Tropentag, October 5-7, 2011, Bonn

"Development on the margin"

Changing Life with Climate: Adaptation through Agro-biodiversity Management – A Case from Nepal

Bishal Ghimire, Anju Upadhyaya

Georg-August-Universität Göttingen, Dept. of Forest Sciences and Forest Ecology, Germany

Abstract

The third assessment report of the Intergovernmental Panel on Climate Change (IPCC) has identified climate change as a serious threat to agro-biodiversity through alterations in species composition, cropping pattern and productivity. The changing climate is projected to result in remarkable shifts in rural communities' livelihoods causing irreversible damage to their agriculture, forest and other natural resources. This situation demands for potential adaptation strategies to moderate and cope with the vulnerabilities to which the resources and the communities are exposed.

As agro-biodiversity resources are highly sensitive to climate change and the local farmers are in the forefront of the impacts, it is imperative to understand their perceptions on climatic variability and explore their adaptation strategies through agro-biodiversity management against changing climate. This study, based on a case from Pokharekhola watershed in the central middle-hills of Nepal, was conducted in 2009. The primary data were gathered through interviews, group discussions and field observations. Meteorological data and allied study reports were used as secondary information.

The farmers' perceptions on climatic variations like their observation on rising annual temperature, decreasing post-monsoon rainfall, warmer and shortened winters were corroborating with the meteorological data of last two decades. The alteration in tree phonologies and early fruiting and ripening of agro and horticulture crops were the distinctive signs of climate change at local level. Drying of water sources and decreased soil moisture, increased agricultural pests and diseases, and appearance of invasive weeds were observed as immediate climate change impacts. Furthermore, reduced cereal, vegetable and fruit production due to erratic rainfall patterns had the major impact on the people's livelihoods.

The farmers have started adopting some new farming strategies to cope with climate change scenarios at local level such as adjusting the crop cultivation time and supplying irrigation to adapt to the prolonged droughts, using improved seed varieties, replacing cereals with vegetable farming, crop diversification through mixed-cropping, more fodder tree plantation in homesteads, and increased goat raising instead of cattle. These practices of agro-biodiversity management have helped the rural communities to adapt with the adverse impacts of climate change by transforming their life and farming patterns.

Keywords: Adaptation, agro-biodiversity, climate change

Contact Address: Bishal Ghimire, Georg-August-Universität Göttingen, Dept. of Forest Sciences and Forest Ecology, Albrecht Thaer Weg 14a/001, 37075 Goettingen, Germany, e-mail: abghimire@gmail.com