’s lives, livelihoods, and access to resources under equally changing socioeconomic and political conditions. (established but incomplete)

As we assess the intersections of gender and social equity under conditions of climate change and social change in the HKH, we also look at how climate-related institutional interventions respond — or fail to respond — to the complex and diverse realities of lives on the ground. To this end, we reflect critically on gender and social inclusion in development policies and processes. We find that linear, techno-managerial approaches to climate governance fail to recognize the complexity of women’s and men’s realities in the context of climate change. We see an urgent need to move
beyond simplistic one-size-fits-all solutions — ‘quick fixes’ for gender equality and women’s empowerment — and towards more disaggregated, nuanced, and gender-inclusive approaches. (established but incomplete)

Problematic understanding of gender

Most often, the understanding of gender is simplistic: it is equated to women, particularly poor rural women. Therefore, more often than not gender is understood as a grassroots women’s issue. Notions of gender are simplified in policy making, and reduced to the inclusion of some “poor women”. This simplistic and apolitical interpretation and way of integrating gender in climate interventions and policies poses a huge problem, which manifests in the assumption that engaging women on projects is taking care of women’s needs and as women’s empowerment. (well established)

Furthermore, there is the paradoxical positioning of homogenous categories of “mountain women” as being both “vulnerable victims” of climate change as well as “formidable champions” of climate adaptation. This has led to extreme approaches in policies: a welfare approach in which women are taken as passive beneficiaries or as “fixers” of the environment and assuming their “volunteer” time in projects. (well established)

Related to the above is the focus on numbers and quotas as measures of change and progress, rather than on the structural issues of inequality and discrimination. A major problem is the overlooking of gender relations between women and men, between women, and between men. (well established)

The empirical problem: How data aggregation obscures women’s complex experiences in the HKH

Women in the HKH are not a homogeneous group. Gender difference intersect with other social differentiations such as class, caste, ethnicity, and age. Women are thus marked by multiple, coexisting identities that create overlapping — and often conflicting — relations of inequality and hierarchy, inclusion and exclusion. (well established)

The available national data on women in HKH countries do not reflect this diversity and intersectionality, because they rely on aggregate measurements. Part of the problem is that aggregated country data may not be representative of the mountain areas, which (except in Bhutan and Nepal) form only a portion of HKH countries’ national territories. This lack of mountain specificity could help to explain, for example, why the 2014 Gender Inequality Index varies so widely across the HKH, from China with the lowest inequality to Afghanistan with the highest. (established but incomplete)

Another problem is that empirical data on the impacts of climate change are often presented in aggregate terms, reflecting an unfounded assumption that climate change affects people uniformly. To obtain data that are disaggregated by gender and other social differences, more longitudinal and in-depth studies are needed — studies describing how climate change affects different groups of women and men, separately and jointly, reconfiguring their access to assets and resources and defining their wellbeing and vulnerabilities. We need numbers to measure the patterns and trends of impacts, as well as qualitative studies to capture the complex contexts of people’s experiences with climate change. (well established)

Despite the lack of systematic, disaggregated data on gender issues in the HKH, the Gender Inequality Index at least suggests that women do not form a monolithic group across the region, and
that their vulnerability trajectories are likely to diverge. Our case studies confirm that women’s
experiences in the HKH are multiple and differentiated, sometimes contradictory, and, in some cases,
effect new chains of vulnerability. (well established)

We are conscious that current knowledge on gender and climate change does not tell the full story:
we cannot yet disentangle the forces that mediate climate change impacts and responses for women
and for men across different social groups. Only by unraveling the lived realities of people and their
ecosystems can we hope to contextualize the numbers and seek situated options. (well established)

Questions about interventions: How to engage women and men of disadvantaged groups?
Policies and programs have long focused on the functional rather than the structural aspects of
gender. In most sectors, gender mainstreaming policies have applied the concept of gender narrowly,
often as a synonym for “poor rural women” — and without further differentiation of these women’s
needs, interests, emotions, identities, and roles. As a result, these policies produce technocratic
quick fixes that place unrealistic burdens on women already in poverty. (well established)

To be sure, today’s technocratic programs include women in economic development. Yet this
inclusion is rationalized only by an appeal to economic gain. While the pursuit of economic
efficiency can offer women economic opportunities, it does not fully address their unequal power
relations with men. (established but incomplete)

Accordingly, stakeholders need to focus more on context. They should recognize not only women’s
vulnerabilities but also how the masculinity of men contributes to gender imbalances. Interventions
must shift their attention to the structures that underlie gender inequality. This work calls for long-
term political engagement. (well established)

Exploring “feminisation of responsibilities” and addressing a masculine working culture
Researchers and policy makers need a more nuanced and critical understanding of how women, in
climate change contexts, assume disproportionate shares of responsibilities — the agricultural
labour, reproductive work, and other labour that supports community welfare. These shifts may
occur as men choose migration, often actively supported by their wives and daughters, or as extreme
events makes more people infirm and in need of care. (established but incomplete)

Unfortunately, as such responsibilities are transferred to women, a gendered rhetoric of
‘feminisation of responsibilities’ can arise. Within this rhetoric women may be assigned new ‘caring’
roles as ‘climate agents’, expected to adapt to climate change and cushion its adverse effects on their
households and communities. Such rhetoric has the effect of adding climate change adaptation to the
list — already long — of women’s caring roles. (established but incomplete)

As important as it is to analyse the rhetoric of women’s roles, men’s roles also require attention,
especially at the science and policy levels. Most knowledge and policy in the natural resource
management (NRM) sector is designed and executed by male professionals. How does masculinity
mediate our relationship to the environment and governance? Progressive policies in irrigation and
water planning, for example, will require that we address masculine working culture in this sector.
When engineers and experts adhere to a sectoral culture of male hegemony, their reason may be that
their credibility depends on upholding professional norms — and yet, paradoxically, these same
professionals may be the ones charged with formulating and implementing policies that promote
diversity, gender equality, and social inclusion, in response to a rising concern about equity in policy

circles. (established but incomplete)

Such challenging discussions of development practice can improve our preparedness for climate and
natural resource management. Without professional and critical self-reflection, we have little reason
to assume that new policies will succeed any more than past efforts to increase gender equality,
women's empowerment, social inclusion, and climate change adaptation. (established but
incomplete)

A vision for gender-inclusive, socially inclusive development in the HKH by 2030

In conclusion, we set forth a vision of inclusive development for the HKH complementing, and in the
spirit of, the Sustainable Development Goals adopted by the global community in 2015: By 2030,
environmental governance processes, policies, and strategies at scale (from local to global) are
gender inclusive and cognizant of the mosaic of nested, uniquely diverse, dynamic, and mostly
gender-inequitable socio-ecological systems in the HKH.

While a singular goal, Sustainable Development Goal 5 also bears on all the other SDGs. Each SDG
builds on assumptions about gender. And each has further implications for equality and women's
empowerment. These connections among SDGs are all the more relevant to the HKH, where so many
women in mountain areas perform multiple roles: in the household, in agriculture, and in natural
resource management.

Reaching SDG 5, for example, presupposes reaching SDG 2: End hunger, achieve food security and
improved nutrition, and promote sustainable agriculture. And more specifically, it presupposes
achieving SDG target 2.3: By 2030, double the agricultural productivity and incomes of small-scale food
producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers, including
through secure and equal access to land, other productive resources and inputs, knowledge, financial
services, markets and opportunities for value addition, and non-farm employment.

Achieving SDG 5 means addressing SDG 6: Ensure availability and sustainable management of water
and sanitation for all.

Again, SDG 5 is related to SDG 15: Protect, restore and promote sustainable use of terrestrial ecosystems,
sustainably manage forests, combat desertification, and halt and reverse land degradation and halt
biodiversity loss.

Generally, development actors need to integrate gender inclusion and social inclusion into all the
SDG targets and indicators — and to be alert to the likelihood that exclusions will arise as goals are
addressed.
14.1 CONTEXT AND PARTICULARITIES TO GENDER AND SOCIAL INCLUSION IN THE HKH

The Hindu Kush Himalaya (HKH) are considered to be one of the most ecologically sensitive areas in the world. Although data is limited and contested, it is generally agreed that the effects of climate change are predicted to happen here “first” and with the greatest intensity (Singh et al. 2011: iv).

What is less well known is how the effects of climate change will impact the geography and geologically diverse mountain ecosystems and, in turn, the lives, livelihoods, and resources of a socio-politically, economically, and culturally diverse mountain community across the region.

In this chapter we draw attention to the fact that climate change problems and solutions are largely techno-centric in design. Jasanoff (2010) notes that “modern science” has framed climate change as a global phenomenon that “detaches knowledge from meaning”. Technical observations of more easily measurable phenomena such as changes in temperature and precipitation undermine attention to the understanding of the uniquely embedded local experiences of people as well as “social institutions and ethical commitments at four levels: communal, political, spatial and temporal” (Jasanoff 2010: 233). In other words, little is known about how changes in climate will result in complex changes in the quality of lives, livelihoods, and resources of diverse groups of people living in different socio-political contexts. We argue that, especially in the HKH, it is important and necessary to creatively link “abstract generalizations, specificity and objectivity” of climate science and climate interventions with contextually relevant “scales of social meanings”, experiences, and subjectivities (Jasanoff, 2010: 235).

