

Title: Climate Change

1. Background and Scope

1.1 Climate change and its status

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. The scientific consensus is that human activity is very likely the main cause for the rapid climate change: mainly increase in global average temperatures through the changes in greenhouse gas concentrations over the past several decades. The Earth has been warmed on an average by 0.74°C globally in the last 100 years, and the rate and scale of 20th century warming has been unprecedented for at least the past 1,000 years. Furthermore, scientists have predicted that the global mean temperature in 2100 might increase by 2°C from that of 1901. Climate change has impact on almost all spheres of human activities and natural resource in general and agriculture in particular. The impact on agriculture is of a great concern on local, national as well as global levels because food production is the very basis of human survival. Climate change study in Nepal using different models has shown a decrease in solar radiation throughout the country with a negative balance of -5 to -16 W/m^2 in recent years. The overall temperature is found to be rising at the rate of 0.41°C per decade. Similarly, average precipitation indicates a decreasing trend at the rate of 9.8 mm per decade. Unpredictability of the rainy and dry bouts in terms of onset, intensity and length and frequency is being ever more pronounced. All these evidences witness the changing climate in Nepal. In this context it is also noteworthy that Nepal's contribution to the accelerated climate change is non-significant in global terms but the possible impacts of climate change in the country's economy and local livelihoods are expected to be significant.

1.2 Problem

Since agriculture constitutes a much larger fraction of GDP in our country, even a small percentage loss in agricultural productivity would impose a larger proportionate income loss. Weather-related extreme events such as erratic and excessive rainfall, long spells of drought, heavy and unusual floods and landslides are increasing in term of both magnitude as well as frequency. Such events have put the farmer's livelihood at risk threatening all the five assets of livelihood; human, social, capital, natural and physical questioning sustainability and jeopardizing the economic development endeavors. Increasing risk of floods & landslides and in many parts of the country have brought insecurity among local farmers in their livelihood. Agriculture, the source of livelihood of majority of the rural people, has been hit the hardest and climatic vagaries are contributing to make farming as lowliest occupation. Declining agricultural productivity due to climatic uncertainties and associated risks are becoming the everyday news. This, coupled with soaring population growth, land commoditization and fragmentation and political instability, is contributing to expand agricultural lands on to forests in order to overcome the decline in productivity, which has been proven to be a double-edged sword: cutting down standing forests to clear the land for agriculture is a big contributor of green gas emissions.

1.3. Rationale

Majority of the farming communities in Nepal have been feeling the changes in climatic variables and their impact on various sphere of life. The harsh climate of recent years has put the farming communities at various economic and social risks making them food and livelihood insecure. Marginal communities and the women have been hit the most. However, mechanisms, mode and intensity of the impact are still not analyzed properly. Several climate change impacts and vulnerability assessment studies suggest that Nepal's vulnerability is highly associated with the

changes in precipitation regime. Adaptation, which refers to finding and implementing sound ways of adjusting to the adverse effects of climate change, is becoming an urgent and immediate need. Noteworthy is that farmers are trying to get adapted to the situation through such activities as selecting the suitable crop/variety, altering in planting time, developing new technologies, etc. Nepal's strategy on climate change adaptation and mitigation is still at an early stage of development and Nepal's National Action Plan for Adaptation (NAPA) is under progress. In recent years, several NGOs and CBOs have been working in climate change related activities particularly in raising awareness and implementing adaptation measures. Most of them focus on environmental and health sectors. However, stakeholders directly and indirectly linked with farmers in Nepal have not been able to be clear on their roles and responsibilities as how to contribute or support. It is, therefore, essential to come forward with the efficient networking of the organizations that have taken initiatives to help the communities against climatic vagaries.

1.4 Expected outcomes

- 1.4.1. Data/information on climate change and its affect on the livelihoods gathered/generated, and vulnerability analysis conducted and risk identified in the target communities
- 1.4.2. Location specific effective adaptation programs initiated and implemented.
- 1.4.3. Appropriate technologies including better resource use option for mitigation developed
- 1.4.4. Curriculum on climate change at IAAS and school levels developed and taught
- 1.4.5. Indigenous knowledge that provides insurance against climate change risks promoted, improved and preserved, and appropriate and efficient landuse options promoted.
- 1.4.6. Suitable farmers friendly policies on agriculture to fight with climate change such as insurance against crop and animal failure, right to climate information and services and early warning and preparedness for climatic hazards formulated and implemented
- 1.4.7. Subsidies on the community activities adopted to mitigate/adapt climate change such as organic farming, agro-forestry, slopping land technologies (SALT), riverbank embankments, biodiversity conservation etc. guaranteed.
- 1.4.8. Operational network and/or alliance to share and update the experience, strength and resources established.

2. Purpose

To support partner organizations and network members of NPG in enhancing capability to understand the effect of climate change on livelihood and developing and implementing interventions on mitigation of and adaptation to climatic adversities so as to minimize the associated risks to be befallen in the rural households and communities.

3. Approaches

- *Assess the vulnerability status of the communities and prioritize the target area and group.
- *Develop meaningful partnership with communities and concerned stakeholders to better understand the nature and the effect of climate change on livelihoods both in short and long terms.
- *Develop community skills to understand their strength and weaknesses to fight against climatic adversities.
- *Enhance the system of climate information, early warning and preparedness service systems in collaboration with concerned authorities.
- *Make the people aware of the concept of mitigation and adaptation and help them develop suitable strategies to address the problem through information sharing, advocacy, campaign, demonstration,

and formal and non-formal education and discussions.

*Promote massive plantation in degraded and community lands with multipurpose trees and bio-fuel species, and organic farming as mitigation and adaptation strategies.

*Help communities develop technologies suitable to the changed climatic condition and explore the local resources (biodiversity) that are adaptable to climatic adversities.

*Strengthen the organizational capacity of NPG and its members to handle the issue efficiently and meaningfully.

4. Focus Areas

- Climate change service in collaboration
 - Right and timely information on changing climate & weather
 - Awareness about the possible impact of changed climate
 - Early warning system and preparedness against possible weather induced disasters
- Community adaptation and mitigation
 - Clean and green energy
 - Organic farming and conservation agriculture.
 - Tree plantation and rehabilitation of degraded lands
 - Bioengineering and Slopping Land Technology (SALT)
 - Biodiversity conservation and promotion of bio-fuel
 - Waste and natural resource (land, water and forest) management
- Teaching & research
 - Climate change course at IAAS and related institutions
 - Effect of climate change on farmer's livelihood and effect of agriculture on climate
 - Local knowledge, landuse systems and biodiversity & appropriate technology development
- Networking among the concerned stakeholders such as GO, I/NGOs, CBOs, FUGs ,etc