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CLIMATE CHANGE, GENDER VULNERABILITY, AND DISASTER: VIEWPOINT ON THE HIMALAYAN REGION

Abstract

Climate change poses risk to communities that are vulnerable because of social, cultural and geographical reasons. The gender dimension is one among the social roots of vulnerability. In this paper, we examine what makes women of the Himalayan region more prone to climate change induced disasters and the agonies that are associated. It is found that their social position in the local hierarchy which intersects caste, class, ethnicity, religion, age, disability and education, along with the uniqueness of the geographic location, puts them in greater risk to be exposed to disasters. The paper maps the way how climate change plays a great role in engendering and accelerating gender vulnerability in the Himalayan region. The paper recommends taking cues from the pathway forward of the Disaster Risk Reduction to reduce the vulnerability of women from the Himalayan region.

Keywords: *climate change, gender vulnerability, disaster risk reduction, Himalayan region.*

Introduction

Contemporary social life, means of livelihood, and ecological systems are facing severe challenges from the phenomenon of climate change which makes communities vulnerable to disasters that are induced by climate change. This may have a far reaching impact on several local communities that have repeatedly fallen victim to climate crises. The phenomenon of climate change introduces an entirely new set of social problems in the society and in the ecosystem as well. In addition to the disturbances to ecosystems and regions that have keystone functions, climate change poses risk to the communities that are already vulnerable because of their social standing such as the gender dimension. The exposure to risks might have devastating consequences such as mortality, morbidity, and economic losses from natural hazards and disasters (Rowe 1977; Petak & Atkisson 1982; Tierney 1999). According to Kirby (1990)

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'the individual's perception of risk is usually dependent upon a social representation, which can be defined as a culturally conditioned way of viewing the world and the events that take place there'. Validating this position, women of the mountain communities of the Himalayan region perceive climate change as a major risk factor that makes them exposed to disasters and aggravates their vulnerability imposed by their social position in the local hierarchy, which intersects caste, class, ethnicity, religion, age, disability, education, and geographic location. Therefore, the vulnerability caused by climate change induced disasters is moored on the process of the social and economic inequality (Blaikie et al. 1994).

This review paper maps the magnitude of the climate crisis which instigates gender vulnerability in the Himalayan region of India. The paper attempts to shed light to the fact that climate change reinforces gender inequalities and makes women particularly vulnerable to the disastrous impacts of the climate change. Agriculture, food security, access to water, and natural resource management are some of the major areas that manifest gender specific implications of climate change induced disasters. Accordingly, the two themes that shape the major thread of the paper are i) the problem of climate change, and ii) climate change induced gender vulnerability in the Himalayan region. When gender intersects with other social categories such as class, caste, ethnicity, age and other constructs of marginalization, the study of vulnerability appears to be significantly challenging and interesting as well (Nelson & Lambrou 2008; Das 2009). The paper showcases insights into the problem of climate change induced gender vulnerability specific to the women from the Himalayan regions and maps a pathway forward taking cues from the Disaster Risk Reduction perspective. Therefore, the paper argues that the concept of vulnerability is central in understanding climate change and disasters. The discussion follows the Hyogo Framework 2005-2015 which defines vulnerability as a 'set of conditions determined by physical, social, economic and environmental factors or processes that increase the susceptibility of a community to the impact of hazards' (ISDR 2005).

It looks reasonable to believe that there exists a significant correlation between the problem of vulnerability and the nature of society or community (Allen 2003). In addition to geographical constraints, vulnerability is dictated by socio-cultural norms, institutional structure, political system, and economic constructs that regulate the access to resources (Blaikie et al. 1994). Stated otherwise, the vulnerability of local communities is moulded by a wide variety of conditions. Factors such as low socio-economic status, poor living environment, and lack of access to resources, assets, skills, and technologies make it difficult to cope up with difficult circumstances and achieve resilience (Pasteur 2011, Mondlane et al. 2013). Therefore, vulnerability is context specific and it is associated with social structures and hierarchies in which communities live and are intrinsically tied to power structures (Scoones 2009). Due to