In this chapter, we focus on unpacking popular assumptions related to climate change and proposed climate interventions using a social relations approach (SRA) and feminist political ecology (FPE) framework. For this work, we provide case studies that demonstrate the complex workings of gender relations in the context of climate change in the HKH. Specifically, these case studies highlight the unique, embodied experiences of climate change and how gender power relations affect green economy interventions.

**BOX 14.1: WHAT IS GENDER?**

Gender refers to socially constructed roles, responsibilities, and opportunities associated with men and women, as well as hidden power structures that govern the relationships between them. Inequality between the sexes is not due to biological factors, but is determined by the learnt, unequal, and inequitable treatment socially accorded to women (UNDP 2010).

Social differentiations and identities based on class, caste, ethnicity, age, and other factors intersect with gender relations in different ways. Therefore, addressing gender issues while seeing women as a monolithic group presents challenges.

The chapter aims to critically assess two primary issues:

- The intersections between gender and social equity with climate change in the context of changing realities across the HKH; and
- How climate-related institutional interventions respond — or do not respond — to the complex and diverse realities of people’s lives on the ground.
In this assessment we combine the SRA and FPE approaches (Box 14.2). The social relations approach (SRA) focuses on the nature and construct of inequality as determined through distributions of resources, responsibilities, and power. Secondly, it emphasizes the analysis of relationships between people, their relationship to resources and activities, and how these are reworked across institutional levels in specific contexts — from the household to formal and informal institutions including the state and the market. Finally, the SRA emphasizes that the overall goal of development interventions is and should be human wellbeing and not just economic growth (Kabeer 1994; Kabeer and Subrahmanian 1996:25).

Feminist political ecology (FPE) recognises the close interlinkages of gender with other social categories and differences in gender-environment relations, and points out that resource-related relationships relate to “women’s particular circumstances” (Molyneux 2007:231). These circumstances not only interact with class, caste, race, culture, and ethnicity to shape processes of ecological change; they also differ in different social, political, and economic settings dynamically shaping “gender as a critical variable in shaping resource access and control” (Rocheleau et al. 1996:4). FPE recognizes the importance of conducting ‘science from below’ or examining people’s embodied experiences of resource degradation, disasters, mobility, and displacement as these connect with other scales of power and decision making (Harding 2008; Hanson 2015). FPE interrogates knowledge production, governance, and policy making, as they herald new forms of environmental governance that may be inflected with assumptions that deepen differentiated and unjust life opportunities (Jasanoff 2010).

Mountain people have a crucial roles in natural resource management and climate change adaptation. To understand the situation of the HKH it is important to examine the drivers of change behind gendered lives and livelihoods. The livelihoods of mountain communities in the HKH are still largely agrarian: agriculture, livestock, and management of natural resources. Coping strategies include migration, wage and casual labour, and labour-intensive household management and income generation through small-scale trade (Leduc 2009). Natural resource management also figures heavily into community-based and individual/household coping strategies, drawing from a rich traditional culture and knowledge about this topic.

Climate change occurs within a context of myriad other drivers of change that have evolved over time. The processes of globalisation, regionalisation, and economic liberalisation are connecting...
markets and reconfiguring economic relations, interactions, and dependencies. While global birth rates are leveling, population continues to grow rapidly in the HKH, placing additional stress on urban environments and infrastructure in contexts without sufficient government policies to curb the trends (UN-HABITAT 2007; Karki et al. 2011). These trends have also meant opening up mountain communities to a wider world of institutional arrangements, relationships, and opportunities, and the emergence of a consumer class that is shaping new aspirations and desires, sculpted by a culture of money (GoN 2014). In tandem, these trends alter land-human relationships, affecting how people use, access, control, and manage natural resources (Jodha 2007). In this process, local knowledge systems are rendered obsolete while giving rise to new bodies of information, creating new livelihood systems, and setting in motion new patterns of consumption and acquisition, as well as “reconfiguring people's relationships to one another, within and across households and communities . . . within and among state institutions and other macro agencies” (Gurung and Bisht 2014:5). Furthermore, rural to urban migrants — largely young men — seek off-farm employment leading to changing demographic patterns, with growing elderly rural populations and the 'feminisation' of farm and non-farm activities in terms of production, exchange, and distribution.

These factors or drivers are affecting women and men differently and changing gender roles and relations, leading to a widening of the differences between women’s and men’s income-earning and asset-controlling possibilities (Nellemann et. al. 2011; Sogani 2013; Bastola et al. 2015; Nibanupudi and Khadka 2015).

14.2 CLIMATE CHANGE AND GENDER: EXPERIENCES FROM BELOW

Few studies focus on understanding gendered impacts due to changing climate in the HKH (Ogra and Badola 2015). In this context, it is critical to recognize and understand that gender does not equate to women: there is no single class of HKH women, and no universality of experience in regard to climate change impacts. Understanding the complexities of diverse nature-society interrelations in the context of climate change in the HKH requires a viewpoint from below. Climate impacts, vulnerabilities, and risks and opportunities in the HKH are shaped by disparities in gender, class, caste, ethnicity, and religion, which in turn mutually re-shape national and local social, political, and economic contexts.

The consensual presentation, imaginary positioning and mainstreaming of climate change as a global problem and urgently so for all (Swyngedouw 2010: 213) is mirrored in the way ‘mountain women’ in particular are positioned as both victims and champions of climate change. A May 2016 overview from the UN Framework Convention on Climate Change speaks of “women commonly fac[ing] higher risks and greater burdens from the impacts of climate change in situations of poverty, [as] the majority of the world’s poor are women. Yet, women [are also noted] to [be able to] play a critical role in response to climate change due to their local knowledge of and leadership [potential] in sustainable resource management at the household and community level”. Such generalizations are especially prominent in popular discourse of climate and mountain women in the HKH (Joshi 2014:247). There are countless stories of mountain women who, through their experience, responsibilities, and strength, are reported to play a much stronger role than men in the management of ecosystem services and food security, and therefore in climate change adaptation (Nellemann et al. 2011). Mountain women’s knowledge, capability, and commitment to the
environment and their families are used to highlight their ability to adapt in extreme situations such as conflict, natural disasters, and displacement (Leduc 2010). Such narratives create persuasive arguments that mountain women are critical actors in mitigating and adapting to climate change. But what is also important to consider is that despite the critical roles, women in the HKH face challenging situations and positions as they carry out these important roles.

This section of the chapter focuses on how gender and other social relations are negotiated with increasing climate variability. Within similar geographical regions, cultures, ethnicities, castes, and ecological settings, discriminative practices are likely to intensify with increasing environmental change (Bhattarai et al. 2015). In this context, we explore gender-differentiated access and control over resources and its impact on women and men in the HKH (Carvajal-Escobar et al. 2008).

14.2.1 Cases

Due to a lack of large-scale data, and a lack of cases from all HKH countries, we focus on representative case studies to show the inter-linkages between gender and climate change. Some specific case studies presented from India, Nepal, Pakistan, Bangladesh, Myanmar, and China highlight the manifestation of gender vulnerability and women’s roles from the HKH. Overall, this subsection problematizes the interplay of gender and other social differences that are superimposed on climate change impacts and create multiple and differential vulnerabilities for the poor and marginalised women and men. Since the cases cited here vary on topics, the data also vary. However, all the cases examine the existing gender and social relations in the HKH and how these relations are being aggravated due to climate change impacts.

14.2.1.1 Bangladesh – Women vulnerable to disaster

The case of Bangladesh demonstrates how water-related hazards interact with gender power differentials to create situations where men and women cope, differently experience, and suffer hazards and disasters (Sultana 2010). Women are feared to be more vulnerable to climate-induced water-related stresses and extreme events like floods (Brody et al. 2008; Dankelman 2008) and there is ample evidence that during natural disasters, women and girls are more prone to mortality compared to men and boys. In Bangladesh, the 1991 cyclones and floods claimed more female lives than male: Amongst females 10 and older, girls and women were three times more likely to have perished (Bern et al. 1993; Twigg 2004; Parikh 2007; Roehr 2007). In contrast, the mortality rate of men in both flood- and salinity-prone areas was only 17% of the total (Golam et al. 2009). This higher female death rate has been attributed to gender norms on what men or women should do in a disaster or the resources they have at their disposal (Chowdhury et al. 1993; Nelson et al. 2002; Neumayer and Plümper 2007; WEDO 2008; Dasgupta et al. 2010; Sharmin and Islam 2013).

