

Sikkim Himalayan-agriculture: Improving and scaling up of the traditionally managed agricultural systems of global significance

Ghanashyam Sharma - Environment and Sustainable Development Programme, United Nations University, 53-70 Jingumae Shibuya-ku, Tokyo 150-8925, Japan; banstolag@yahoo.co.in

Luohui Liang - Environment and Sustainable Development Programme, United Nations University, 53-70 Jingumae Shibuya-ku, Tokyo 150-8925 Japan;

Eklabya Sharma - Environmental Change and Ecosystem Services, International Centre for Integrated Mountain Development, Khumaltar, Kathmandu Nepal;

J.R. Subba - Department of Agriculture and Food Security, Krishi Bhawan, Tadong, Gangtok Sikkim-737102, India;

Koji Tanaka - Centre for Integrated Area Studies, Kyoto University, Kyoto 606-8501, Japan.

Resources Science, Vol.31, No.1 pp 21-30, January 2009

Abstract:

Sikkim Himalaya is a part of globally significant biodiversity hot spots of the world within the greater quadri-national junction of Khanchendzonga landscape in the eastern part of Himalayas. The Sikkim Himalayan-Agriculture system is recently proposed for recognition under the FAO Globally Important Agriculture Heritage System programme (GIAHS). The region is an assemblage of sacred landscapes called Demazong (the valley of rice) or the Shangrila (the hidden paradise on earth). This cultural-landscape is endowed with rich agrobiodiversity adapted and managed through traditional ecological knowledge of the culturally diverse ethnic communities. It comprises of trans-Himalayan agro-pastoral system of the Dokpas in the alpine plateaus, traditional agroforestry such as alder-cardamom and farm-based systems in the temperate zones, and terraced/valley rice systems in the lower warm temperate to sub-tropical agroclimatic zones. It is paradoxical that culturally and biologically diverse land use systems and landscapes are marginalised. The development opportunities are enormous but persistent problems of poverty, access to markets, economic and ecological fragility are prevalent.

Sikkim Himalayan-Agriculture is an adaptive management system that offers economically valuable diversity of crop varieties and multipurpose plant species in the vertically differentiated agro-ecological zones. The diverse indigenous communities house Traditional Ecological Knowledge in adapting, monitoring and responding to ecosystem resilience and services. We discuss the role of traditional agriculture in conservation of biodiversity and our assessment on the diversity of ecosystem management from sub-tropical to alpine agroclimatic ranges. We also analyze the social adaptations and knowledge-base on agroecosystems and role of traditional institutions to authenticate GIAHS proposal to envisage wider recognition in local, national, regional and at global level. We conclude that monitoring of traditional agriculture and science based policy need to be formulated in a participatory manner to mitigate the vulnerabilities and new challenges due to climate change. Recognition of the Sikkim Himalayan-Agriculture would help strengthen the conservation efforts and sustainability of the environment health and livelihood of the marginal communities to ensure sustainable development.