

## NATURAL RESOURCE MANAGEMENT ON A WATERSHED SCALE: WHAT CAN AGROFORESTRY CONTRIBUTE

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Successful watershed management is built on two pillars: Sound, practical technical innovation and participatory institutional innovation. Agroforestry has a key role to play in both. Although conventionally seen as a set of technical options applied at the field level, agroforestry is increasingly conceived as a framework for whole landscape management within a community and ecological context. Watershed degradation poses a threat in many countries in Asia, but past watershed management programs have most frequently been ineffectual. Asian watersheds have the highest sediment loads in the world. Nevertheless, within limits, the evidence indicates that it is possible for smallholders to engage in farming and management of natural forest resources in both a productive and conservation-effective manner. Agroforestry research and development is creating a much wider array of practical solutions that reduce the tension in achieving both the environmental service functions of watershed and the productivity functions essential to the livelihood of the dense rural populations that inhabit them. "Best-bet" agroforestry systems are reviewed for the three major upland ecosystems within Asian watersheds: the forest margins, *Imperata* grasslands and permanently farmed hillslopes. The environmental impacts of complex agroforests smallholder timber-and fruit-tree production systems, improved indigenous fallow management systems and contour vegetative strip systems are discussed in the context of the above issues. Selected watershed management projects in Thailand, the Philippines, and Indonesia are then examined to draw conclusions on the effective pathways toward effective land husbandry and local natural resource management. Application of the concept of community landscape mosaics as a tool is highlighted. Lessons from these cases, and from two global research programs (ASB and SANREM), indicate that if local communities are allowed to capture the direct benefits of improved systems through tenurial security and involvement in decision making, they will be firm partners in reversing the environmental degradation of Asian watersheds.