For example, early warning signals had not reached large numbers of women because the information had been disseminated primarily in public places to which many women do not have easy access; and even when women received warnings they were constrained by cultural norms that restrict women’s freedom of movement in public — that is, women were not allowed to leave their houses without a male relative, and many women waited for their husbands to return home to take the decision to evacuate, thereby losing precious time that might have saved their lives and those of their children (D’Cunha 1997; UNEP 1997; Parikh 2007; Sharmin and Islam 2013). Furthermore, conditions in cyclone shelters were not suited to women’s needs and thus impacted negatively on a
positive response; the shelters were ill-designed and insensitive to gender- and culture-specific needs — large numbers of men and women huddled together, which is not acceptable in Bangladeshi culture. There were also no separate toilets for men and women, poor water, and no toiletries like sanitary pads. All these problems enhanced the discomfort for menstruating, pregnant, and lactating women (Baden et al. 1994; D’Cunha 1997). Similarly, a rapid gender field survey conducted in 2007 on Cyclone Sidr relief efforts found that after the storm, women were vulnerable to harassment, violence, famine, and sexual trafficking; the study also found that women were less likely to take off clothing, such as their long saris, during floods and these got caught in the floating debris, increasing their chances of drowning (Khan 2012). Thus, the differences in the gendered divisions of roles and labour, gendered rights, structures of decision making, and women’s weak bargaining power within the household result in women facing more suffering — including sexual assault — before, during, and after each disaster event.

Apart from the extreme impacts that affect daily lives, women are responsible for providing water for their families; therefore, such climate-related water stresses and gender inequalities aggravate the situation for women and girls in a number of ways. In Bangladesh, even when there is severe disruption of local freshwater sources following floods, cyclones, and saline intrusion, women are responsible, irrespective of their physical condition, to provide drinking-water for their families for which they must walk long distances — sometimes up to 10 kilometres every day over rough terrain — in search of water, consuming an enormous amount of their time and effort (WEDO 2008). After floods, day-to-day tasks such as cooking and cleaning the house become more time-consuming due to rising water levels. Women are often compelled to raise their stoves or go to neighbours’ houses to prepare food (World Bank 2010). When the flood waters are particularly high, women go out on shallow-bottomed boats some distance to find the privacy to relieve themselves. Lack of supplies, the impossibility of disposal, and the problems of keeping oneself clean make menstruation particularly challenging. For many, the trauma of past experiences with the spate of water-borne diseases continues to linger long after the event (Mehta 2007).

14.2.1.2 China – Recognizing farming women’s contributions

China’s rapid industrialization, urbanisation, and marketization since the 1980s has meant farmers cannot survive on farming alone due to small average landholdings (0.6 hectare); therefore, many have been forced to adapt their coping strategies. At this point the “one household, two sectors” approach (husband in the city, wife on the farm) was adopted by many families. In this situation, rural women had to assume greater responsibility for agricultural production on top of their domestic and childcare duties. This is especially true in the poorer remote mountain areas in southwest China, which has a rich agricultural biodiversity that lends itself to using bio-culture farming systems as an adaptation strategy to support rural livelihoods and strengthen food security for the region.

The 2012 research carried out by the Centre of Chinese Agriculture Policy (CCAP) of Chinese Academy of Science revealed that globalisation, rapid development, and climate change had delivered serious impacts to local food systems: severe droughts, increased temperature, and extreme weather. As a result, local farming species and landraces were disappearing at an alarming rate, and the existing bio-culture landscape and local seed systems were threatened. These developments have precipitated a rise in social challenges such as extreme poverty, food security issues, increasing environmental degradation, and more frequent natural disasters to small farmers (primarily ethnic
women) in remote mountainous areas. Women, as the main cultivators, seed savers, and users are the most affected by climate changes and at the same time they are the key custodians for farmer seeds.

Two village case studies from the rural areas in Guangxi and Yunnan Provinces illustrate some of the challenges facing mountain households. Situated in southwest China, Guangxi and Yunnan are home to most of China’s rural poor mountain ethnic minority communities, and have a rising trend of male migration. Over the past decade, the percentage of migrants in the total labour force in the communities has grown from 42.56% (2002) to 62.09% (2012) — a 20% increase (Table 14.1). Men comprise the majority of migrants, though many young women migrate as well.

<table>
<thead>
<tr>
<th>Year</th>
<th>2002</th>
<th>2007</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>% migrants in total labour force</td>
<td>42.56</td>
<td>55.94</td>
<td>62.09</td>
</tr>
<tr>
<td>% women out of total migrants</td>
<td>38.48</td>
<td>39.84</td>
<td>42.06</td>
</tr>
</tbody>
</table>

Data source: Survey of 520 rural households in Guangxi and Yunnan Provinces in 2013 (Song and Zhang 2015)

Case studies show that women are playing a key role in improving agricultural production for their households when offered the opportunity to make important decisions about the farm. In order to help farmers in remote mountain villages conserve seeds, improve their preferred landraces, and redirect benefits, the CCAP team initiated community-based conservation, participatory variety selection (PVS) trails, and seed production in a number of trial villages in Guangxi and Yunnan through woman farmer–to–woman farmer exchanges facilitated by the project team. This initiative led to increased income and food quality for households participating in the programme (Zhang et al. 2016).

The participatory plant breeding (PPB) activities continue today in the villages and to date have conserved more than 100 food crop varieties, improved 15 drought-resistant or quality landraces, and generated significant value for the women’s group from seed production and other value-adding activities. A women’s group in Guzhai village has developed into women-led farmer cooperatives in 10 years. A women’s group in a Yunnan village created an idea exchange with the women’s cooperative in Guangxi for learning organic farming. These activities have increased women’s income three times and empowered women and their self-organization (Song and Vernooy 2010; Zhang et al. 2016).

14.2.1.3 India — Gender structure shaping women’s knowledge and experience of changing climate

Cases from India show that gender-based impacts of climate change cut across social categories such as ethnicity and caste, particularly for women from agriculture-dependent households. Income, migration status, and household size do, however, appear to be crucial aspects for sustainable livelihood development, and directly related to household assets and overall capacities. Case studies also reveal that gendered labour practices and other gender norms strongly shape women’s knowledge and experiences of changing climate.
Moitra and Kumar (2016) present cases from Uttarakhand, which mapped women’s perceptions of climate change and the challenges they faced as a result. The cases show that in the micro socioeconomic and physical system of the Garhwal Himalaya, substantial temporal and geographical variations in climatic conditions and their multi-fold consequences are deeply impacting women’s lives and increasing their vulnerability. Women’s perceptions of climate change were taken on three counts: changes in the climate, natural disasters and calamities, and their combined impact on the lives of the women. Data showed that women’s perceptions about climate change were not limited merely to the changes in the climate but also extended to the disasters and calamities they were experiencing. The women’s responses indicate that they have been experiencing the changes in climatic patterns through increased intensity in heat and cold waves. The frequency of natural disasters such as landslides and cloudbursts has also increased. These changes have impacted their daily lives through declines in agricultural productivity, fodder and water availability, and increased forest fires.

Singh and Singh (2015) document a case of climate-induced water stress on local communities in four districts (Mon, Mokokchung, Tuensang and Kohima) of Nagaland, in the northeastern hills of India. The authors explore how climatic factors inducing water stress interact with non-climatic features in this mountainous region, producing new challenges that are gendered in nature. Singh and Singh report that domestic water access has always been a gendered problem, especially during the dry period of October–March when natural springs and streams in the hills recede in volume. Women and children are forced to walk long distances downhill in search of water. With the onset of climate-related changes, especially through delayed monsoon rains and reduced winter rains, these difficulties have increased manifold as the dry period has almost doubled. These conditions have brought serious consequences for physical health and wellbeing, and thwarted women’s financial stability and children’s education. The findings further state that adaptation to climate-induced water stress at the local level is not dependent upon any externally ‘planned’ action.

Ogra and Badola (2015) present a case study from the Nanda Devi Biosphere Reserve in Uttarakhand. The case outlines the implications of climate change for women farmers in the area. In Nanda Devi, household responses to crop failure and decreased agricultural yields are constrained in a range of ways that make it particularly difficult for poor families to enhance or diversify their income sources. For women in poor families, however, the hardship is compounded. Women from cash-poor households, for example, do not have the option of purchasing fuelwood or fodder. Thus, the risks and labour costs that women in the study reported as inherent to their work increase in the absence of alternative assets.

**14.2.1.4 Myanmar – Need for a holistic, coherent, and integrated approach**

Myanmar is vulnerable to a wide range of hazards including floods, cyclones, earthquakes, landslides, and tsunamis. Over the last decade the country has dealt with the devastating effects of Cyclone Nargis in May 2008, which severely impacted the Ayeyarwady and Yangon Divisions, and Cyclone Giri, which hit Rakhine State in October 2010. Cyclone Nargis hit the Ayeyarwady Division of Myanmar, killing an estimated 130,000 people, of which 60% were women (CARE Canada 2010). The impact was immense and led to massive displacement and declination of agriculture and infrastructure across the region. An estimated 2.4 million people lost their homes and livelihoods (Pender 2009). The cyclone caused devastating...
damage to the environments of Ayeyarwady and Yangon Divisions, where local livelihoods are heavily reliant on natural resources.

In this region, women traditionally play an important role in income generation including small-scale trade, shop-keeping, fish processing, and crafts. They also play a key role in subsistence agriculture, fishing activities, and maintaining food security for their households. However, despite these responsibilities, women have less control over resources than men.

