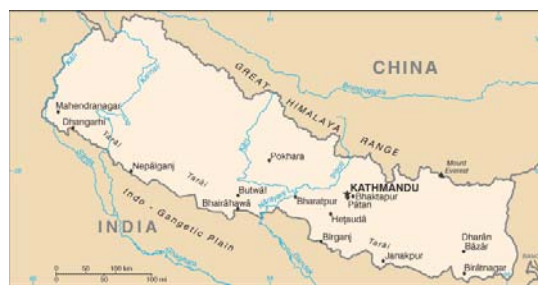


Case Study:

Gender and Climate Change in the Hindu Kush Himalayas of Nepal

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Introduction



Map sources: www.roomtoread.org/shs/nepal/introduction.html; www.lib.utexas.edu/maps/nepal.html

Nepal is a relatively small country (about 147,181 square km) located between India and Tibet, China. Eighty percent of the territory is covered by the Himalayas, and it boasts eight of the fourteen highest mountains in the world. The country is home to 2 percent of the world's plants, 9.3 percent of its birds, and 4.5 percent of its mammals.² In 2004, the population was estimated at over 27 million,³ distributed in more than 60 different ethnic groups, speaking over 100 languages. The population is 84 percent rural, while 16 percent live around the capital in Kathmandu valley.⁴ The 8 percent of the population living in the mountain region are mainly herders. Farming and tourism represent the principal livelihoods for the population living in the hill region. In the southern part of the country, most of the flat lands of the Terai region, formerly covered by tropical vegetation, are dedicated to agricultural production.

Nepal is among the poorest countries in the world: 24 percent of the population lives on less than \$1 a day and 68 percent on less than \$2 a day.⁵ Agriculture is the mainstay of the economy. The national budget is also greatly dependent on foreign aid (5.8 percent of the GDP—gross domestic product—came from official development assistance in 2005)⁶ and remittances (14.9 percent of GDP in 2006).⁷

¹ Women's Environment and Development Organization (WEDO). This study was edited by Tina Johnson, with additional support from Amanda Dentler.

² IUCN, 2008

³ UNDP, 2007

⁴ Ministry of Health and Population, 2008. [Previously the Ministry of Population and Environment (MOPE).]

⁵ UNDP, 2007.

⁶ Ibid.

⁷ World Bank, 2008.

The country is slowly recovering from a 10-year conflict, during which over 10,000 people were killed. The most recent election for the Constituent Assembly, held on April 10, 2008, was relatively peaceful. The Assembly now has, for the first time, significant representation of social groups that had traditionally been marginalized, such as indigenous peoples, people living in the region of the Terai (Madhesis), people from so-called low castes (Dalits), and women (who now hold 34 percent of the seats).

Climate change will have a major impact on Nepal. Like everywhere else in the world, the temperatures are rising. This is particularly noticeable in the mountains, where the glaciers are melting, affecting the precipitation system and contributing to the formation of glacial lakes that could “burst” at any moment, releasing torrents of water and debris. Changes in the fragile ecosystems of the mountains affect people’s livelihoods, which are highly dependent on agriculture. Climate change clearly affects all Nepalese people, but not everyone has the same capacity to adapt. Gender inequalities are among the factors limiting the capacities of women.

This paper explains how climate change is affecting women and why it is necessary to integrate a gender perspective into the design of national policies and mitigation and adaptation strategies. The first part provides some information about climate change in Nepal and about the Government’s efforts to address the issues arising. The second part examines the conditions and status of women in Nepal, particularly in the mountains, and provides some examples of how climate change is affecting them. Finally, the paper offers some conclusions and recommendations.

1. Climate Change in Nepal

1.1. Climatic Changes

Temperature increases are widespread across the globe, with some areas—including the world’s highlands—showing remarkably higher trends than others.⁸ However, an understanding of the future evolution of the climate in the Hindu Kush Himalayas (HKH) region is hindered by the fact that climate modeling has been introduced there only recently. Available global and regional models do not perform adequately due to the extreme topography of the region. Based on the limited initiatives on climate modeling, however, it can be generally stated that all of Asia is likely to become warmer during this century.