marginalization and poverty, which in turn aggregate the existing inequalities in accessing resources and opportunities, the communities in general and women in particular remain vulnerable (Adger 2006). It is true that some societies are more vulnerable than others and mountain societies are more vulnerable than others to disasters caused by climate change. Furthermore, risk and vulnerability are two sides of the same coin, and social processes and relations lead to unequal exposure to risks and the resultant inequalities at the national and global levels (Beck 2009). Understanding the social vulnerability of communities might help identifying possible ways to cope with risks, and it is specifically significant in facing the challenges to the Himalayan communities.

The paper has five sections. The next section presents an overview of the problem of climate change and the risks involved. In the third section, the nexus between climate change and disaster is analysed. The following section correlates gender vulnerability with climate change and disasters. The fifth section focuses on the impacts of climate change in the Himalayan region, and the final section summarises the discussion.

Climate Change and the Risk

One of the most unsettling problems of our time is climate change, which would apparently play a vital role in redefining and altering the 21st century development trajectories (Mearns & Norton 2010; Kapoor 2011). Climate change, according to the United Nations Framework Convention on Climate Change, signifies any variation of climate caused directly or indirectly by anthropogenic activities that are capable to jeopardize the composition of the global atmosphere, in addition to natural variations observed among different time intervals (United Nations 1992). Environmental problems and the anthropogenic roots of the issues were given early attention in the works of sociological thinkers such as Weber, Durkheim, and Marx. A revisit to their works would help understanding some of the changes in contemporary social systems that have taken place because of the crises introduced by climate change (Foster 1999). Changes in value pattern, gender roles, livelihood preferences, migration process, social structures and systems, goals, and worldviews, have tangible relationship with the manifold mechanics of climate change.

According to the United Nations (2020), climate change has severe impacts on the world's aquatic systems, which in turn engenders dreadful consequences to the life of global populations. Water is so foundational to human wellbeing and affluence, and it plays a vital role in the survival of all forms of life (Asian Development Bank 2020). The problem of climate change often appears with a baggage of global inequality imposed by environmental crises that make communities prone to socially, politically, and economically vulnerable. Therefore, the problem of climate change turns out to be a matter

of social justice, that too a highly complex one (Kramer 2013; Scott 2014). The magnitude of the problem is convincingly explicated by Beck (1992) who introduces the concept of risk society. It is persuasively argued that risks add to the existing determinants of social inequality though diverse sections, such as rich and poor, of the society are affected differently. However, no one is left unaffected but the ripples of perturbations that reach each corner of social existence. Owing to its globally pervasive nature, no meaningful discussion on climate change can be confined to a specific geographical unit. Rather, it is necessary to see that risk posed by climate change is a threat to the global community, and therefore, it cannot be seen as an internal matter which a country has to deal alone (Beck 1992). Thus, climate change might be regarded to be risks-scaled-at-large that demand both global and regional efforts to combat with.

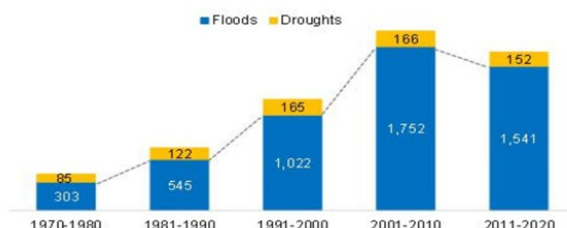
Impacts of climate change are not evenly distributed amongst countries and societies, nor are the violators compelled to pay more for the harm committed. This problem gives rise to the question of fairness and social justice, for climate change manifests dissimilar impacts on parameters such as social, economic, and political phenomena (Skinner 2011). Societies that are largely reliant on natural resources undergo great stress from manifold risks imposed by climate change (Thomas & Twyman 2005; Adger et al. 2009). Both the undeveloped and developing nations are primarily dependent on natural resources, and therefore, compelled to take an unfair share of the burden. India is not an exception in this regard, but, because of its distinctive geography, at extreme risk from diverse impacts of climate change (IPCC 2014). As the Dutch Sustainability Unit (2014) points out, some of the major effects of climate change are extreme weather pattern, erratic rainfall, increased rainfall intensity, longer dry period, floods, droughts, cyclones, and typhoons. Climate Change is already altering rainfall patterns and extending durations of dry seasons, bringing in changes in seasonal water availability and causing unprecedented increase in the occurrence of floods and droughts (Allan & Soden 2008; Naumann et al. 2018). The research performed by Maurer et al. (2019) substantiates that fact that the glacier ice loss rate across the Himalayas have accelerated from 22 cm a year (during 1975–2000) to 43 cm a year (during 2000-2016). Such major changes force the global community to pay urgent attention to the phenomenon of climate change.