Despite having a range of livelihood opportunities, the overwhelming majority of the people living in areas affected by Cyclone Nargis live from harvest to harvest, sometimes relying on loans from moneylenders to tide them over to the next season. Of the loans taken out in the region, 50% go to households that have rights to paddy land, 20% to households that derive their primary income from fishing, and 30% to landless labourers. In such a situation, women who survived the cyclone were left more vulnerable — without family, incomes, livelihoods, homes, or assets, and with little access to quality sexual and reproductive health care or psychosocial support services (Women’s Protection Technical Working Group 2010).

In the wake of the cyclone, the UN set up the Protection of Children and Women (PCW) cluster under which both child protection and women’s protection would be addressed (among other protection issues) as autonomous issues, in separate sub-clusters. The Women’s Protection technical working group transitioned into a sub-cluster (WPSC), with the focus on multi-sectoral (protection, gender-based violence, livelihoods, education, health and reproductive health) and cross-cutting (health, psychosocial and legal support) issues faced by women in the context of the cyclone-affected areas. The main reason for this separate cluster was that the PCW had inadvertently created an environment in which women’s issues were addressed only in relation to the relationship of women to children. The assessments conducted by WPSC indicated that despite women (particularly young widows, women separated from their families, and single female heads of households) being identified as the most vulnerable by community members, there was a shortage of approaches targeting their specific needs and experiences — for instance, there was little to no sex and age disaggregated data from any sector, and there were hardly any stand-alone women’s protection programs. This was largely due to the absence of a comprehensive protection coordination structure in the PCW. Programming — even though dubbed ‘community-based’ — overlooked the specific needs and experiences of women, often due to the shortage of sex and age data for all sectors, including protection. Furthermore, sectoral strategies, such as agriculture and fisheries, were essentially gender blind, further contributing to the marginalization of women actively working in these sectors both performing gender-discrete tasks (such as paddy transplanting and fish processing) and working alongside men (Pender 2009).

With the formation of the WPSC, a more holistic view, including gender-based violence, was adopted. For instance, the WPSC prioritized the need for holistic support for survivors of gender-based violence, including health, psychosocial, and legal resources. Not only did the program increase the scope of gender-based violence work, but it also allowed gender mainstreaming to be addressed in practical, tangible ways, supported the implementation of more comprehensive assessments, and empowered women through livelihoods, education, and comprehensive health care. It was a highly efficient coordination structure which took gender mainstreaming from an abstract concept to a practically implemented, cross-sectoral strategy and priority.
A key lesson from this case is that sustainable livelihoods require a coherent and integrated approach across a number of sectors, including water, shelter, livelihoods and food security, education and training, sanitation and hygiene, and disaster risk reduction. At the same time, these sectoral approaches will need to be augmented by capacity building and institutional strengthening for national and local governments as well as civil society to create an enabling framework at the national level to provide laws and policies that support sustainable development, and a reliable information base on the environment (UNEP 2009; UNEP 2012).

14.2.1.5 Nepal – Climate variability and gendered differentiation

Bastola et al. (2015) recently conducted a study to understand perceptions of climate change impacts across the mountain, hill, and Terai regions in the Central Development Region of Nepal. They posed important questions on how the adverse impacts of a changing environment shaped gender and social relations, and added more weight to women’s workloads to provide care and support of family members while also managing the production spheres.

This study illustrates the lack of effort undertaken to understand how climate change differentially impacts women and men, and how little is known about the links between climate change, gender, and other social stratifiers. This situation is exacerbated by the fact that little gender disaggregated data is available. Moreover, this study supports the findings of other studies (Goh 2012 and Eriksson et al. 2008, among others) that show how climate variability is more likely to increase women’s workloads within the agriculture sector. Figure 14.1 shows gender disaggregated agriculture work in the three geographical regions, indicating that women are increasingly involved in the agriculture work (such as ploughing, sowing, weeding, irrigating, preparing field channels, harvesting, threshing, and selling of agriculture produce).

The ratio of women to men in agricultural activities is particularly pronounced in the mountain regions, due primarily to male outmigration for work. Gender disaggregated data on work allocation show two major points that have both positive and negative outcomes. On the positive side, women take control on household economic affairs (selling of agriculture produce) that traditionally were controlled by men. On the other side, there is an increasing feminisation of labour where women are forced to bear more responsibility for agriculture activities, particularly in the mountain region where male outmigration is high (Bettini and Gioli 2015). Bhattarai et al. (2015) share similar findings that at least one man from each household in the mountain region has migrated to Gulf Cooperation Council countries or Malaysia.

In cases where both women and men have out-migrated, elderly family members assume the responsibility of farm management, and agricultural land was often left barren (Bastola et al. 2015). In cases of forced migration, we see more severe effects on women who are left behind, as they suffer more often from psychological impacts while adapting to climate change. Over the past years, it is estimated about 8% of the total population have migrated for employment to foreign countries. The total remittances contribute about 29.1% of the national economy (in 2013/2014) (GoN 2014). To build local resilience through income diversification, the Government of Nepal under the Foreign Employment Policy 2012 directs establishment of labour banks. These institutions are yet to be implemented on the ground. Unless policy frameworks with institutional arrangements are in place, forced migration will cause those left behind, particularly the women, children, elderly, and the physically disabled, to remain vulnerable to climate variability (Bettini and Gioli 2015).
Figure 14.1: Number of women and men engaged in various agricultural activities by region. Notes: Symbols *** and ** denote that the difference between proportion of women and men is significant at 0.01 and 0.05 level, respectively (Z-test). Primary data source: Bastola et al. 2015.

In forced migration situations some women have begun to strengthen their access and control over the economic gains from agriculture (across all central region as shown in Figure 14.1), and the driver may not necessarily be a consequence of male outmigration. There are several other factors that are important determinants of gendered vulnerability to climate variability, including geography, religion, class, and ethnic divisions (Maraseni 2012; Bastola et al. 2015). Until now there has been
little focus on women’s capacity, their critical role in managing production in the absence of the male population (Skinner 2011). Therefore, experiences of climate variability are not always disproportionately negative or only negative for women, but in most situations women are likely to experience disproportionately the negative impacts due to the existing social gender structures that favour men (Bhattarai et al. 2015:122).

14.2.1.6 Pakistan

Case studies from Pakistan reflect the lack of focus on gender dimensions in disasters, and demonstrate that vulnerability to disasters and climate change impacts vary depending on gender and are compounded by a wide range of socioeconomic factors including age, material welfare, level of education, politics, and ethnicity.

In Pakistan, disaster management authorities have taken useful steps for making disaster response and recovery gender sensitive. For instance, the National Disaster Management Authority (NDMA) has developed guidelines, ‘Disaster Risk Reduction (DRR), Gender and Environment’, with an objective to provide disaster managers with the initial tools as to how the infrastructure and social vulnerability can be taken care of during the disaster. At the provincial level, the Provincial Disaster Management Authority (PDMA) have established ‘Gender and Child Cells’ and developed various codes of conduct to support gender integration during a humanitarian response.

However, despite progress shown by NDMA and PDMA’s in Pakistan, humanitarian response implementation to date has not sufficiently focused on significant gender dimensions (Hamid and Afzal 2013). Gilgit-Baltistan’s Contingency Plan for Floods reveals that vulnerable groups (women, children, elderly, and disabled persons) are neglected in the planning and conduct of relief operations (GDMA 2015:7).

A survey of the literature in Pakistan on this topic stresses the need for gender disaggregated data. Though effective adaptation strategies need to address fundamental gender disparities in the disaster relief process, in the absence of robust data, gender analyses will remain inadequate and establishing gender-sensitive needs, response, recovery, and rehabilitation almost impossible (IFCR 2007). At present, only Khyber Pakhtunkhwa PDMA has begun to collect gender disaggregated data. Among their early findings, they state that more women than men died in the rains and cyclone of 2015 (PDMA/KP 2015).

Studies also show that post-disaster processes of consultation were also poor in terms of collecting gender-disaggregated data. Only men were solicited for information. Consultations with children, pregnant women, the disabled, and other vulnerable groups was insignificant. One explanation for this oversight is that most formal government institutions (including N/PMDAs, irrigation, WAPDA, and disaster-related district administrations) are highly male dominated (Shah 2012; Shah and Memon 2012; Hamid and Afzal 2013).

Responses from the field, especially poor communities affected by floods, also reveal that gender is a largely neglected aspect of community infrastructure planning and provision (Shah 2012). However, women, children, the elderly, and the disabled pay a particularly high price for this lack of sensitive infrastructure development. After the floods of 2010 and 2011, it was observed that floods came suddenly, and without an early warning system there was hardly any time for communities to make a timely and planned evacuation (UNIFEM 2010). An analysis of early warning systems conducted by
LEAD Pakistan (2015) found that 88 out of the 145 districts of Pakistan were at risk for flood, but only 39 districts were covered by early warning systems. It is noteworthy that the majority of women and girls had no independent access to the tools used for communicating flood warnings, such as loudspeakers in mosques, mobile phones, and FM radio. Therefore, merely providing early flood warnings through various media sources may not necessarily ensure that women and other vulnerable groups have information on which to take action (Mustafa et al. 2015).