Analysis of observed temperature and precipitation data in Nepal is also limited. Available studies suggest that temperatures are increasing at a rather high rate and that the warming has been consistent and continuous since the mid-1970s.⁹ The average increase in annual temperature between 1977 and 2000 was 0.06°C per year.¹⁰ The warming is found to be more pronounced in the higher altitude regions such as the Middle Mountains of the Himalayas,¹¹ while it is significantly lower or even nonexistent in the Terai and Siwalik regions. Further, warming in the winter is more pronounced compared to other seasons. The warming in Nepal is significantly higher than the global

⁸ IPCC, 2007

⁹ Shrestha et al., 1999 and 2000.

¹⁰ Sherchand, et al., 2007. Climate Change and Agriculture In Nepal July 2007. DSSAT

¹¹ A broad strip of hill country that makes up about 30 percent of Nepal’s land, and is the most populated area.

average warming rates. It is probable that, since it is an elevated region, the Himalaya and Tibetan Plateau is more sensitive to and more affected by climate change.

Winter precipitation is expected to increase in the Tibetan Plateau, and summer monsoons will increase in South Asia. Uncertainties are greater when it comes to predicting extreme events, but extreme rainfalls as well as drought events are likely to intensify.

1.2. Impacts of Observed and Projected Climate Change

Impacts on Snow/Glaciers and Water. Climate change is having profound impacts on the Himalayan environment. There is evidence that glaciers have been degrading much more quickly in recent decades. Associated with the fast retreat of valley glaciers, many glacial lakes have formed. There are 203 lakes in the HKH region that have been identified as potentially dangerous, and could burst through their ice or moraine dams and cause catastrophic floods known as glacial lake outburst floods (GLOFs) at any time. In its history, Nepal has been seriously affected by several GLOFs, including from lakes based outside its territory,¹² and today, 20 of its glacial lakes are potentially dangerous. The warming, as projected, will cause continued deglaciation, which will, in turn, further aggravate the risk of GLOFs in the country.¹³

Continued deglaciation could also have a strong impact on the hydrological structures of the nine river basins originating in the HKH region. River discharges are likely to be greater for some time due to accelerated melting, but as glacier mass reaches a critical minimum, the flow is likely to lessen. It is possible that floods and droughts will become more frequent due to the decrease in the glaciated area of the basin, causing reduced hydrological modulation, and to the increase of extreme precipitation events. Both the frequency and magnitudes of flash floods are increasing in the region. Indications of shifting in the hydrographs of some rivers in Nepal have already been observed.

Impacts on Agriculture. Over 80 percent of the population is involved in agriculture. The main crops are rice, wheat, and maize. With an annual growth rate of 2.3 percent, the population of Nepal is rapidly increasing and has doubled in 20 years (from 13.5 million in 1975 to 27.1 million in 2005),¹⁴ which has an obvious impact on food demand. Additionally, the country is facing soil erosion, floods, and landslides that have greatly affected the availability of fertile soil. Climate change will likely worsen the situation. Among the adaptation measures needed, the Government proposes to increase the production of drought-resistant crop varieties by improving cropping practices to conserve water and by promoting crop diversification.¹⁵

Impacts on Bio-diversity and Wildlife. Forests are among the most important natural resources in Nepal—covering 29 percent of the territory—and a significant proportion of the population depends on them. The forests are home to a rich biodiversity, and global warming will affect the fragile balance of these resources. The extensive utilization of and increasing demands for forest products has led to the forests' decline both in area and quality. Further, climate change can cause forest damage

¹² Horstmann, 2004.

¹³ ICIMOD, 2007.

¹⁴ UNDP, 2007.

¹⁵ MOPE, 2004. [The Ministry of Population and Environment (MOPE) became the Ministry of Environment, Science and Technology (MoEST) in 2005]

through migration of trees toward higher elevation, change in their composition, and extinction of species. This could directly affect the livelihoods of 80%¹⁶ of the people.

