

The Impact of Development Interventions on the Poverty–Environment Nexus in the Lower Mekong Basin: Understanding Environmental Services on a Meso–Scale Perspective

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The riparian countries of the Lower Mekong Basin (LMB) are endowed with a richness of natural resources such as forests, water, agricultural land, mineral resources, and biodiversity. These natural resources provide a wealth of different environmental services to stakeholders from the local to the international level. However, their heterogeneous spatial distribution indicates that this service provision is uneven throughout the LMB, and that recent and current processes reinforce trends towards unsustainable development. These processes comprise general macro-economic *dynamics* among the riparian countries, resulting in socio-economic *disparities* that impact on natural resource management, as well as socio-economic and political *dependencies* that lead to inequitable configurations of decision-making governing environmental service provision in different sub-regions.

In light of these general trends we argue that environmental services provided by forests and upland agriculture must be considered as key for future development policies in the LMB: on the one hand, the weaker parts of the region are facing an increasing pressure to catch up with the high pace of economic growth. Whatever the engine of this growth will be in the long term, development will inevitably pass through agricultural transformation and intensification in the short term. On the other hand, we have to take into account that the vast majority of people living in the LMB depend on agriculture and forestry. From an ethical point of view it is therefore essential that the livelihoods of these people and their natural resource bases be put at centre stage when considering future development pathways.

In order to develop innovative pathways towards sustainable development, a close dialogue between policy and research is crucial. Despite the growing number of studies dedicated to environment and development in the LMB, knowledge-dialogue continues to face two important challenges. Firstly, the omnipresent propagation of the Millennium Development Goals fosters sectoral rather than integrative approaches to knowledge production. In the context of the LMB, where trade-offs between socio-economic development and environment must urgently be negotiated, this is highly critical. Secondly, integrative approaches oriented towards sustainable development cannot fulfil the knowledge demands of decision-makers. Trying to grasp the high complexity of poverty-environment interactions, they increasingly zoom in on local case studies, where each situation seems incomparable to another and generalisation and relevancy for decision-making at higher levels is lost. Furthermore, decision-making by local stakeholders on environmental and economic issues is being increasingly influenced by development interventions, policies, and institutions at higher levels. Understanding these factors and their variation from one place to another is crucial not only for developing innovative solutions, but also for planning their implementation. This field cannot be excluded from scientific research any longer.

The Swiss National Centre of Competence in Research North-South has initiated a new research project in the Lower Mekong Basin, aiming to understand spatial patterns of the poverty-environment nexus by studying the impact of development interventions and underlying decision-making processes on a meso-scale. The approach comprises three important elements. First, it will try to determine spatial patterns of the poverty-environment nexus, using high-resolution land-cover and socio-economic data. Second, a

spatially explicit analysis of development interventions and underlying decision-making processes by stakeholders shall allow description of so-called 'governance landscapes' Third, the different configurations of the poverty-environment nexus shall be related to 'governance landscapes' in order to explain specific poverty-environment configurations. The ultimate aim is to establish a typology of spatial contexts which are homogenous in terms of constraints and opportunities for future development pathways. This 'context-knowledge' will allow conception of more realistic, more efficient and above all spatially differentiated policies for pro-poor and environmentally sustainable development.

First results from the LMB illustrate spatially discrete patterns of natural resource dynamics related to forests and agricultural land. Taking multi-temporal land cover inventories beyond net change analysis can reveal interesting insights into on-going processes. Certain land cover categories (e.g. forest mosaics) do not seem to change in surface from one time to another in conventional analysis. Yet, by accounting for increasing as well as decreasing surfaces, it has been shown that the highest resource dynamics are not taking place in closed canopy forests but rather between forest mosaics and cropping mosaics. Considering the value of these vegetation types for biodiversity, as well as for the livelihoods of millions of people, more emphasis has to be placed on management of these vegetation types. The data can also detect spatially discrete deforestation trajectories, revealing the influence of different economic and political contexts.

Further results allow the contextualising of natural resource dynamics on a regional scale. Among different proximate causes studied, insights into the role of accessibility from villages, district capitals and neighbouring countries are particularly interesting. The significant change among land cover types with decreasing accessibility is a first important indicator for determining the involvement of various stakeholders in resource extraction. For Laos it can be shown that lack of access accounts for by far the biggest share of deforestation in protected areas, where the mere fact that an area has been declared protected accounts for very little. Conversely, the strong link between resource degradation and accessibility also reflects on future strategies. These should consider out-scaling certain innovations in terms of accessibility, and also the effect of infrastructure projects such as the recent ADB 'economic corridors' initiative.

The way forward will be based on initial results, and shall be briefly sketched out in order to stimulate discussions and to interest potential partners. First, the spatial land cover data will be complemented by high-resolution socio-economic data. Second, development interventions and stakeholders will be analysed in a spatially explicit way. The presentation ends by presenting a vision of how generalised knowledge on the poverty-environment nexus and related stakeholders could be the basis for conception of more realistic, efficient, and spatially differentiated policies for pro-poor and environmentally sustainable development.