14.2.2 Social structure, gender, and climate change: Differential vulnerabilities

Climate change conditions have also intensified competition over water and agricultural resources. Tetley and Raza (1998) examined growing outmigration for employment with households increasingly becoming “female managed”, especially in the HKH. The livelihoods of the people in the region are based on agriculture, livestock raising, management of natural resources, migration, labour-intensive household management, and income generation through small-scale trade and wage and casual labour (Leduc and Shrestha 2008). The diminishing subsistence prospects and underemployment in rural areas have pushed (mainly) men into seeking alternative livelihoods in off-farm domains resulting in an increase in, and intensification of, women’s work and role as primary supporters of homesteads and family farms (Mehta 1996; Gurung 1999; Bose 2000; Leduc 2009; Sidh and Basu 2011). Thus, over the course of the past decades the feminisation of mountain agriculture has emerged as one of the most pressing issues facing productivity and food security. But the ownership of natural resources like land and forest is confined to more powerful segments of society, primarily men. The agricultural, technical, and institutional support such as extension, credit, and subsidies are offered mainly to men, who are household heads in most cases.

Women and minority groups across the HKH are the most affected by the impacts of climate change. In China, the “one household, two sector” phenomenon is often seen as an outcome of globalisation and a changing environment. Women who stay behind take on the agricultural work in addition to other domestic responsibilities to secure the food basket. Case studies from the HKH clearly indicate there is an increasing proportion of feminisation of labour as men out-migrate in search of work in response to climate variability, which makes agriculture less predictable and reliable. However, cases from China show that women are starting to play key roles in managing natural resources for food security, climate change adaptation, and transition to a green economy.

There is little information in the HKH to substantiate the differentiated vulnerability of women and men to climate change when considered in light of other social stratifiers. The vulnerability to climate change is rooted in complex social structures, in a way where it interacts differentially with women and men physically, socially, and psychologically (Bohle et al. 1994).

Because the HKH stands at heightened risk for natural disasters due to climate change impacts, it has once again raised serious concerns on gender narratives. The question is how such factors intersect with differential vulnerabilities in the event of floods, cyclones, landslides, earthquakes, and other disasters. Drawing experiences from the cases of Myanmar and Pakistan, the impacts of disasters have a detrimental effect on women and marginalised groups which adds to an already formidable burden to provide food, water, and health care. Also, these events expose vulnerable groups to a high risk of violence and bring added livelihood insecurity (IFRC 2007; Neumayer and Plümper 2007; Parikh 2007; Brody et al. 2008; Vincent et al. 2010).
The differential impact of climate on gender is apparent in the HKH. For example, a first form of 'gendered' vulnerability to climate change relates to labour (Sugden et al. 2014: vii) — women’s workload increases as distances traveled by women increase to access natural resources (such as water, fuelwood, fodder, food, pastures, medicinal plants, fuel, and crops) and as production schedules are affected due to changing environments and climate conditions (Sugden et al. 2014; Bhattarai et al. 2015). Thus it is important to mainstream gender-sensitive approaches when addressing environmental issues in the HKH. However, translating policies into practice remains largely gender blind today. Several crucial points need to be addressed. First, there is a need to identify vulnerable groups in terms of age, disabilities, and social and religious groups and cater to their needs in disaster response to avoid further marginalisation in the process. Second, strengthening of the collaboration between government authorities and humanitarian organizations is required for the gender responsiveness of the relief. INGOs can play an important role to build the capacity of government, as well as communities, especially in gender-inclusive development.

In spite of these recognised needs, gender-inclusive planning and implementation are not integral to development processes in the developing world (Moser 2012). The HKH is not devoid of this phenomenon. It is also important to recognise the traditional cultures that are women centric and female managed, and if we are to properly address the challenges to mountain communities, this means robust data will be required to confront fundamental gender disparities (Gurung 1998; Tulachan 2001).

These broad findings are in line with recent work on gender and climate change. Goh (2012) tests two hypotheses on the gender-differentiated impacts of climate change for women and men in developing countries. The first hypothesis is that climate-related events affect men’s and women’s wellbeing and assets differently. The second hypothesis is that climate-related shocks affect women more negatively than men. Her findings show that climate impacts affect women and men differently and that women tend to suffer more negatively in terms of their assets and wellbeing. Arora-Jonsson (2011: 750) discusses the discourses on women, gender, and climate change from a vulnerability perspective. Focusing on the issue of power relations, the author says:

different power relations are privileged in different situations and class, gender, ethnicity or nationality assume importance depending on the context. The specificity of vulnerability may differ. A generalized belief in women’s vulnerability silences contextual differences. Gender gets treated not as a set of complex and intersecting power relations but as a binary phenomenon carrying certain disadvantages for women and women alone. The local forms of climate change need to be understood not only as effects but men and women’s actions also as constitutive ingredients of climate changes. We need to be able to see women like men being responsible for as well as capable agents in mitigating climate change without losing track of power relations involved, without having to categorise women as vulnerable or virtuous.

What is most critical to consider is the context — the context in which the changes are taking place and that is resulting in the differential vulnerabilities and impacts. This means there is a need to think more critically and creatively about the broader implications of differential vulnerabilities and impacts and ways to address them.
14.3 ENVIRONMENTAL GOVERNANCE AND GENDER IN THE HKH: TOWARDS GREEN ECONOMIC GROWTH FOR ALL

Policies and programs have long focused on the functional aspects of climate change, privileging efficiency over structural aspects, such as issues of equality, discrimination and empowerment. They have given importance to engaging women to make development work efficient rather than to bring about change in gender relations by addressing the power relations between men and women. Therefore, it is important that the nature of interventions shift from “technocratic quick-fixes” to gender inequalities — interventions that make unrealistic expectations on women [already] in poverty — to interventions that understand history and context better, ... [and] recognise not only women and their vulnerabilities, but equally men and their masculinities. . . . [T]his calls for a ‘long-haul, deeply political challenge’” (ODI 2007).

There is a current urgency to develop a preparedness in climate and NRM governance to reflect on the associations between men, masculinities, and knowledge, especially in relation to the most powerful actor in NRM: the state and its administration. Without such reflection, there are few reasons to assume that new policies for gender empowerment, social inclusion, and climate change adaptation and/or green growth will have any better results than in the past. Most engineers and experts in irrigation and water planning, for instance, are still men and they continue to be trained in a scientific tradition that sees the world as uniform, malleable, and manageable. In this view, speaking and thinking about social differences between women (and men) is considered irrelevant (Zwarteveen 2010). In this context, promoting progressive policies in irrigation and water planning without addressing the masculine working culture in the sector is basically to miss the point (Robbins 2007; Reuss 2008; Wilson 2008). Hence, engineers and experts who need to uphold professional norms to be credible, positioning themselves in relation to a culture of male hegemony in the sector, are made responsible with the formulation and implementation of policies that need to pay attention to social inclusion and diversity.

From a gender perspective, the two-way relationship between gender relations and environmental change needs to be understood in the context of green economy. Gender relations have a powerful influence on how environments are used and managed, and hence on patterns of ecological change over time (Leach et al. 1995), and similarly environmental trends and shocks also have an impact on gender relations. Most of the time, there are direct implications such as forest or water degradation and depletion that alter the gendered distribution of resources or encourage gender-based coping strategies.

14.3.1 The green economy: New and old problems of governance

The term ‘green economy’ is defined as an economy that results in improved human wellbeing and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive (Stone 2011:1–2). Advocates state that a move towards green economy can be profitable where economic growth will be healthier, stronger, and more vigorous with this transformation than without it (Brockington 2012). However, critiques of the green economy (Bullard and Müller 2012; Kosoy et al. 2012; Gupta and Agarwal 2013) argue that politico-economic and cultural constraints need to be considered to create strategies to be successful in achieving the goal of ending environmental degradation and reducing poverty.
Environmental governance in the HKH is increasingly tailored towards an outlook of green economic growth. The impetus towards green economic growth has been accelerated as a mitigating response to climate change. This poses old and new questions regarding the shaky connections between social wellbeing, equity, and efforts to ‘green’ economies and sustainable development as a whole. ‘Green growth’ has evolved into a number of contemporary forms in the region, for example: heightened forest conservation efforts to spur carbon trading, bio-energy development, natural park enclosures, increased water regulation to ensure efficient uses, and payments for ecosystem services. Research increasingly shows there may be difficult trade-offs between green growth, environmental sustainability, and social wellbeing (Fairhead et al. 2012; Harcourt and Nelson 2015). As a result, there is growing ambivalence around some so-called green projects. For instance, hydropower development is being promoted as a source of clean energy, but research has demonstrated it may in fact sidestep the wellbeing needs of dislocated communities. Forestry options such as payment-for-ecosystem services and REDD+, as well as standards and certifications applied to the carbon trade and offset projects are envisaged to ensure fair practices, but may implicitly tap women as a reserve, but cheap, army of labour with benefits that remain unclear to them.

