Raising Awareness of the Impacts of Climate Change: Initial Steps in Shaping Policy in Nepal

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Raising Awareness of the Impacts of Climate Change

Initial Steps in Shaping Policy in Nepal

Climate change is happening and people have begun to feel its impacts on their daily lives. Clear indications of these impacts can be seen on Himalayan glaciers, which are melting at rapid rates and consequently form massive glacial lakes (Figure 1), with a risk of catastrophic glacial lake outburst floods (GLOFs). GLOFs result in loss of lives, property, and costly infrastructure, as well as displacement of local people. They represent a particular threat in Nepal, where resources are already scarce. In least developed countries (LDCs) like Nepal, where poverty reduction is a national priority, the impact of climate change appears to be an obstacle to the process of sustainable development. Institutionalizing the climate change issue in national policies has now become an urgent need rather than a choice. As a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), Nepal has agreed to take climate change considerations into account in its national development agenda. The first step was the ratification of the Kyoto Protocol; the second is building the necessary institutional services such as a Designated National Authority (DNA), which is in the process of establishment. Moreover, climate change policies and strategies, the interconnections between different sectors, and coordination among different line ministries and government departments are issues to be addressed in the near future. WWF has initiated a Climate Witness Project to raise national and international awareness, and supports national efforts to shape adequate institutional responses to climate change.

Climate change impacts in Nepal

Nepal's global greenhouse gas (GHG) emissions are negligible compared to those of developed countries. Nepal has less than 0.4% of the world's total population and is responsible for about 0.025% of annual GHG emissions. It has been estimated that the carbon emissions of 1 citizen of the USA is equivalent to the emissions of 182 Nepalese citizens. With an average annual increase in temperature of 0.06°C per year, Nepal is highly vulnerable

FIGURE 1 Imja glacier lake. The lake started forming recently and is building up. The loose natural dam is a typical hazard for the valleys lower down. (Photo by Sandeep Chamling Rai, 2004)

to climate change. This is mainly due to its fragile ecological system and rugged geophysical structure with great elevations and steep slopes.

For a country like Nepal, where a majority of the population depends on agriculture, even slight changes in climatic conditions can lead to devastating consequences. Due to dependency on natural resources and climatic conditions, various aspects of agriculture have already been disrupted, resulting in changed cropping patterns, variations in crop yield, greater pest problems owing to temperature change, etc. People in local communities in mountainous regions mention the decrease in the amount of snowfall in recent years, which has reduced their crop productivity, mainly in potato yields, the most common crop in mountainous regions. The snow acts as an insulator for younger plants and prevents them from dying. Now, however, due to reduced snowfall and higher temperatures, the younger plants are dying, resulting in lower yields. Such problems in agriculture lead to food insecurity, making the poor even poorer. The impacts on natural resources also have consequences for those who depend on the tourism industry—particularly in Solukhumbu District, Nepal's biggest tourist attraction, with its access to several of the world's highest mountains, including Everest. Climate change impacts generally threaten biodiversity and fragile ecological processes.

A threat to the "water towers of Asia"

Climate change impacts in recent decades have been the most disastrous on the Himalayan glacial ecosystem, with nearly 33,000 km^2 of glaciers at risk. These glaciers, which provide huge amounts of water (8.6×10^6 m^3 per year) and are the so-called "water towers of Asia," are retreating at an alarming rate. Research shows that the Nepal Himalaya has 3,252 glaciers covering 5323 km^2 and an estimated ice reserve of 481 km^3. It is widely agreed that climate change is the main factor behind the accelerated glacial retreat observed in the Himalayas.

FIGURE 2 Destruction in Thamo Valley caused by the Dig Tsho glacier lake outburst flood in 1985. (Photo by Sandeep Chamling Rai 2004)

It is predicted that continuous climate change will lead to major changes in freshwater flow resulting from glacier retreat, with dramatic impacts on biodiversity, including species such as the river dolphin, which depends upon freshwater from the Himalayas. The one-horned rhino that needs water for its habitat will be displaced, snow leopard habitats will be impacted by glacial retreat, as will people and their livelihoods. The impacts of climate change on glaciers are also expected to increase frequent catastrophic GLOF events. Such events have devastating consequences on costly infrastructure such as bridges, dams and powerhouses, as well as on life in downstream communities (Figure 2).