Climate Change and Disasters

Changes in the global and regional climate patterns might intensify the occurrence of natural hazards and disasters. As reported by WHO (2002) and Sudmeier-Rieux et al. (2006), since 1990s, there has been a massive surge in the frequency and the range of impacts of natural disasters. The natural hazards could be in the form of floods, cyclones, hurricanes, floods and heat waves etc. It has been widely documented that for low income countries the cost, in terms

of lives and assets lost due to climate change and natural disasters, is quite high (Abramovitz 2001;WHO 2005). The number of flood and drought events, which may be attributed to climate change induced disaster phenomena, has considerably increased in Asia for the past few decades.

Fig. 1. Number of Flood and Drought Events in Asia



Source: Data from EM-DAT, CRED/UN Louvain, Brussels, Belgium (www.emdat.be)

The phenomenon of repeated natural disasters appearing in the Himalayan region has become a major threat to the ecological stability of south Asian region. The Himalayas plays a keystone function is determining the climate structure, aquatic systems, and biodiversity of the region. Owing to global warming which is an offshoot of developmental activities that took high momentum in the second half of the twentieth century, most of the glaciers in the Himalayan region are receding since 1970s. Ever since the period, the protection of the Himalayan glaciers has gathered great attention in global environmental discussions and havocs were forecasted in the light of repeated disturbances in the region. However, there exists no impeccable method to hypothesize, simulate, assess, and predict most of the natural phenomena such as temperature variations, precipitation, snowfall, glacier formation, and ocean currents. There exists a huge amount of ‘uncertainty’ surmounting glacier studies, though there is absolute ‘certainty’ about severe impacts of glacier damage such as climate change, water scarcity, and destruction of flora and fauna. The belief is further strengthened by recent disasters, the last among which is the massive glacier burst which took place on 8 February 2021 in Uttarakhand, India.

The United Nations office for Disaster Risk Reduction (UNDRR) defines disaster risk reduction (DRR) as ‘the systematic development and application of policies, strategies and practices to minimise vulnerabilities, hazards, and the unfolding of disaster impacts throughout a society, in the broad context of sustainable development’ (UNISDR 2004). Multiple global narratives and frameworks around DRR suggest incorporating gender dimension for developing a robust climate change adaptation and DRR management interventions to reduce loss of lives, livelihood and assets of the communities (Carson et al. 2013).The Hyogo Framework for Action (2005-15), which proposed the central framework for informing country-level risk reduction and post-disaster recovery and rehabilitation processes, had categorically calls for gender standpoints to

be holistically taken into disaster reduction management plans, policies, and decision-making processes (ISDR 2005:4). Likewise, the Sendai Framework for Disaster Risk Reduction (2015-2030) established four priority areas: understanding disaster risk, improving disaster preparedness for response and bettering recovery efforts, strengthening the governance framework for managing disaster risk, and investing in disaster risk reduction (UNISDR 2015) with the emphasize on gender issues.