Thus, it is particularly important for Nepal to conserve the vegetative coverage. The forests represent an important tool for capturing carbon dioxide, and the country is investigating the best way to benefit from this.¹⁷

Impacts on Health. The resurgence of tropical disease is another important threat for Nepal. Global warming might contribute to outbreaks of malaria, kala-azar (a parasitic disease), and Japanese encephalitis in the tropical zones of the country. The Government is requesting more research on efficient control of the potential outbreaks, knowing that chemical interventions could have controversial effects on both ecosystems and people's health.¹⁸

There are still many unknown dimensions of the impact of climate change in Nepal, and one of these is on people's ability to adapt. In fact, climate change is not a new phenomenon and people are adapting, but there is limited data on how they do this, where they get information, and how they use resources. Moreover, there is little information on the socioeconomic factors that enhance or inhibit people's capacities to adapt. To ensure an efficient mitigation and adaptation strategy to climate change, policymakers have to acknowledge the different roles played by women and men, how they use natural resources, and what their adaptation capacities—and hence what their different needs—are. In Nepal, many factors hinder women's adaptation capacities, increasing their vulnerability.

1.3. Nepal Climate Change Strategy¹⁹

Nepal presented its initial communication to the Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) in 2004, and the second communication will be presented soon. The Government is also about to finalize its National Capacity Self Assessment (NCSA), which will be followed by the elaboration of the National Adaptation Programme of Action (NAPA).

A National Climate Change Policy is also in the process of elaboration. Five regional consultation workshops are being conducted; these will contribute to educating the population about the issues of climate change and will also gather people's perceptions and responses from different regions of the country. A draft of the Policy will be deposited on June 15, 2008 and a national consultation will be held. Many women have participated in the regional workshops. Most of the consultations have highlighted that women will probably suffer more from climate change because of their role in collecting water and fuel wood and the fact that these resources are becoming more and more scarce. Women will also have more difficulty adapting to agricultural changes since the burden of agricultural production is rising,²⁰ and new production practices and new crops will have to be

¹⁶ Metz, John. "A Reassessment of the Causes and Severity of Nepal's Environmental Crisis." *World Development* 19.7 (July 1991)

¹⁷ MOPE, 2004. [The Ministry of Population and Environment (MOPE) became the Ministry of Environment, Science and Technology (MoEST) in 2005].

¹⁸ Ibid.

¹⁹ This information was collected through an interview with the consultant responsible for developing the Climate Change Policy for the Government, Mr. Adarsha Pokhrel.

²⁰ Asian Development Bank, "Partners in Development: ADB and Nepal- ADB's Strategy in Nepal". February 2002

adopted. Women's very limited access to information and training will surely restrict their capacity to adapt, as well.

Once the Policy is developed and adopted, the main challenge for the Government will be implementation. A restricted budget, limited technical capacities, lack of equipment, insufficient data, and limited information networks represent real challenges. The institutional setting might also be an issue. Climate change adaptation and mitigation strategies demand an integrated approach with coordinated actions in the agriculture, forestry, health, economic development, and infrastructure sectors, among others. So far, the assessments, policy, and strategy have all been conducted by the Ministry of Environment, Science and Technology, with little involvement of the other governmental institutions.

In addition, over the past few years, several important policies and legislations required for conservation and sustainable use of forest resources, water resources, renewable energy, and biodiversity have been formulated. These policies/strategies mention only indirect linkages with climate change, however, and are silent concerning sectoral mitigation and adaptation measures.

2. Women and Climate Change in Nepal

2.1. Nepalese Women

As in most of the countries in the world, even though women represent half of the population, their needs and aspirations are not always addressed by the mainstream political and economic institutions. Whatever ethnic group, religion, caste, or class they belong to, Nepalese women face more discrimination than men; and men usually have more opportunities than women in almost all sectors.

In Nepal, the social roles and responsibilities of women differ according to age, position in the family (daughter-in-law or mother-in-law), marital status (single, married, widowed), and ethnic/caste group. In a traditional Brahman family, a woman's behavior is determined by rules of purity and impurity. A woman is generally considered to be of lower status than her husband.