Glacial retreat is thus no longer a myth. The Intergovernmental Panel on Climate Change (IPCC) has forecast that up to a quarter of the global mountain glacier mass could disappear by 2050 and up to half could be lost by 2100. As alarming as this forecast sounds, more shocking still is the impact that this glacial retreat will have on the lives of local mountain people, who will be devastated by such glacial melt. Moreover, the Himalayan glaciers feed 7 of Asia's great rivers: the

FIGURE 3 Nawa Jigtar is a senior monk in the village of Ghat. Twenty years ago, he witnessed the destruction of his village by a flood. He saw his own house collapse and his cows drown as a result of the Dig Tsho GLOF. (Photo by Sandeep Chamling Rai, 2004)

"The flood came around 4 in the afternoon. If it had come at night, none of us would have survived. We heard a very loud sound. As we went out we saw the floodwater bringing down boulders and wood; later on we heard that this flood had killed 5 people downstream." (Nawa Jigtar, senior monk in Ghat)

Ganges, the Indus, the Brahmaputra, the Salween, the Mekong, the Yangtze, and the Huang He. They ensure a year-round water supply to several billions of people in South Asia. Research has shown that in Nepal, the discharge rate of the water in 3 of the snow-fed rivers that lead to Ganga is declining. In Ganga, the loss of glacier meltwater is expected to reduce July–September flows by two-thirds, causing water shortages for 500 million people and 37% of India's irrigated land.

Eyewitness accounts

Even though climate change is occurring and people have begun to feel its impacts on their lives, nothing tangible has been done. Issues related to climate change are still not a priority for decision-makers, who hesitate to take decisive steps to combat the impact of climate change on the lives of Himalayan people. As a demonstration for policy-makers, decision-makers and the general public living in cities far from impacted sites, the WWF Nepal Climate Change Program initiated the Climate Witness Project.

The objective of this project is to document and highlight impacts and vulnerability resulting from climate change in mountain regions, at both national and international levels, and urge that concrete action be taken to reduce these impacts and join hands with WWF in strengthening the resilience of local people to cope with adverse impacts. WWF made a documentary for this purpose, entitled "Meltdown in Nepal," in which witnesses to climate change call for urgent action. The witness project first identifies vulnerable communities and documents the stories of local people (Figure 3 and Box), and then helps them to develop local adaptation strategies.

The witness documentary that was developed from this project was launched during a side event at the Conference of the Parties of the UN Framework Convention on Climate Change, COP 10, in Argentina in December 2004, and was covered by many international media representatives. It was also shown to decision-making bodies in His Majesty's Government of Nepal. This documentary also helped to speed up endorsement and ratification of the Kyoto Protocol by His Majesty's Government of Nepal.

Institutional challenges

Most of Nepal's national policies are committed to meeting sustainable development targets. Nepal's 10th Five Year Plan, known as the *Poverty Reduction Strategy Paper (PRSP)*, indicates that the national government will focus and dispense all available resources on fulfilling an agenda of sustainable development by reducing poverty. As mentioned above, climate change and its severe impact on infrastructure and other development processes can easily hamper the economic stability of the country. Moreover, national income that is dependent on tourism will be hard hit, especially in mountainous regions where the impacts of climate change are making local communities more vulnerable than

Examples of climate witnesses

Nima Tasi Sherpa, an expert climber who has climbed Mount Everest more than 8 times and has been working as a mountain climbing guide for the last 20 years, has witnessed glacial retreat since childhood. He explains how the situation in the Everest region has changed: "*When I first climbed Everest in 1988, there was snow and ice all the way from Camp 2, everywhere. Now, I see more of rock at Nuptse and Lhotse glacier areas. In spring, you will not see much snow.*" Not only the local people but also the Ringboche, the senior spiritual leader of the Khumbu region, speaks of several issues related to global warming. He is mainly concerned about the effect of global warming on the freshwater supply: "*Due to global warming, the glaciers have melted a lot in the Himalayas and the rocks beneath the glaciers are being exposed. This melting of glaciers will have a great impact on the freshwater system, which will create a big problem for all of us.*"

ever before. These various issues related to climate change ultimately put the national government and policy-makers alike in a very difficult situation.

