

## **Impact of Climate Change on Mountain Women's Livelihood and Workload & Challenges They Face Regarding Energy Access.**

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### **Introduction:**

Climate change is not neutral. Although it affects everyone, the intensity of its effect differs according to the vulnerability and coping abilities of the people affected. Climate change impacts both men and women, but differently, thus magnifying inequality. Due to climatic and geographic conditions, men and women in Nepal's Himalayan mountain belt work long hours, but women work longer hours than their male counterparts. In many mountain areas like Mustang of west Nepal and the mountain villages of Olangchung area in the Kanchenjunga region of east Nepal, men mostly work on livestock grazing and trading, whereas women work on energy and natural resource management besides local crafts as an additional source of income. The impact of climate change is especially significant on the lives of mountain women. Thus, a correct assessment of the impact or recommendation would first require an analysis of the livelihood activities of mountain women and its relation to the external environment. This paper will attempt to provide a closer analysis of climate change's impact on women's livelihood.

This paper will attempt not just to highlight a correlation between hardship of mountain women and climate change, but more importantly a direct causal link between the degradation of women's livelihood and climate change.

### **Rangeland and Ecological Degradation and Increasing Work Hours**

Mountain people are perennially in contact with external nature, and nature affects living patterns and livelihood. Activities such as animal husbandry and local crafts like weaving of carpets, blankets and textiles used for their own clothing and traded via the trans Himalayan border with the Tibet Autonomous Region, are still prevalent today in these mountain regions of Nepal. A great deal of their livelihood activities are thus dependant on the rearing and raising of livestock animals, mainly yaks, zoms (cross breed of yak and cows), sheep and goats; and the raising of these animals is directly affected by climate change. The yaks and zoms are most useful as means of transportation for trading and for wool from their fur they produce besides the obvious milk for yak butter, cheese and yak meat, which is also a staple food of the people of these areas. For example, in the Olangchung area young yaks are raised for export to Tibet, which is a major source of income for the mountain people. These yaks and zoms depend on rangeland for fodder.

Due to climatic and geographic conditions, men and women in Upper Mustang, of which 40% is rangeland, have to work long hours. Furthermore, around 60% of the land area in the Greater Himalayan region is rangelands which are threatened by degradation and desertification (Sherpa 2007). Rangelands are defined as those areas

of the earth which, due to physical limitations, such as low and erratic precipitation, rough topography or cold temperatures, are unsuited for cultivated agriculture and are a source of forage for wild and domestic animals of the mountain region (Miller 1998). Due to climate change and global warming the snowline in these mountain regions are moving increasingly northward, resulting in the depletion of rangelands and thus creating scarcity of fodder. As the animals have to be moved higher and higher for grazing, this is directly affecting the lives of mountain women: they face shortage of cow dung, the main source of energy, which is also becoming scarce. Ultimately, because of the scarcity of their main source of fuel, people have to resort to chopping firewood from the forests, which lead to further ecological degradation and unsustainable management of rangeland resources, thus adversely affecting the environment of the rangeland areas. Moreover, the shortage of food supply for livestock also leads to malnutrition and ultimate degradation of livestock resulting in decline in commercial activities and thus shortage of food supply for the people themselves, such as yak butter, cheese, meat and wool.

### **Further Impacts of Climate Change on Women Workload**

Another important resource affected by climate change is water. Access to safe drinking water is a big issue in Nepal's Himalayas, especially in regions like the Everest region, Mustang, Dolpa, Langtang and the Kanchenjunga region. Women in most villages still carry water in jerry cans of 35 litres from nearby rivers every day. This is a physically laborious and time consuming task. Even though most villages have community drinking water taps, they dry up during winter season.

And, with the changing environment, unpredictable weather changes have caused mountain people, especially the women, to become the worst victims of global warming, due to lack of preparedness and vulnerability: since global warming is drying up rivers, women have to travel even further to fetch their everyday necessity, water.

Besides river systems, climate change has also caused a depletion of forest resources, introduction of cash crops and increased male labour migration, which have affected women adversely by increasing their workload in rural Nepal. It is evident that women's workload will increase, since it is the women who carry the water, plant and water the seeds, tend the vegetable gardens, take care of the livestock, feed and milk the cows, and look after the households. This culture of division of work also affects girls' education since they will be more likely to be pulled out first from school to assist the mothers with household chores.

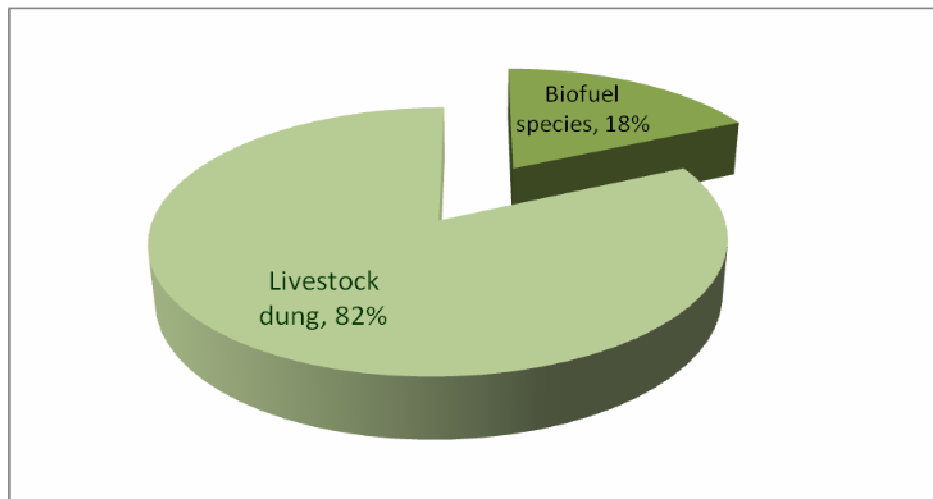
### **Institutional Gender Based Discrimination**