About 37 percent of the population is composed of indigenous people.²¹ Women are well respected among certain indigenous groups; they participate in decision-making, they can divorce or remarry if they are widows, and many manage businesses. However, the assimilation process has contributed to the eroding of this more favorable status. The model of gender relations promoted is the one of the traditional Hindu society in which women are supposed to be shy and obey the men of the household, who are the decision-makers and the rulers. Women's independence is viewed as suspicious. This model is conveyed through education and the mass media. In order to improve their social status, many indigenous people—individually or collectively—are adopting the Hindu model; thus indigenous women are losing their, albeit limited, independence. Indigenous women also suffer from “double discrimination” based on gender and on ethnicity. Living in rural areas,

²¹ Nepal Census 2001.

they are more vulnerable to poverty and violence, notably during the national conflict with the Maoists where they were caught “in-between.”²²

Dalits represent about 12 percent of the population.²³ They are considered “untouchable” and live in extremely impoverished conditions. Dalits usually perform what are considered the most degrading tasks, and the least financially profitable. The social organization of the caste system confines Dalits to specific jobs such as blacksmiths, garbage collectors, and even prostitution. Many are still trapped in forced labor. The practice of untouchability prevents Dalits not only from touching other people but also from entering public spaces or touching objects utilized by people from other castes. They may live in the same settlement as the other castes, but usually apart, far from public infrastructures. Despite the existence of laws condemning the practice of untouchability, Dalits are still often denied access to common resources such as drinking water taps, community forests, schools, and other public spaces.²⁴ As a consequence, 90 percent of Dalits in Nepal live below the poverty line.²⁵ Dalit women are perhaps the most underprivileged people in the country; they face dual discrimination, being considered “untouchable” and being women, and they are particularly vulnerable to violence, including sexual abuse and rape.²⁶ Since they are deprived of using public infrastructures, they usually have to walk farther to get water—very often of bad quality—and fuel wood. Their living conditions are extremely unhygienic, and hence they are more vulnerable to disease.

The overall condition of women shows how unequal gender relations in Nepal are:

- ❖ Many studies reveal that women have less access to paid jobs and incomes than men, and they do more unpaid work. In 2005, the female economic activity rate (ages 15 and above) was 49.9 percent.²⁷
- ❖ Girls have less access to education than boys, thus more women are illiterate than men. In 2005, 62.7 percent of men and 34.9 percent of women were literate.²⁸ However, it is expected that the gender gaps will be lessened in the coming years, given that school enrolment ratios at the primary level for 2007–2008 were 62 percent for boys and 54 percent for girls.²⁹
- ❖ Women, particularly in remote areas, have less access to health services. The maternal mortality rate in 2001 was 830 per 100,000 births.³⁰
- ❖ Women have less access to political power than men. In the 1999 parliamentary elections, out of a total of 2,212 candidates, only 135 were women. Only 12 women became members of parliament, constituting less than 6 percent of the total number of seats.³¹ However, in the first elections for the new Constituent Assembly, 367 women ran for office (out of a total of 3,947 candidates) and 29 were elected directly, while 168 seats are reserved for women as part of

²² IIDS, 2002.

²³ Nepal Census 2001.

²⁴ GAUTAM, D., JNAVALY, S., SHARMA, A., and AMBIKA, A. Climate Change on Livelihood of Women Farmers: Case Study of Banke and Bardiya Districts of Nepal. ActionAid Nepal, Kathmandu. October 2007

²⁵ Human Rights Watch, 2001.

²⁶ GAUTAM, D., JNAVALY, S., SHARMA, A., and AMBIKA, A. Climate Change on Livelihood of Women Farmers: Case Study of Banke and Bardiya Districts of Nepal. ActionAid Nepal, Kathmandu. October 2007

²⁷ UNDP, 2007.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

³¹ Manandhar and Bhattachan, 2001, p. 102.

proportional representation. Thus, the actual Assembly is composed of 34 percent women – and it is hoped that this composition will be reflected in the formation of the next interim government.

❖ Women are confronted with physical and psychological violence that is hardly acknowledged, much less condemned. Many women experience difficult relationships, harassment, and psychological violence within the household. According to a study conducted in 2007 by the non-governmental organizations SAATHI and the Asia Foundation, 95 percent of the women and girls surveyed reported first-hand knowledge of violence, and in 77 percent of cases this was inflicted by their own family members.³²

❖ Nepalese women confront multiple forms of discrimination from laws, institutions, religion, and ways of thinking. Women tend to be bound by unfavorable traditions, cultures, and values, and a great deal of pressure is put on girls and women to behave in certain ways.