What seems to be emerging is a new regime of appropriating and managing both nature and society for so-called ‘green’ ends. This new green regime builds on earlier weaknesses of community-based natural resource management. It fails to correct social/gender exclusionary practices and continues to appropriate women’s undervalued labour for green projects. This regime also builds on earlier tokenistic practices to involve women as a social group, often resorting to ‘ticking the box’ exercises to legitimize them as an accounted-for constituency. Despite earlier intentions to apply bottom-up approaches, the state continues to employ community-based natural resource management as an instrument of control of both nature and society, an effort that was once touted as “bureaucratizing communities” (Gauld 2000), increasingly turning these communities into corporate appendages of the state. In today’s natural resource management regimes, more emphasis is also turning towards employing techno-scientific approaches in mitigating climate change and addressing green growth goals.

Current efforts to mitigate climate change and spur green growth emphasize efficient management based on scientific, financial, and market-based goals and principles to drive natural resource management (Paudel and Paudel 2013). Green growth projects and natural resource management today attempt to mitigate and adapt to climate change in ways that are de-politicized, masculinized, and male dominated, in an effort to appropriate and ‘tame unruly nature’ (MacGregor 2010; Tschakert 2012; Taylor 2014). This approach in many ways creates persistent silences around the political economic drivers of climate change and the disadvantage and disempowerment that they exacerbate.

Therefore, the ‘eagle-eye’ science of popular climate knowledge, science, and environmental governance interventions needs to be complemented by locally contextual ‘toad-eye’ science and interventions. Sustainable development in the HKH demands socially and gender-inclusive climate science and environmental governance policies and strategies.

To assess the status of governance of the environment and green economic growth from a gender and social inclusion perspective, this section highlights first the status of gender mainstreaming at the policy and institutional levels and second how these policies tend to unfold on the ground. Then, the current promotion of hydropower development in the HKH as green development is critically
assessed and a plea made for a more conscious reflection on the performance of professionals and the ‘masculinity’ of knowledge production in environmental governance itself.

14.3.2 The status of gender mainstreaming at the policy and institutional levels

Most countries in the HKH have now ‘mainstreamed’ gender and social inclusion policies in the various sectors within the domain of environmental governance. Even in sectors in which inequities and social exclusion have long been rendered invisible — such as irrigation and water resources planning — gender and women have now earned a legitimate place in research and policy agendas (Zwarteveen 2006). However, there is little to celebrate when we consider the manner in which gender is interpreted and integrated in climate interventions and policies. The attempts to ‘gender mainstream’ in climate policies, strategies, and interventions remain plagued by simplistic, apolitical interpretations of gender: ‘gender as women’, the paradoxical positioning of homogenous categories of ‘mountain women’ as being both ‘vulnerable victims’ of climate change as well as ‘formidable champions’ of climate adaptation, and the idea that engaging women on projects is taking care of women’s needs and empowering women.

Thus, the current status of gender mainstreaming in environmental governance is not only a clear measure of the progress that has been made, but also a reason for deep concern. Two cases — one from Pakistan and one from China — show the largest reason for concern is that gender mainstreaming appears to have been achieved in environmental governance by adopting a very narrow and simplified concept of ‘gender’. The term is essentially used as a synonym with ‘poor (rural) women’. The habit of equating gender issues with (grassroots) women’s issues in development and the modernist idea that women’s empowerment can be implemented top down, seems to do more harm than good (Liebrand 2014). Overall, the trend is that women are treated as victims — not as agents.

The case of Pakistan highlights especially that most progressive gender policies in environmental governance in the HKH are accompanied by a structural lack of financial and human resources. In other words, gender is often not considered a priority in environmental management and climate change policies. Generally, it can be observed that state agencies in various HKH countries have committed themselves to the promotion of gender equality, and they make a proclaimed effort to make it happen, but simultaneously, there is a persistent impression that gender mainstreaming is (also) promoted as a form of window dressing.

14.3.2.1 Pakistan

Pakistan launched its Climate Change Policy in 2012, with an aim to ensure that climate change is mainstreamed in the economically and socially vulnerable sectors of the economy and to steer Pakistan towards climate resilient development. In spite of numerous challenges, Pakistan has initiated many other policies to address climate change and natural resources management, such as the National Water Policy, National Drinking Water Policy, National Climate Change Policy, the National Sanitation Policy, and others. All these policies present frameworks to address the key challenges of climate change and natural resource management at a national level and serve as
guiding principles to the provinces to initiate their own policies to protect natural and environmental resources. A similar trend is visible in other HKH countries.

However, recognising women and other vulnerable groups as powerful agents of change, and the differential impact of climate change on gender, most of the aforementioned policies do suggest various measures for gender mainstreaming (Hamid and Afzal 2013; SPDC 2015). For instance, the third objective of the climate change policy focuses on pro-poor gender sensitive adaptation while also promoting mitigation to the extent possible. The National Drinking Water Policy, the National Sanitation Policy, and others acknowledge, in particular, women’s active role in water management.

Furthermore, Pakistan is also a signatory to several international norms and standards that lay the foundation for gender equality. The Government of Pakistan has also allocated employment quotas for women in provincial and federal institutions (Rai et al. 2007). But Pakistan ranks as the world’s second-lowest country — 144 out of 145 countries, according to the 2015 Global Gender Gap report — in terms of gender equality and the equitable division of resources and opportunities among men and women.

Major fields like climate change, disaster, water, irrigation, mitigation, and the environment in Pakistan are still considered a male domain, outside the purview of women (Shah and Memon 2012). The fact is, the majority of formal government institutions and structures dealing in climate change and natural resource management are highly male dominated. The marginalisation of women was evident in the staffing patterns of these organizations (Shah 2012; Hamid and Afzal 2013). There are no formal mechanisms to ensure a gender balance in higher level positions in climate change, water, and irrigation bureaucracies. Therefore, in the absence of strong implementation, gender mainstreaming of governance structures does not, for the most part, translate into practice.

It is also important to understand that most government institutions have limited financial and technical resources/capacity available especially in terms of integrating gender into climate change planning (SPDC 2015). This omission can further result in poor response in terms of meeting the needs of marginalised groups. The literature on gender, climate change, and disaster in Pakistan includes various well-documented experiences that highlight the victimisation of women and other vulnerable groups during emergencies, as well as the undermining of their productive role in community building after disasters (Bari 1998; Enarson 1999; Morrow and Phillips 1999; Akçar 2001; Shah 2012).

14.3.2.2 China

The Chinese government has increasingly acknowledged how poverty issues intertwine with biological and cultural diversity through the government’s ecological civilization strategy and green social transition. Although China has achieved significant poverty reduction in the last decade, poverty levels remain high, at roughly 200 million people, according to international poverty standards. There are 14 state-identified poverty areas, mostly in remote mountain areas, which are at the same time well-known for their rich biological and ethnic diversity, diversified landscapes, and valuable bio-cultural heritage. China is active in climate change adaptation as well and launched the

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1 After the 18th constitutional amendment, provinces in Pakistan are now empowered to initiate their own provincial policies and institutional arrangements.
South-South Programme during COP 21 in Paris in 2015 to support other developing countries through the South-South Collaborative Fund for Climate Change Adaptation. China has a large national Climate Change Adaptation Plan using ecosystem-based adaptation as a major methodology and scientific technologies as key tools. Yet, consideration and integration of gender analysis for inclusion in community-based adaptation and women’s roles in adaptation is limited. Further study on the links between and integration of ecosystem-based adaptation and community-based adaptation is urgently needed. The previously described case studies and the examples from Guangxi and Yunnan (Section 2.1) provide strong examples for implementing community-based gender-sensitive biodiversity management and provide important survey data at both policy and action levels.

14.3.3 How policies for gender mainstreaming and social inclusion unfold on the ground

Policies for gender mainstreaming and social inclusion in environmental governance on the ground are complex and diverse. As illustrated by cases from China (community-based biodiversity management) and Nepal (community forestry), current policies for user participation and community-based management inadequately address gender concerns, although these policies often explicitly seek to address them. The inclusion of some women as representatives of user committees has, by and large, not altered the marginalisation and social exclusion of women from these groups. One reason is that government agencies use policies of decentralization, user participation, and community-based management as a means to exercise control, regulation, and state power.

14.3.3.1 China

Farming women play crucial custodial roles in seed and food diversity all over the world. Women’s reproductive roles as mothers and family keepers build their interest, expertise, and knowledge in seeds and food biodiversity issues. They are making an essential contribution to the resilience and continuity of the world’s ecologic and food systems. Survey data in southwest China confirms this: among small holding farmers, 62% of women play a role in seed selection and storage (Song and Zhang 2015).

In order to help farmers in remote mountain villages conserve seeds and improve their preferred landraces and PPB varieties, both to save seed cost and to create incentive and re-direct benefits to PPB farmers, a team initiated community-based conservation and PVS trial and seed production of a PPB variety, Guinuo 2006, in a number of trial villages in Guangxi. This PPB hybrid seed production has been carried out by women farmers groups in this area since 2005 and has expanded to women’s groups in Stone Village in Yunnan through farmer-to-farmer exchanges facilitated by the project team.