It is possible to identify a positive correlation between the intensity of the agony from disasters and the disadvantaged status of the afflicted population. It is found that social, cultural, and economic environments of socially disadvantaged groups are the most affected in disasters (Blaikie et al. 1994; Benson et al. 2001). Given that women in general and specifically those from the south Asian societies fall in the category of disadvantaged population, it looks pertinent to consider gender dimensions while analysing the problem of vulnerability in relation to climate change and disaster risk reduction. The disadvantaged condition which is structured by the societies is further worsened by the manifold tribulations of natural disasters. We must acknowledge that women and men have diverse social roles in their local communities and therefore they are impacted differently by the climate variability (Carson et al. 2013). It is argued that 'disasters don't discriminate, but people do; disasters reinforce, perpetuate and increase gender inequality, making bad situations worse for women' (UNISDR, UNDP & IUCN 2009). Therefore, women suffer from a double disaster when climate change induced problems are considered. This is because, apart from the loss of livelihood women suffer from indirect impacts such as violence, early marriage, and higher work load due to disaster events (Bradshaw & Fordham 2013).

The phenomenon of globalization presents a dual impact such as environmental problems and social problems induced by environmental issues (Beck 2009). Moreover, social problems that are caused by environmental changes manifest unanticipated challenges in manifold domains of human life. Here, gender is a significant social concept to assess how groups can be vulnerable due to climate change and disasters. When the deprivation causing construct of gender is embedded with other categories such as caste, class, ethnicity, religion, age, disability, education and geographic location, it pushes women to further marginalisation in the already existing social hierarchy, making them more vulnerable to the impacts of climate change and the risks of disasters. Gender vulnerability, however, is not confined to a single factor alone, but it inevitably leads to a huge cumulative damage which is imposed by various social processes that intersect and thereby push women to a much more vulnerable condition that makes them fall easy prey both to natural disasters and social deprivations as well.

Climate Change, Disasters, and Gender

The prevailing deep rooted gendered structures, norms, roles, status,

and power relations invoke differential impacts of climate on men and women in the households and communities (Agarwal 2009; Lambrou & Nelson 2010). The discriminating power structure of the society allows limited access and control over natural resources to women, and manifold social exclusions make them marginalized and more vulnerable to climate change caused afflictions. The possibility of differential impacts of climate change on men and women has been well documented by recent studies (MacGregor 2010; Djoudi & Brockhaus 2011; Alston 2014). Oppressive and exploitative cultural norms make women poorer and less educated than men, thus making their voices being often excluded from political and household decision-making processes that affect their lives (Kapoor 2011). This is true with regard to the decision making on problems that are introduced by climate change. It is admitted that 'women or men cannot be homogenized as all women or all men will not have similar vulnerabilities or the experience of the impacts of climate change is not in the same way because their roles, responsibilities, and expectations are shaped by more than their gender' (Carr & Thompson 2014). Based on personal circumstances that are context specific, vulnerability is manifested from climate change and it differs for women and men (Resurreccion 2013; Liverman 2015). Factors such as differences in social conditions, power imbalances, geographic location, class, age, gender and other forms of inequality shape the vulnerability of the communities (Bartels et al. 2013). Furthermore, the collapse of the social order as the aftermath of disasters put women in disadvantaged circumstances (Neumayer & Plumper 2007).

Women and girls are at a higher risk in circumstances of disaster, and this is because of gender-based causal factors such as limited mobility, socio-cultural segregation, lack of access to warning information, low rate of training, high illiteracy rate, trauma of sexual and domestic violence, and the constraints imposed by socially assigned roles as care givers for the young, the elderly and the diseased in the family (Ariyabandu & Wickramasinghe 2004). Disaster vulnerabilities are created along the lines of race, gender, class or ethnicity, and at times reinforced by the state and market institutions, creating further marginalization of the vulnerable (Collins 2008). During and after disasters, vulnerabilities and sufferings of women vary because of socioeconomic constraints and inequalities that arise from gender-differentiated roles and responsibilities (Brody et al. 2008). Thus, as Liverman (2015) observes, vulnerability is not experienced but relatively exemplified, based on one's personal circumstances.