Despite this sad and dark picture for Nepalese women, there is hope; change is happening. A rich and active women's movement is working on almost every front, including health, education, income-generating activities, human rights, violence, and trafficking. Its work has contributed in bringing to the surface gender issues and the many hardships women face, as well as denouncing the lack of action by the Government together with the attitudes, wrong beliefs, and mindsets of men and women.

The composition of the Constituent Assembly and the transitional government certainly offers hope for promoting women's capacities and highlighting their issues in building “a New Nepal.”

2.2. Mountain Women

The Himalayas are home to people from a variety of ethnic groups with different cultures, religions, and social structures. The common denominators for mountain women are the hardships of their lives and the multitude of gender-based discriminations they face. They also have a rich knowledge and diversified skill-set in managing natural resources, make important contributions to the wellbeing of their households and communities, and show resilience in facing global climatic changes.

Living in a mountain region means dealing with daily challenges. The steep slopes render the burdens of water, fuel wood, and fodder heavier and more dangerous to carry. Women have few technologies to access for relief from their work, which takes a toll on their health. The household chores, combined with their high involvement in productive activities, make their workload overwhelming.

Remoteness—not only from towns but also from other households—creates more isolation and thus limits the social capital so needed by women to access information, develop new skills, and adapt to new challenges such as globalization and climate change. Social infrastructure and governmental services remain inaccessible for most of these women, whose mobility is restricted by motherhood and cultural norms, including a preference for boys and men. Very few mountain women have the opportunity to get an education, and their literacy level is very low. These

³² Cited in Asian Development Bank, 1999, p. 19.

inequalities are further increased by health problems, poverty, vulnerability to violence, and conflicts. Many of these issues are quite similar to the ones women in the lowlands also face; however, mountain women's conditions are made worse by their fragile, harsh environment, and also because they belong to communities that are already marginalized. Mountain people are still “forgotten,” and their issues remain inadequately addressed by the state.

On the other hand, compared to women in the lowlands, and depending on the dominant culture within which they live, mountain women have a greater say in decision-making and have greater overall independence. The frequent migrations of men for herding and trading mean that women have to be more involved in managing household and community resources. Women living in the HKH know how to maximize the use of the natural resources of the fragile mountain ecosystem. Their knowledge also contributes to the survival and care of their families and to their adaptation in extreme situations such as conflicts, natural disasters, and displacements. However, their knowledge and skills are still not acknowledged and valued. Despite their tremendous contributions to household wellbeing and community development, women are only considered as mothers and housewives by policymakers and planners.

There is a great need to document more mountain women's lives and the gender issues common to the Himalayas. Little research has been pursued on mountain populations, particularly how they adapt to change, and how gender-specific conditions affect their abilities to adapt.

2.3. The Differential Gender Impacts of Climate Change

The link between gender issues and climate change is an emerging topic for research and policy-making in Nepal, and documentation so far is quite limited. The impacts of climate change on the population overall has not yet been the subject of serious studies. The main focus is usually related to vulnerability to natural disasters. There is a great need to build people's resilience to the multifaceted impacts of climate change in the country. Both women's and men's views and interests need to be taken into account in research, program design, and policy-making.

Climate change is affecting the soil's moisture and the availability of water, which is likely to have a negative impact on food production and increase food insecurity, particularly in poor and marginalized households. Longer periods of drought will also deplete natural resources in terms of quantity and quality; thus, the collection of water, fuel wood, and fodder—which are typically women's responsibility—will probably take more time, considerably increasing women's drudgery and affecting the entire family.



The drudgery of Humla girls. Photo by Karen Barkley, Humla, 2008.

Men, as breadwinners, also bear a lot of pressure, especially when their traditional livelihoods do not ensure food security and they are unable to provide for their families' needs. In Nepal, more and more men are leaving their villages, looking for any kind of employment in the cities or abroad. The poorest men have to accept low-paying jobs and live in terrible conditions. Besides the immediate economic hardship, they also face a lot of mental and emotional stress.

Therefore, adaptation strategies need to incorporate a gender perspective, recognize that women and men may face different problems, and pay specific attention to both women's and men's needs in order to reduce their vulnerability and improve their adaptation.