The PPB activities in Stone Village have conserved more than 50 food crop varieties and improved 10 drought-resistant or quality landraces, and the women’s group has generated a significant amount of money from seed production. The group has also started learning ecological and organic farming practices from Guzhai village and plan to register a women’s farmer cooperative next year.

Both village case studies illustrate an important rural development path in the mountain areas of China: community-based and women-led cooperative, diversified agriculture combined with strong horizontal integration. Together, these ideas represent “a locally-driven empowerment process in which farmers, led by women, have improved their capacity to deliberate about choices of action,
experiment with options, create new practices, and enlarge the network of horizontal relationships, and thus obtain more autonomy in realizing their aspirations according to own agendas” (Song and Vernooy 2010).

Both cases benefit from strong technical support and capacity building, accompanied by targeted research. The project support for both the community cases in Guangxi and Yunnan is more focused on broad rural development than on commercial motives. The work also benefits from interactions and collaborations with other cooperatives, restaurants, NGOs, research centres and universities, and the government’s agricultural extension service. The process of expansion is a capacity-building and empowering process for these women-led cooperatives and self-directed communities.

14.3.3.2 Nepal

Nepal’s Community Forestry Programme (CFP) has been hailed as an environmentally and socially transformative initiative, but in fact, has in many ways not benefited the poor. Some scholars allege that community forestry user groups have actually resulted in “restricting access to resources by the poor” (Gupta et al. 2011) and as such, CFP has not really ensured equity, inclusion, or gender sensitivity (Neupane 2003; Paudel 2012).

Following the conception of the community participatory approach, the early 1990s saw a wave of popularity in decentralized formal arrangements for forest governance as governments realized the need to transfer responsibilities to local institutions and bestow decision-making powers on communities for better resource management outcomes. Hence, over the past few decades, there have been many devolutionary initiatives in a number of the HKH countries to bring about gender and social inclusion. However, in tracing the trajectory of these initiatives, we find that policies and programmes establishing local forest governance institutions were gender blind and communities were treated as an ungendered entity (Agarwal 2000; Das 2011; Arora-Jonsson 2014). Only in later years, with changes in approaches to decentralized governance and feminist criticism of such policies, were steps taken to integrate gender equality concerns in programmes and schemes at different levels (Tyagi and Das 2017).

From amongst such initiatives, Nepal’s model of community forestry as a green governance initiative has been hailed as the most successful, transformative, and people-oriented model of local-level forest governance for its social as well as environmental objectives. CFP in Nepal started in the 1970s, strengthened through later policy and legal instruments such as the Master Plan for the Forestry Sector 1988, the Forest Act 1993, and the Forest Regulation of 1995. This legislation provided favourable conditions for the successful handover of national forests to local communities. As such, the CFP has been the largest and longest participatory green initiative, with 40% of Nepal’s population belonging to more than 15,000 community forest user groups (CFUGs) which are involved in managing 25% of the country’s forest area (Gupta et al. 2011; Karki et al. 2011). With the shift in property rights from the state to communities, CFUGs have been able to exercise a bundle of property rights regarding access, use, and management of national forests. The CFP goes beyond managing forests for environmental and economic benefits; it has become an important instrument and process for social change — empowering the marginalised (Gupta et al. 2011).

In Nepal, the Poverty Reduction Strategy Paper of 2002 and the Millennium Development Goals regard the CFP as a suitable instrument for achieving the country’s poverty reduction goal (Kanel
2007), while international development agencies and governments view it as a tool for poverty reduction and sustainable natural resource management (Gupta et al. 2011). The programme has been hailed as “inclusive and equitable” as well as “able to address socio-political and environmental concerns at the national and regional levels” (Karki et al. 2011:22). CFUGs were first set up as projects but are now recognized as institutions. A number of cases have been celebrated for successfully arresting deforestation, helping to improve forest cover, and fomenting “genuine local participation and support” (23). Where there has been a greater presence of women in community forestry institutions, many statistically demonstrable benefits, such as enhancement of women’s effective participation in decision making, women’s stronger influence in the nature of decisions made, and women’s roles in improving forest conservation outcomes, have been noted (Agarwal 2010).

However, the CFP has been critiqued at two levels: its process and its inclusion and participation. Agrawal et al. (1999:2) describe the CFP as a “highly political process since it seeks to redistribute power and resources within the territorial confines of a given nation-state”. Although the CFP seems progressive in nature the government still holds the power. Sections 67 and 68 of the Forest Act state that the government has the ownership of all types of community-managed forests and has discretionary power to alter the use of forestland and to withdraw the community forest on certain conditions (HMGN 1995). The management plan of CFUGs is a contractual document giving tenure rights over forest resources, and violation of any provision of the management plan by any member of the CFUG can affect the tenure rights of all members of the group. These administrative powers are held by the District Forest Officer (Gupta et al. 2011). Ultimately, this means that communities have only usufruct rights over the forests they nurture and guard; the government has agreed only to hand over the degraded hill forests for restoration and conservation, while it maintains control over the richer forests of the Terai. The Federation of Community Forest Users-Nepal (FECOFUN), a network of CFUGs and forestry-related NGOs, has criticized the government on this point. These conditions have made CFUGs insecure about their tenure in community forestry and many communities have lost interest to participate.

On the inclusion front, numerous studies indicate that the extent of change is actually limited within large numbers of women, the poor, and excluded caste and ethnic groups who participate in community forestry processes and institutions (Chhetri 2001; Bushley 2002; Lama and Buchy 2002; Nightingale 2002; Winrock 2002; Buchy and Subba 2003; Paudyal 2008; Yadav et al. 2008; Agarwal 2009; Parajuli et al. 2010; Uprety et al. 2012). These groups benefited less from community forestry than wealthier and influential households: they could obtain free fuelwood and other non-timber forest products from the same forests before the introduction of the CFP; once the CFP declared these forests as community forests their access was limited and, therefore, many communities and groups were not interested in participating (Malla et al. 2003; Maharjan 1988). Similarly, procedures for electing the committee and decision makers through consensus and voting also resulted in well-off male and upper caste people dominating the CFUGs, which meant that powerful elites of the community shaped the rules of access to forest resources due to the prevailing sociocultural norms and barriers that influence participation in these institutions along social axes of differentiation such as age, caste, class, and ethnicity (Agarwal 1997; Nightingale 2002). The Ministry of Forests and Soil Conservation in its 2013 review report cites prevailing cultural norms as the reason women’s access to and influence of decision-making processes is muted, despite CFP’s efforts to ensure representation of women in key decision-making positions. Furthermore, time constraints on women
for domestic work limits their participation (Agarwal 2010). Staddon et al. (2015:268) document a participatory community forestry project in the middle hills of eastern Nepal as a case of a well-intentioned development gone wrong. Although the aim was to invite local communities to participate, what unfolded was “multiple tyrannies” (274, 276). They found “uneven participation that provided minimal benefits to the most marginalized (women and those who are illiterate)” and that while many did “participate” as per the terms of engagement defined in a rather top-down fashion, there was — as in many other projects — an “inadvertent reinforc[ing of] existing power relations, diverting control away from communities and towards forestry authorities” (274, 276).

We can also see that the experiences of ‘women’s only’ CFUGs are not altogether positive. Studies have shown there is often increased marginalisation of these organizations and little to no increase in the empowerment of women (Seeley 1996; Rai and Buchy 2004; Buchy and Rai 2008). Agarwal (2010) found that ‘women’s only’ CFUGs receive poorer forests compared to mixed-sex groups.

Gender analysts have long argued that these institutions that generally appear sustainable, equitable, and efficient are rather ineffective on all three fronts when viewed through a gender lens (Agarwal 2000) and that efforts towards gender mainstreaming in forest governance and policy have been far from desirable. Meanwhile, current policy thrusts on gender mainstreaming in natural resource governance have considered gender as synonymous to women (Arora-Jonsson 2014). This understanding is problematic in that it implies gender as an issue for women only. Finally, gender mainstreaming as applied mostly results in adding more female members to local governance systems (Mukhopadhyay 2004). In this way, gender mainstreaming has been limited by its efficiency and functional approach rather than a structural approach towards empowerment. The entire structural and power relationship between genders remains almost untouched.

Gupta et al. (2011) argue that the since 2001, when discourse on environmentalism became a global issue, the involvement of non-state actors, such as donors and NGOs, increased and that these actors changed their operational strategy during Nepal’s decade-long political insurgency. Although these influential non-state actors were aware of power relationships, they did not challenge these but rather used them for two purposes: to establish and advance their organization, and to establish their role as service providers to the forest sector and donors. On the other hand, non-state actors such as FECOFUN, who have been supported by donors for policy activities, had little ability to raise the agenda of challenging power issues within forestry governance because they depended on donors for financial and intellectual support. In this way, the “dynamics and complexity of actors’ interactions, perceptions and power/knowledge in participatory forestry play a role in the exclusion of the poor, dalits and other disadvantaged social groups” (Gupta et al. 2011:4).