The institutional challenges for Nepal relate mostly to introducing relevant policies at the national level. Sooner or later Nepal must speak loudly and clearly at the international level and demand essential support (Figure 4). It is important for Nepal to make it apparent to the global community that even though it plays an insignificant role in causing climate change, it is paying a high price. Thus the slogan of "common but differentiated responsibilities" must be realized.

There is no doubt that Nepal is struggling to meet the challenge of resources—financial, human and technical—to combat climate change. The Ministry of Environment, Science and Technology (MOEST) is the focal ministry for climate change issues, where there are many challenges to meet. WWF Nepal is giving financial and technical support to MOEST in the process of ratifying and implementing the Kyoto Protocol and establishing a Designated National Authority (DNA). The DNA is the official body through which all Clean Development Mechanism (CDM) projects will pass.

There is good potential for CDM projects in Nepal. Large-scale activities such as afforestation and reforestation, community forestry, and renewable energy technologies such as biogas, micro-hydro, and solar panels being used in Nepal can bring benefits as part of a CDM project and trade in carbon credits. Nepal should therefore focus on the CDM project, and give priority to establishing a DNA. After the establishment of a DNA, the entire CDM project transition will be easy for His Majesty's Government of Nepal to handle.

Nepal also needs to focus on building resilience in vulnerable communities. To do so, it has to allocate substantial amounts of funds for the adaptation of activities. Without tapping the fund allocated by the UNFCCC, it will be quite impossible to attain the goal of building resilience. Hence establishment of a National Climate Change Country Team (NCCCT) to enhance negotiation capacity and advocate at the UNFCCC for allocation of funds such as the Adaptation Fund, the Special Climate Change Fund, and the Least Developed Country Fund, is essential. NCCCT must consist of government officials and key INGOs and NGOs

FIGURE 4 International WWF Climate Witness event at the COP 10 in Argentina, 6–17 December 2004. (Photo by Sandeep Chamling Rai, 2004)

that are actively involved in climate change. WWF Nepal is also making an effort to help establish the NCCCT.

Conclusion and recommendations

In brief, there are many institutional challenges, but they can be summarized in terms of several main points:

- Integration of climate change into the PRSP;
- Cross-sectoral collaboration in different ministries, departments, and line agencies;
- Governmental capacity to deal with climate change issues at the international level.

Detailed information on climate change and guidance for officials must be made available, so that they can use different tactics in international negotiations that help gain access to the UNFCCC funds for adaptation.

The root causes of climate change problems come from developed nations, while the impacts must be faced by every citizen. The sovereign environmental rights of individuals and most of the developing and least developed countries are being taken away. Every citizen has equal rights to the environment. Thus in order to minimize emerging problems and make the planet livable, all nations must join hands and work together. The Kyoto Protocol needs to function well and its emission reduction targets need to be increased.

For a country like Nepal, where climate change issues are not reflected in the national development agenda, these steps will be very important. Adapting to the impacts of climate change and meeting sustainable development goals will require both technical and financial support at the international level. A national climate change policy and strategy needs to be developed and implemented. A DNA needs to be established so as to obtain benefits from CDM projects. Climate change issues must be reflected in every development planning process. As climate change is a cross-cutting issue, there must be coordination among different ministries, government bodies and line agencies. To reflect issues in Nepal and concern in international fora, an NCCCT needs to be established and its capacity enhanced.

In conclusion, there is an urgent need at the global level to reduce GHG emissions drastically, to maintain natural beauty and safeguard the livelihoods of the local people in Nepal and other mountain countries. There is also a need for efficient institutional arrangements to support and build the resilience of mountain populations to cope with the impacts of climate change. The global community must be more aware of the seriousness of the impacts of climate change and act now to reduce them.

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