

Title: Impacts of agricultural intensification and ecosystem disturbances on climate gas emission and their implications on rural livelihood

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Much research have been conducted in developed countries on the fluxes of greenhouse gases as influenced by factors such as soil texture, soil pH, fertilizer application, and land use change (IPCC, 2001). However, little work has been done in South Asia in the situation where agricultural intensification has been practiced widely. The need to produce enough food and existing socio-economic and political factors, are influencing and compelling farmers in Nepal to go for crop intensification. Meanwhile, fertilizers use and increased crops in a year leads to increased emissions of green house gases. Climate change resulting from increased concentration of green house gases in the atmosphere, will have profound influence on the earth's inhabitant especially poor and marginalized people in the developing countries. Therefore, a study of climate gas emission in response to agricultural intensification and ecosystem disturbance is clearly needed.

Methane (CH₄) and nitrous oxide (N₂O) are the most abundant greenhouse gases. Ecosystems are the sources and sinks for these gases, but disturbances in an ecosystem play a vital role in emissions of CH₄ and N₂O. In the study, I intend to address agricultural intensification and ecosystem disturbances in the emissions of CH₄ and N₂O focusing on crop intensification looking into the levels of chemical fertilizer inputs, tillage frequency, number of crops per year and types of cultivation. The study of implication of socio-economic and existing policies on agricultural intensification will also be studied. The study sites are: (1) Ansikhola watershed in mid hills of Nepal and (2) BRT Wildlife Sanctuary in India.