### 14.3.4 Hydropower development and issues of gender and social inclusion

The recent surge in hydropower development as a climate-mitigating strategy makes for an interesting case to analyse the ‘depoliticised’ framing and positioning of gender in two processes currently emblematic for the HKH. Hydropower development is articulately positioned and presented as being climate mitigating and, as such, hydropower projects [producing renewable and clean energy] qualify for top-up funding through the Clean Development Mechanism. Hydropower has emerged in the region as an economically viable and sustainable energy option and country governments and donor agencies are increasingly in support of hydropower, citing other numerous benefits, apart from energy generation, provided by hydropower dams such as flood control and
irrigation, which would also contribute to poverty alleviation and sustainable development (Shrestha et al. 2016).

However, hydropower development in the region has also led to “adverse socio-environmental impacts . . . particularly common at the local level”, primarily because hydropower projects are more concerned with “national and regional economic priorities” and pay “little attention to the adverse impacts on affected local populations (mostly mountain communities)” (Shrestha et al. 2016:1). Furthermore, hydropower development policies and strategies in the region pay little attention to gender, regardless of the climate merits assigned to clean energy development. While there is significant attention to the risks of hydropower development in these regions for local communities, the analytical scale of the ‘local’ remains essentially unpacked. While hydropower is indeed renewable, the waterscape is often irreversibly changed by the processes of generating hydropower. What might be the social, economic, and environmental costs of large dam development in a region that is not only said to be geologically and ecologically unique, but also politically fragile, with ethnic and cultural tensions and faults corresponding to international and national boundaries?

14.3.4.1 Nepal

A recent report by Shrestha et al. (2016:41) on the benefit sharing mechanisms² in Nepal’s hydropower sector show that “while benefit-sharing programmes generally seek to share benefits equally across project-affected populations . . . certain kinds of people have less access to the benefits of hydropower development than others”. Women are among these groups who are under-represented in the process of hydropower development in terms of stakeholder consultation, local hiring and employment, establishing local development priorities, and local governance. Women from marginalised groups (Janajati, Dalit, ultra-poor, and disabled women) experience further disadvantage due to social power hierarchies.

The Shrestha report examines the benefit sharing mechanisms of hydropower development and concludes that “patterns of social exclusion based on gender, caste, ethnicity, and class were apparent” (41). The authors note that women receive considerably fewer direct benefits in both employment and training. Furthermore, women are provided training in gender-stereotypical skills such as knitting, cooking, and weaving. The report states that “these issues reflect a larger problem with gender inequity: that the collective voice of women is routinely subjugated in local processes of decision-making about hydropower projects” (25).

The report (40) outlines the following gender and social inequities that are evident during the process of hydropower development:

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² In the hydropower sector, benefit sharing mechanism would mean ways and methods to share the profits, but more important, the advantages derived from the hydropower development by the companies. The early practice of benefit sharing was ‘trickle down’ to local communities, whereby broader national and regional economic development was expected to bring the dividends of development to local citizens. Later, the practice moved on to compensation and mitigation for minimizing the negative impacts of projects, and mechanisms were designed to ensure that individuals and communities adversely impacted by hydropower development were compensated for any losses sustained. More recently, the emphasis is on sustainable development, therefore, benefit sharing mechanisms now go beyond mitigation and compensation, “to maximize development benefits and more equitable outcomes, and working directly with local communities to increase investment effectiveness” (Shrestha et al. 2016:7).
Uneven patterns of awareness and information about stakeholder rights
Unequal participation in community consultations and decision making about hydropower development, leading to the prioritization of some agenda and the subjugation of others
Uneven distribution of impacts related to hydropower development, as certain sub-populations and social groups are disproportionately affected or economically dislocated
Unequal ability to mobilize for individual benefits (i.e., seeking employment, participating in training programmes, or purchasing project shares)
Informal inequalities in the distribution of benefits notionally shared by communities (i.e., community development programmes, royalties) due to unequal access to public facilities and patterns of social hierarchy

14.3.5 Professionals, knowledge, and masculinities: A scale challenge in NRM governance

In environmental governance, many knowledge and policy domains have been treated, traditionally, as fields of engineering and technology, especially in the field of natural resource management (Adhikary 1995). The domain of irrigation and water governance is one good example (Zwarteveen 2006; Liebrand 2014). Particularly in Asia, the water sector — and its associated water development interventions — is an area of expertise that is historically managed as a field of irrigation engineering (Ongsakul et al. 2012). Because men have dominated the fields of engineering and technology (Zwarteveen 2011), it also is important to observe that several fields in environmental governance, especially irrigation and water planning, have also acquired strong associations with men and masculinity. In fact, in the water sector, in most countries of the region, male domination of the field is considered normal (Parikh and Sukhatme 2004; Gupta 2007; Kulkarni et al. 2009; Nair 2012) and grants legitimacy to the knowledge that they produce, including that knowledge related to Integrated Water Resources Management (IWRM) and climate change adaptation.

The hegemony of engineering knowledge and the domination of male professionals in NRM can be considered a scale challenge in environmental governance (Liebrand 2010). For the HKH, this is reason for great concern. It means that there is a structural mismatch between actual realities in the field and expectations and administrative realities at the policy level. For instance, the policy objective in water governance to support livelihoods and create opportunities for all is undermined by the domination of men among engineers and an associated male culture of expertise. The masculinity of water governance partially explains why current measures to bridge the gap, between field and policy levels, continue falling short of expectations.

In Nepal, for instance, the Department of Irrigation has adopted policies and programmes in the past two decades to improve irrigation and water resource management. Recurring elements of these programmes include decentralization, user participation, women’s inclusion and, more recently, public-private partnerships (Shukla and Sharma 1997; Gautam 2006; Singh et al. 2014). Yet Nepal’s irrigation and water resources development sector continues to be characterized by persistent and historic injustices and social inequities along divisions of class, caste, and ethnicity and gender (DFID/WB 2006).

A scale challenge represents a situation in which the current combination of cross-scale and cross-level interactions threatens to undermine the resilience of a human-environment system (Cash et al. 2006).
More specifically, more than three decades of mainstreaming gender in (water) development research and policy have failed to come to grips with the masculine subject (Laurie 2005; Liebrand 2014). In spite of repeated calls by feminist researchers to address masculinities in NRM, engineers and experts in water planning still tend to be men (Zwarteveen 2008; 2011). As noted, there exists a strong epistemic tradition in irrigation and water expert thinking that sees the world as uniform, makeable, and manageable. In fact, most development interpretations in research and policy made by irrigation and water experts today continue to emphasise and attach greater value to knowledge and experiences that present the world as rational, universal, and genderless (Liebrand 2014).

For clarification, male engineers and professionals in water are found today who discuss gender issues professionally and rationally, working hard to meet social equity and gender goals in development (see Udas and Zwarteveen 2010 for an example of a Nepalese irrigation engineer). In some regards, gender and women have earned a legitimate place in water research and irrigation policy agendas. Yet there is little reflection on norms of hegemony and masculinity in the profession and how these influence water expert thinking and the way experts see irrigation development and water resources management.

14.4 CONCLUSION

Climate change and extreme weather is affecting not only regions very differently, but also affecting women and men differently. Consequently, in many communities in the HKH, climate change will have or is already having a disproportionately greater effect on women because of such inequitable distribution of rights, assets, resources, and power — as well as repressive cultural rules and norms, and greater responsibilities, making them often poorer and less educated than men and excluded from political and household decision-making processes that affect their lives. Added to climate change are the socioeconomic drivers of change which are often intrinsically intertwined with climate changes. Ethnic groups and primarily women are adapting to both socioeconomic change and climate change for their livelihoods and resilience. Yet, gender inequality is deepening in terms of access to resources, reinforced by existing formal institutions, conservative culture norms, and a male-dominated institutional system. Gender-neutral and even male-biased policies on land tenure and employment and insufficient policies to support farming women have marginalised a majority of farming women, especially those in poor remote mountainous areas.

Unfortunately, there is no simple, easy way to reduce the complexities of gender inequality. Far too often, when projects and programmes talk about addressing gender, they imply acting at the household or community levels by taking the poor women as ‘volunteers’ in the projects and identifying their needs and aspirations as small in size and subsistence in nature, thereby creating an unsurpassable binary between the arena of what happens within the household and community and the broader framework of strategic environmental interventions (Lahiri-Dutt 2014). Addressing gender across the board will make an essential difference that will bring about sustained, gender transformative outcomes. This work will require consistent attention to addressing complex relations of inequality at the household, community, and institutional levels to ensure and enable change.
REFERENCES


CARE Canada. (2010). Cyclone Nargis: Myanmar two years later. CARE Canada, Ottawa,


Hamid and Afzal (November, 2013) Gender, Water and Climate Change: The Case of Pakistan


LEAD (March, 2015), Early Warning System and Disaster Risk Information, Leadership for Environment & Development (LEAD) Pakistan


SPDC. (2015). Gender and Social Vulnerability to Climate Change; A study of Disaster Prone Areas in Sindh, Social Policy and Development Centre (SPDC).


UNDP (2010). Gender, Climate Change and Community-Based Adaptation, UNDP, New York.