Box 1 illustrates how climate change affects the fragile balance of natural resources in the mountains, and thus impacts seriously on people's livelihoods and on women's workload.

Box 1: Food Insecurity and Increased Burden on Women in Humla

Situated in the western part of Nepal, Humla is a remote district that can be reached only by air. Simikotthe, district headquarters of Humla, is located in the mountains at 2,900 meters above sea level.

Dandaphaya is a village located in Humla approximately two hours walk from the headquarters. The settlement is structured in groups of about 20 households, with 5 to 10 people in each. It is a farming community. They grow wheat, barley, oats, and even rice at lower elevations, complemented by livestock-raising: goats, sheep, and cows. However, agricultural production can only cover the households' needs for about four months of the year, and most of the population relies on food distribution by the Government and other agencies. Their coping strategy is based on trade in forest products, notably non-timber forest products and timber wood, thus contributing to deforestation.

Women from Dandaphaya reported that snowfall has significantly decreased in the last six years, contributing to a longer dry season. Consequently, crop production has gone down considerably, increasing famine. Men are now staying away for longer periods, working as laborers or in trading. During those periods, women have to take over the work that men used to perform in addition to their own responsibilities related to the household. Moreover, the trading of forest resources for income has severely reduced the availability of the resources: there are no more trees near the village. Women now have to walk much farther to get the necessary fuel wood, a task that takes about six hours every three days. Not only is this work time-consuming and grueling, it is dangerous as well, since the trees left are mostly located on steep slopes, and the women are always at risk of falling. When asked what they think they need to face all these challenges, women said they needed to improve their crops to increase their productivity and reduce the period of famine. *"Our children are crying and we do not have anything to feed them."* They would also like to have jobs in the district for the men so that they would not need to leave and could carry out their part of the labor in agriculture. Concerning their workload and the potential solutions for reducing it, they replied: *"We work very hard and we are tired, but we are living here in the mountain and there is nothing here. Our mothers used to work like that, too. What else can we do?"* (Basundhara Bhattarai, May 2008, field notes from Humla.)



Men trading timber in Humla. Photo by Basundhara Bhattarai, 2008.

In Humla, food scarcity is not a new phenomenon, and people have adopted different strategies to cope with it. Trading forest resources is one option, sometimes the only one, even though it contributes to the cyclical depletion of their resources. The other option is migration, and in rural Nepal, it is generally men who migrate to find jobs. For some, it is an enormous challenge to adapt to a new environment and lifestyle. For women, the result of men's migration is usually an increased workload and all the added stress that this creates. Box 1 demonstrates that coping strategies are gender-specific, and subsequent policy options should also be gender-sensitive.

As noted previously, climate change is likely to increase the frequency and intensity of natural hazards. Floods (including flash floods), landslides, and droughts represent real threats already experienced by the Nepalese, and their occurrences have increased and intensified in the last few years. While natural hazards can hit anybody, the already vulnerable populations will be even more at risk. For example, some people live on the edge of a riverbed because the land is cheaper there; they might also have few socioeconomic assets to rely on before, during, and after a disaster happens.

Box 2 shows how cultural "exclusion" further marginalizes some women and contributes to their vulnerability.

Box 2: Inequalities and Vulnerabilities

Gender inequalities and caste-based discrimination can be observed among the eastern Terai of Nepal. Srijana is a Dalit widow, mother of a baby girl. She lives in a small mud house in Phoolparasi, Sarlahi District. She is used to coping with regular floods and has learned to elevate the plinths of her house in order to protect her belongings. *“I am very poor and do not have anything except this house. Now the floods are coming more often and the level of the water is higher. Every year, my house is damaged by the water. I do not know what to do now since I am losing more and more of my house. I cannot get any support because I am untouchable and poor. I cannot even get refuge in my neighbors’ house.”* (Julie Dekens, 2007, field notes from Sarlahi.)



Dalit woman in front of her house in Phoolparasi. Photo by Julie Dekens, 2007.³³

In the Maithali culture, women usually work at home and have little exposure to the outside world where information is exchanged and social networks are built. Dalits, because of their low status, are excluded from any decision-making related to the community and are very often “forgotten” in disaster preparedness plans. Although the woman described in Box 2 has observed an increase in the intensity and frequency of floods in her locality, her capacity to adapt is limited; she does not have the financial resources or social linkages to move to a safer place.

