

## Session: 113 - 2

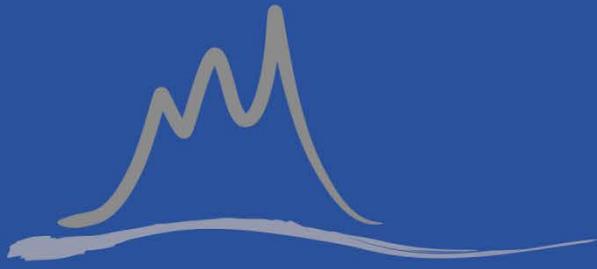
### **Topic: 02. Hydropower development and impacts on economy**

#### Hydropower dams as driving forces for land use change: case study in Northern Vietnam

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In the Great Mekong Region, to meet the energy demand to fuel industrialization and urbanization, public and private sectors are currently making significant investments in large dam construction on many of the regions' suitable rivers, leading large threats on water management, livelihoods of the poorest smallholders and on environmental issues, both for downstream and upstream parts. Besides the combination of population growth and increasing demand of agricultural products calls nowadays for an economic focus on development of upland regions highlighting soil erosion process such as one of the most severe threat for smallholders livelihood and life span of hydropower dams. Despite of a willingness to leverage the commonality of upstream-downstream objectives to create sustainable solutions for water and land-use management problems, the accompanying policies for hydropower dam projects mainly concern the downstream part. Then while the uplands supply much of the water from which lowlands prosper, upland residents tend to suffer most from poverty, low productivity farms and environmental degradation, with the latter also significantly affecting downstream water use and users. The challenge is reformulating the relationship between hydropower dam management and agricultural upland management. This study seeks to facilitate institutional and economic frameworks for transformational change within downstream-upstream land-use policy in the Great Mekong Region, based on a concrete study of the impact of three large hydropower dams in building since 2004 inside an area of less than 100 km long in Northern Vietnam. This study was built on diachronic analysis of remote-sensing images from Landsat over 35 years: 1973, 1993, 2000 and 2009. The RUSLE model has been used at regional scale to perform the consequences of land use changes on regional erosion budget from 1973 till nowadays, and to discuss the driving forces leading to the land use change. Since the new wave of dam construction in the region could be seen as an opportunity to meet the regional economic development with a direct impact on the farmers' livelihood, our study underlined that beside the changes in land use, another major problem is the increasing erosion process due to the expansion of cash crops for large agricultural companies, such as mainly tea plantation and planted forest. This change led not only the increase of agricultural surface instead the fallows area, but it occurred before period of the dam building. Clearly in the study zone, the risk of erosion is increasing by more than 20% on the last 15 years and the main land use change started before the hydropower dam building. The land use change has been driven by the indirect impact of the hydropower dam planning. Then it is argued that appropriate land use policies accompanying the hydropower dam projects are required largely before the starting period of the dam building, mainly in term of land distribution.



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# ABSTRACT VOLUME

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