Fig. 2 illustrates the three major areas of gender based vulnerabilities that are being faced by the women of the south Asian region in general and the Himalayan area in particular. First, the prevailing social order has structured the female population into economically vulnerable position by denying economic capabilities and disallowing access to economic activities and power relations. Secondly, the workload of women significantly increases

in times of crises. This is because, natural disasters raise serious threats to survival by imposing scarcity of food, risks from pandemics, and damages to houses, and all these challenges demand relentless toil from female population who take care of these responsibilities. Finally, girl children are often compelled to drop out of school to assist parents in household chores. While the prevailing social structure allows priority to boys for education and economic activities, girls are forced to sacrifice their education for domestic priorities and the condition gets worsened during climate stress and the disasters followed.

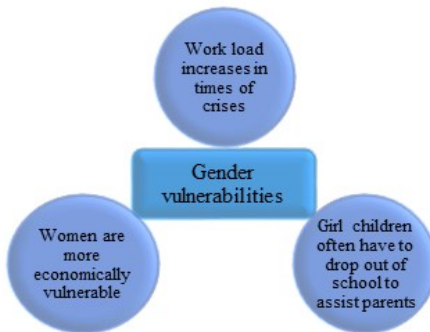


Fig 2. Gender vulnerabilities

Himalayan Region and Climate Change

Mountains are the home to about 12 per cent of the world population and mountains cover a quarter of the earth's landscape. Besides, mountains are the sources of 80 per cent of the fresh water available across the globe, and major sources of food supplies, timber, and energy to as much as half of the world's population (Murshid 2006). Though mountains occupy a pivotal position in our survival, mountain communities have always been occupying a disadvantaged position in the society. Mountain communities all over the world, when compared to the lowland communities, are in a more vulnerable condition because of the marginalization from the mainstream society and inequalities in availing opportunities (Kollmair 2007). The Himalayan region is ecologically fragile, and it is intrinsically vulnerable to earthquakes, landslides, and erosion, and therefore, it would face the brunt of climate change massively (Nibanupudi & Rawat 2012). Factors such as globalization, infrastructure development, migration, tourism, urbanization, demographic changes, unrestrained land use, and over-exploitation of natural resources put the Himalayan region at a far greater risk to climate change and victim to severe hazards (Wang et al. 2019). The mountain landscape has become fragile because of massive construction activities for making roads, dams, and other infrastructure. Communities living in the Himalayan region have always been exposed to droughts, floods, soil erosion, and changes in the crop cycle (Tsering et al. 2012). Among the various disasters that strike the region, water-related disasters are the most common ones. Water related disasters involve 'meteorological events such as cyclones

and storms, hydrological events such as floods, and climatological events such as extreme temperatures, drought, and forest fires' (Oo et al. 2020).

Climate changes tend to bring about severe repercussions on livelihoods, uncertainty in water supplies and agricultural production, and furthermore, cause numerous environmental and social problems for human populations in the Himalayan region (Ariza et al. 2013; Rautela & Karki 2015; Chettri & Sharma 2016). In the Indian context, however, it is possible to find that the state policy favours developing the Himalayan region and the development strategy follows a business model which is aligned to the pro-market and neo-liberal framework of development. It is possible that the emphasis to market oriented development discourse might prompt the policy makers to overlook the environmental issues. This is because the market oriented development paradigm is tendentious to discount the other two, i.e., environmental and social, areas of development. Therefore, it appears essential to revisit the development strategies and policies when considering climate changes, disasters, and ecological crises in the Himalayan region.

