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Blending Local Knowledge and Agricultural Science for Integrated Natural Resource Management in the Southeast Asian Uplands

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Abstract

Many innovations that have been introduced to resource-poor small-scale farmers in the humid tropical uplands have fallen below the expectation of researchers and extension workers in terms of uptake and dissemination because they have not been based on local knowledge and practice. Experience in the Philippines shows that technologies that are simple, yet effective, low cost and based on local practice spread spontaneously with minimal outside support. The use of natural vegetative strips (NVS) for soil conservation on cultivated slopes provides such an example. The technology has evolved as a local modification of an introduced alley cropping technology in the late 1980s, but has also been used traditionally by farmers in other upland areas in the Philippines. The World Agroforestry Centre (ICRAF) has supported the dissemination of this successful technology through identifying complementary practices that improve soil fertility on the developing terraces and add farm income (through integration of cash perennials, especially fruit and timber trees), and by forging strategic partnerships between farmer groups, local government institutions and non-government organizations. On-going collaborative efforts aim to fill existing knowledge gaps, such as understanding the effects of NVS at different scales in space and time. To allow confident extrapolation of the technology from locations where it is currently being used, a deeper understanding must be developed of the performance of the NVS technology in contrasting bio-physical and socio-economic environments and its role in a mosaic of various land uses (from patches of natural forest and agroforestry to annual mono-cropping — with and without vegetative buffer strips — and lowland rice production) within a larger watershed area. Also the role that technical and institutional innovations play beyond the farm and sub-catchment level as they help provide environmental services to the wider community within the watershed and the society at large, requires further investigation with participation of all stakeholders at all levels (from local up to national and global level). The Integrated Natural Resource Management (INRM) logic developed by the Consultative Group on International Agricultural Research (CGIAR) in 1999 provides the framework to systematically address related knowledge gaps. INRM has been defined as a conscious process of incorporating multiple aspects of natural resource use into a system of sustainable management to meet production goals of farmers and other uses (e.g. profitability, risk reduction) as well as goals of the wider community (sustainability). The key features of INRM research are: it follows a systems approach, is process-oriented and employs new tools and models, looks at multiple scales (in space and time) and involves multiple stakeholders, addresses the issue of tradeoffs, is amenable to scaling up and out, and it leads to measurable impacts. While building on existing local ecological knowledge and blending indigenous knowledge and practice with agricultural science is a characteristic feature of INRM, it is not a guarantee for the successful extrapolation of findings to other sites, as indicated in the example of the natural vegetative strips

technology. The diversity of scales, in space and time, and stakeholders' perceptions in various locations requires a fresh look for situation-specific solutions. This is a work in progress that has been started by ICRAF and other CGIAR centers in key watersheds all over the world.