Those living in the rural and mountain areas are well aware that something is changing, that the temperatures vary more, periods of drought are longer, rainfall is erratic, some species are flowering earlier, some natural resources are slowly disappearing, and there are new diseases. They adapt to these changes with the resources they have. However, they currently lack information, services, technologies, assets, mobility, and the capacity to make choices and decisions. All these factors affect women more than men.

3. Conclusion and Recommendations

We have seen that climate change is affecting Nepal. The impacts will be increasingly felt and will necessitate changes in people’s livelihoods and lifestyles. Nepalese women are playing an important role in maintaining households and communities and in managing natural resources. However, their role is seldom recognized, and their perspectives, needs, and interests are not properly taken into account in development and environmental policies and strategies. Women and men have different roles in the society, face different challenges, and demonstrate different reactions and methods for coping. These issues should be addressed in research, development, disaster preparedness, and adaptation and mitigation strategies.

³³ Photo from Dekens, 2007, p. 25.

3.1 Research

As previously stated, there has been little research undertaken so far on the socioeconomic impacts of climate change in Nepal. The limited information available is mainly based on assumptions and projections. But the impacts of climate change are very real. The fact is that people are already adapting—with more or fewer difficulties depending on individual capacities. Besides the technical measurements of the impacts of climate change, the mitigations strategies, and the scenarios for the future, it is important to know how people are coping in their daily lives, how they are accessing information and prioritizing options, how impacts are differentiated between women and men, and how this information can contribute to the design of adaptation strategies. Valuable lessons can be learned from the grassroots level.

Methodologies and indicators must be established to identify what adjustments result from climate changes. At a workshop with Nepalese stakeholders held in ICIMOD in December 2007, it was clear that it was very difficult for the participants to pinpoint if some changes in agriculture had appeared because of climate change or because of market demand. Thus, research to study the impacts of climate change must be multidimensional, taking into account a variety of phenomena influencing people's lives such as poverty, migration, globalization, and conflict.

Additionally, research must integrate a gender perspective to have a better understanding of the multidimensional aspects of climate change. Women and men are likely to face common challenges, but their capacity to react, to adapt, or to change will not be the same due to their different positions in society. Therefore, studies must disaggregate the data by sex. They must also show how mitigation strategies are likely to affect women and on men, who will benefit, who will resist and why, who will suffer, and who will pay the price.

Preparation of context-specific scenarios would also contribute to smart adaptation and mitigation planning. Preparedness for potential issues related to natural resources scarcity must be prioritized: conflicts over the control of water resources, the increasing potential for food insecurity, changes in agriculture production, the feminization of agriculture work, and displacements of populations must all be considered. How women and men will variously be affected by these issues must also be examined.

3.2 Development

Climate change is already affecting people's livelihoods and food security. The poor are the most vulnerable because they do not have the necessary reserve of assets to adapt. Development interventions will have to address individual and collective capacity to adapt to climate change, such as expanding information networks and communication infrastructure, building capacity for decision-making, and increasing the security of people's assets. For the majority of Nepalese women, limited education and illiteracy, heavy workloads, and low status in the household and in the society represent real obstacles than hinder their adaptation capacity.

Male migration to cities or abroad—an important strategy for coping with food insecurity—is likely to increase. This phenomenon must be acknowledged by development stakeholders in all sectors,

specifically because it leads to the increased feminization of agriculture and rural development. Women already play an important role in agriculture and livestock production. They maintain and promote agricultural genetic diversity by selecting, maintaining, and propagating seeds. Adaptation strategies, particularly regarding crop adaptation, must involve women in order to tap their rich knowledge and empirical experience to enhance food security. Increasing agriculture production and food security may reduce the incidence of men's migration, hence ensuring a better balance in men's and women's workloads and reducing women's stress. Moreover, adaptation to climate change will require the development of assets and the empowerment of women—increasing their capacity to access more opportunities, new livelihood options, and appropriate technologies. It also necessitates increasing women's control over strategic resources, notably through land ownership and financial capital.