Hazards of landslides, earthquakes, floods, and other natural disasters make the Himalayan region more vulnerable to climate change, which in turn brings social inequality, food insecurity, and loss of livelihood and lives (Karki et al. 2009). All this makes the communities living in the mountain region more vulnerable than the mainstream population. Additionally, uniqueness of the geographical location and the distinctiveness of the community contribute significantly to disaster impacts which affect communities differently (Hewitt 1997; Collins 2010). While it is possible for the mainstream society to perform rescue operations and disaster services elsewhere, it appears almost impossible to reach out to the people at the mountain region in situations of disasters. Therefore, the people of the Himalayan region suffer not only from the intensity but also from the longevity of suffering. Extreme delay in rescue operations, emergency assistance, and risk management would result in irreparable damages to the ecosystem and heavy loss of lives.

Recent researches substantiate the gender implications of the problem. With the emergence of climate change related risk and vulnerability, gender inequalities and problems in division of labour take an alarming turn in the Himalayan region. The predominant occupation, which is agriculture, in contexts of households and individual communities mark a key factor in producing and reproducing vulnerabilities of people and their coping mechanisms that are often gendered in nature (Ravon 2014; Dankelman 2010). Bradshaw and Fordham (2014) corroborate this fact by observing that 'gender intersects with characteristics such as class, ethnicity, and sexuality, and interacts with age/life course; different women experience different levels of vulnerability'. Therefore, the key point to analyse gender vulnerability appears to be far beyond the boundaries of environmental harms.

Conclusion

It appears necessary, while focusing on the Indian context, to re-examine the state policy on development that promotes the business model of development which is oriented towards pro-market dynamics and determinants, and leaning towards a prospective new-liberal state. Ever since early 1990s, India maintains this ideological orientation which prompts the nation to evolve a close association between the market oriented development strategies and the neo-liberal policy framework. Consequently, the environmental issues have been taken a back seat, and India is all set for riding on the back of a development discourse favouring market oriented model of growth and neo-liberal capitalism. This socio-political ideological framework is to be taken into account while adjudicating the problem of climate change, challenges of disasters, and the phenomenon of ecological crisis in the Himalayan region. Furthermore, it looks essential to pay special attention to the whole course of development which has been taking place in India. Owing to India's size, both geographic and demographic, development has always been maintaining a slow pace of progress. However, there exists high potential for the country to develop, that too in a tremendous pace, in the coming decades.

We are not proposing a zero-risk society, nor denying the fact that a reasonable amount of cost is to be paid for any development. As observed by Tierney (1999), risks are socially constructed. Some risks are seen insignificant, some are regarded to be acceptable, and a few other risks are held unacceptable. Therefore, the social construction of risks influences policy formulation and implementation. For the same reason, specific groups, organizations, and institutions have a much greater ability than others to shape the assessment and management of vulnerability that are imposed by risks. Therefore, it looks crucial to do in depth analysis of the social organization of adaptation practices, focusing on major factors such as how are they formed, reproduced, negotiated and contested among social groups in the larger social structures of the society. Given the urgency of disaster risk reduction, it is the need of the hour to adopt governance and policy measures, which are holistic, inclusive and multidimensional in nature, for natural resource management. While formulating policies, furthermore, we need to be mindful of the possibility that the vulnerability of a specific group becomes sharper when it has minimal say in the economic and political options and decision making. Given that the Himalaya is the heritage of the entire humanity, it looks imperative to adopt wide-ranging and cohesive strategies that pay ample attention to internationally renowned mountain priorities and trans boundary cooperation guidelines. Likewise, measures are to be explored by policy formulators to boost development of mountain specific responses and to ensure greater involvement of local communities and civic society actors. Since the entire process of managing disasters is so complex, it is essential to ensure cooperation among local, national, and international governments, regional organizations,

international institutions, business ventures, non-profit organizations, media, academia, and above all local communities, to harvest promising outcomes.

Notes

1. A short version of this paper was presented at the National E-Seminar on 'Ecological Crises and Climate Change in the Himalayan Region,' organised by Society for Himalayan Environment and People's Action (SHERPA) in collaboration with Department of Sociology, University of Lucknow & Ethnographic and Folk Culture Society (EFCS), Lucknow, India, on 17 December 2020.

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