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UNDERSTANDING LAND USE, WATER BALANCE AND WATER RIGHTS FOR REWARDS ON WATERSHED SERVICES: EXPERIENCE FROM MANUPALI WATERSHED IN SOUTHERN PHILIPPINES

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With an increasing trend of forest conversion for agricultural production, as well as erratic changes in precipitation patterns, water as a scarce resource is bringing challenges for all stakeholders and user-groups in Manupali watershed in southern Philippines. There are many stakeholders and water users: smallholder farmers, indigenous people, the local government, multi-national companies, the National Irrigation Administration and its irrigators' associations, and the National Power Corporation. As demand for water outstrips supply, conflict arises between different user-groups over who can use water and how much each can use. Moreover, water scarcity impacts are aggravated by overlapping allocation of water rights, which is a privilege the government grants to use and further appropriate water.

To get around these issues is challenging, so instead of focusing on property relations in water, stakeholders and user-groups are currently developing mechanisms that provide some 'surety' to meet their water needs on a sustainable basis. This paper reports on initial results of an on-going study that develops mechanisms aimed to reward farming communities for the environmental services that they provide, including watershed services. The Participatory Landscape Appraisal (PaLA) and Rapid Hydrological Appraisal (RHA) – decision-support tools developed by the World Agroforestry Centre (ICRAF) – were simultaneously implemented in 2009 by a local team composed of government and non-government institutions aimed to understand the different ecological perceptions and aspirations of stakeholders and user-groups, examine the effect of land use change to water balance, how this relates to water rights conflicts, and negotiate for better co-investment in sustainably managing the Manupali watershed. To be reliable and effective, the analysis integrated the different perceptions and aspiration of local communities' ecological knowledge (LEK), policy-makers' ecological knowledge (PEK) and modelers' ecological knowledge (MEK) by using the Gen-River model.

The LEK-PEK results revealed that in-migration due to agricultural expansion (i.e., vegetable, banana and pineapple corporate farming) were the main drivers of land use change in the past 10-20 years, which they believed resulted in decreased tree cover, water shortage and siltation downstream. On the other hand, the Gen-River results suggested that one of the four major sub-watersheds in Manupali is already degraded. The Kulasihan sub-watershed has poor water balance that was associated with poor vegetation, high population and intense agricultural activities. Majority of its forests cover have already been converted to agriculture, such as banana and pineapple plantations. The current water yield further suggested that expansion of corporate farming in this area would further lead to water deficits for other users downstream, such as the rice irrigators and hydropower electric company. At the surface level, water conflicts in Manupali are about benefit-sharing and water shortage due to diversion for corporate farming, but the root cause is actually poor land use system. Hence, combining the LEK-PEK-MEK results, the recommendations include: (1) to develop land-use policies and incentives for sustainable land use system within the watershed, (2) to regulate water rights allocation, effective coordination between water management institutions, and complementary policies, and (3) to foster watershed-level collective action for co-investment, and equitable and fair-benefit sharing of water resources. These recommendations are well-taken by the stakeholders and water-user groups, with institutional arrangements and scheme development for RES currently underway.

Keywords: watershed approach, land use change, water balance, water rights, rewards for environmental services

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