Gender equality and women empowerment are now considered to be essential conditions to achieve development goals; they are also essential to build Nepalese capacities to face the challenges of climate change. After all, women represent at least half of the population—much more in some villages where almost all the men have migrated for work—and the country cannot meet these challenges without their contribution.

3.3 Disasters Preparedness

Floods, flash floods, landslides, and droughts are part of life in Nepal, and people are more or less coping with them. With the climate changing, the incidence of natural hazards will increase and be more intense.

Disaster preparedness plans are usually focused on technical aspects, but more and more, interventions aim to involve local populations, notably via early warning systems. Still, those plans are generally gender-blind. It needs to be acknowledged that women are the ones who stay in the village, or work in the surrounding areas, and know how to recognize the signs that something is about to happen. If involved more, they can meaningfully participate in the warning system and contribute to saving more lives. Moreover, because of their roles as mother, caretaker and housewife, women may have useful suggestions on safety measures. Men traditionally are responsible for protecting the members of their families in times of danger, and this role must be enhanced and supported as well. If they understand better what challenges women are facing, they may be more thoughtful and improve the preparedness and safety of all household members.

Mainstreaming gender in disaster preparedness plans would increase their efficiency. A gender analysis would help to identify the factors that make women and men vulnerable in a natural disaster, and how different natural disasters are affecting men and women. Warning systems should be reviewed in order to take into account the information about vulnerability of, impacts on, and roles of men and women for improving the communication channels to reach the entire population. Preparedness and risk reduction plans at the community level must involve both women and men. Government plans must likewise take into consideration men's and women's different vulnerabilities.

3.4 Adaptation, Mitigation, and Equity

It is important to put a human face on climate change mitigation and adaptation strategies. Even with the best infrastructures, alert systems, or intervention plans, it is people's reactions and responses that will make the policies work or not. More efforts need to be made at the grassroots level to help people adapt their livelihoods to environmental insecurities and protect themselves against potential natural disasters. It is even more important to involve women in this process and make sure they have the capacities to participate actively.

Mainstreaming gender into policies and strategies will help develop mitigation and adaptation strategies that benefit and involve both women and men. Gender-specific questions that must be taken into account include: How do women get information about the risks of natural disaster, and through what channels? Who can access governmental services more easily? How does infrastructure support both women's and men's needs? Are technologies to reduce the pressure on natural resources accessible to women and men? Under which conditions? Who is more likely to invest in getting technologies? How are decisions made about agriculture: which crops to grow, and whether to introduce new varieties or not? Any program aiming to prepare people to adapt to climate change should integrate a gender perspective that will contribute to answering these questions.

Endemic shortages of fuel, water, electricity, and gas all over the country are the effects of a severe energy crisis, and they particularly affect women's work, even in the cities. Developing environment-friendly technologies is becoming a necessity, but these must also reduce women's workload. Nepal's commitment to reduce its emission of greenhouse gases represents an opportunity to provide the technologies for both reducing women's workload and improving health conditions, including the introduction of biogas, improved cooking stoves, and solar cookers. Those technologies must be made widely available to women.

Nepal provides important ecosystem services for the region, and those services will eventually benefit the country financially. There is a large network of well-organized forest users within which women are well represented and involved. One critical issue will be to ensure equitable distribution of the benefits of ecosystem services. Communities will need to be better informed and empowered to maintain their access to and control over natural resources. In many countries, water is being privatized, and big corporations are monopolizing the benefits. This could eventually happen with other natural resources such as forests. National policies must ensure the accessibility and, to some extent, the ownership of natural resources on which the major part of the population, and particularly the poor, depend. Women are especially at risk in this situation; in many cases in Asia, the privatization of common lands is depriving women of essential resources and challenging the food security of their households.

Climate change affects people's living conditions. Since women are traditionally responsible for and concerned with the wellbeing of all family members, they might have a different perspective and innovative ideas for helping people to cope with climate change effects. The women's movement also has a role to play in advocating the integration of a gender perspective in global climate change mitigation and adaptation negotiations and strategies. Focusing on both women's and men's needs and capacities will increase the efficiency of those strategies, saving lives, improving livelihoods, and protecting natural resources.

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