Besides the above mentioned infrastructural constraints that adversely impact lives of mountain women, these women face even further hardship resulting from discriminatory social and political practices: women in the mountains are double marginalized firstly as women and then as mountain women; they experience unequal treatment based on traditional gender relationships that deprives them from equal access to health, education, property and wellbeing. In Nepal, women consistently face hardships, due to lack of access to market, education, exposure, information and communication, contributing to

## Energy Demand/Supply and Women's Work Load

Climate change has an adverse affect on one of the central issues that determine the quality of life among mountain people: the accessibility to fuel resources, for accessibility to fuel determines both the people's quality of living and their livelihood. With changes in climate, fuel energy is becoming scarce, resulting in a direct increase in women's workload. For instance, women of Upper Mustang and Olangchung area work for nearly 17 hours on average compared to men's 10.5 hours a day. Similarly, women walk for long hours (5-6 hours a day in summers and 10-12 hours a day in winters) to high rangeland areas to collect fuel energy like bio fuels and livestock dung for cooking and heating purpose. Although the most time consuming activity is fuel energy collection and traditional methods of craft making, they do not fetch the income commensurate with the amount of work the women put into them. Fuel energy collection amounts to 30.33% of women's work time. Due to lack of alternative fuel, women have to depend on livestock dung and fuel wood. Most of the women's work is difficult and physically laborious, which they have to undertake without sophisticated tools and technologies.

The above paragraph is further validated by a case study undertaken by Dechen Sherpa in Upper Mustang. She states that the Upper Mustang has an energy demand of 3.1 kg per person per day, totaling up to 6,123.6 metric ton per year. There is high demand for energy mainly for cooking and heating purpose, mainly because of its cold weather and tourism activities, which is met by very scarce natural resource, now affected by the fast changing weather patterns. Only 18% of this energy demand is met by bio fuels like *caragana*, remaining being met by livestock dung. However, livestock dung is needed for many purposes, viz. fuel, agriculture productivity and pasture cultivation. If the livestock dung is used for fuel energy, there is less manure left for agriculture, and even lesser for pasture regeneration (Sherpa, 2009). Moreover, as mentioned in the preceding paragraph, rangeland degradation itself has caused a shortage of livestock dung and depletion of livestock resulting in greater pressure on energy needs, decline in commercial activities and decline in the food supply. Energy issue has deeper impacts on women's everyday life.

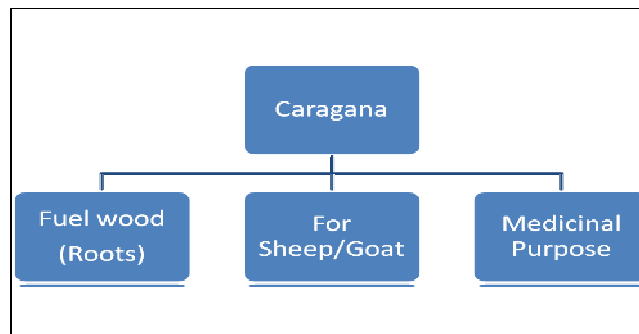


Adaptation strategy to climate change is to explore new alternative energy that can reduce pressure on natural resources, and at the same time increase efficiency.

However, this has to be done considering the different energy needs of men and women, relating to distribution of, and power over, energy services.

### Energy Conflict

Dechen Sherpa's study also highlights the conflict between livestock production and energy demand that threatens women's livelihood. Caragana is women's most preferred bio fuel as its roots serve as firewood since it ignites easily and burns well. But the practice of continuous uprooting of Caragana from underground ultimately puts pressure on its sustainability and its regeneration ability. With the increasing demand for energy, caragana is being uprooted at a high rate, leaving little for grazing purpose for sheep and goats. This has posed threat to livestock rearing. Moreover, Caragana, due to its medicinal characteristics, is highly demanded by the traditional doctors as well. Thus there is a vicious cycle of conflict between livestock production and energy demand (Sherpa, 2009).



### Tools and Technologies

Here the issue is not about whether men and women work or not. It is about "Who works how much with what kind of tools and technologies?" The difference in men's and women's work is widened by women's lack of access to tools and technologies. Where men demand for walls, women demand for threshing machines, where men demand for irrigation, women demand for private water pipes for drinking, where men demand for electricity, women demand for electrical appliance. There are differences in the demands of men and women that are generally neglected. In case of trainings, men demand for exposure visits, whereas women demand for in-village trainings, where men demand for training in farming, women demand for training in weaving and knitting.

### Conclusion

Adaptation strategy to climate change is to explore new alternative energies that can reduce pressure on natural resources, and at the same time increase efficiency. However, this has to be done considering the different energy needs of men and women, relating to distribution of, and power over, energy services. Alternative energy like micro hydro electricity, solar energy, wind energy, LPG gas or improved cooking stoves which require lesser fuel wood, have to be explored and promoted, to meet the increasing energy demand with limited supply in the unpredictable weather conditions and changing climate. Adaptation strategies have to be explored taking into account local knowledge and tradition.

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