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The Asian Crisis and the Rural Poor

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have found are extremely important. Number one, we must ensure that the upland poor are direct beneficiaries. Number two, we must ensure that women are the main beneficiaries. Number three, we must ensure that whatever activities we undertake, the poor themselves will periodically assess them and give feedback. Number four, we have to ensure that the elite do not capture and walk away with all the benefits. Number five, we need to create local champions. We, on our own, cannot do much, but it is only when there are local champions of causes which are global that we will be able to achieve the success that we want. Thank you very much.

INVESTING IN A FUTURE FOR ASIA'S UPLAND POOR: WHAT WE MUST DO – TECHNICAL AND INSTITUTIONAL OPTIONS

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The International Fund for Agricultural Development is developing a programme that focuses specifically on the upland poor in Asia. The programme aims to benefit indigenous people and other marginalized groups in Asia's upland areas through regenerative agriculture and sustainable natural resource management, provision of microfinance services, local institution-building, local employment creation, and the protection of biodiversity. I salute Mr Phrang Roy and the Asia and the Pacific Division of IFAD for their initiative in creating the vision for such a programme. It is one of the first attempts ever to take a comprehensive approach to upland development in this region.

It is time to urgently address the plight of the enormous but largely voiceless upland population. This is not only because they are experiencing the fallout of the current economic crisis, although this has further exacerbated their precarious plight. The uplands are the source of water and hydro-power for the lowland populations. Their habitats are the reservoir of terrestrial biodiversity. And these areas are key to future growth in agriculture and forestry. The uplands have been relatively neglected for far too long. Fortunately, however, development specialists are recognizing that the

returns to investment there have been grossly undervalued and underestimated.

In the midst of Asia's crisis, there are very positive developments upon which to build upland prosperity and a sustainable future. In this paper I cannot adequately review all the promising options towards better livelihoods in the uplands of Asia. What I propose is to share a few technical and institutional developments that exemplify the opportunities for high-return investment that could have positive impact for millions of rural families. Mr Roy, in his presentation, touched upon the issue of why the upland populations have been marginalized in their own societies. The Green Revolution technologies are not adapted to, or appropriate for, the diverse and complex environments of the uplands. And research investment on farming systems for the uplands has been very meagre.

This paper will highlight two pillars that are increasingly seen as fundamental to successful upland development. *First*, better land husbandry practices for sloping lands are needed. These must enable farmers to sustain food crop production on sloping lands, and to help them evolve gradually into tree-crop and/or livestock-based systems that provide better income and environmental protection. *Second*, there must be real and effective participation by the rural populations, through their own local institutions, in the decisions that impinge upon their livelihoods. Thus, we see an emerging paradigm for development in many of the Asian uplands that will lead along three paths:

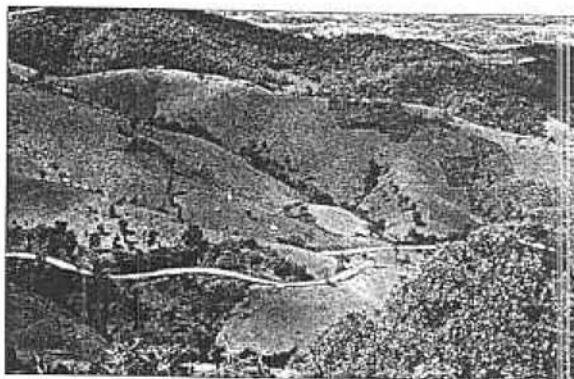
- (1) *New and improved conservation farming and agroforestry systems that build upon the best of traditional systems, through the blending of new technologies with those that have already worked exceptionally well.*
- (2) *The evolution of agroforests and farm forestry to provide more diversified enterprises for cash income. Farmers cannot thrive by growing only subsistence food crops, particularly on fragile upland soils. They need cash income to send their children to school and they need to earn that cash largely from the farm. This involves a transition from subsistence food cropping to perennial cropping with trees and livestock systems that complement the other farm components.*

(3) *Stewardship of biodiversity and watershed services by upland populations.* Farmers in the uplands are also the de facto stewards of the natural biodiversity of the watershed areas that protect the lowland water resources. Environmental transfer payments to upland communities, in order to further protect and develop these resources, along with upland community collaboration, will serve all of society, including the upland populations themselves.

These three directions point to a number of promising technical and institutional innovations for investment. The next section of the presentation will review sustainable food crop farming on slopes and what will make it possible through new technology. Following that, we look at income-generation through farming systems that evolve from food crops into tree crops. The paper will conclude by examining some important developments in institutional innovation, in particular emphasizing the prospective role of farmer-led knowledge-sharing landcare organizations.

Sustainable Agriculture on Sloping Lands

Continuous production of food crops on sloping land is fundamental to livelihood in many upland areas. It is also a

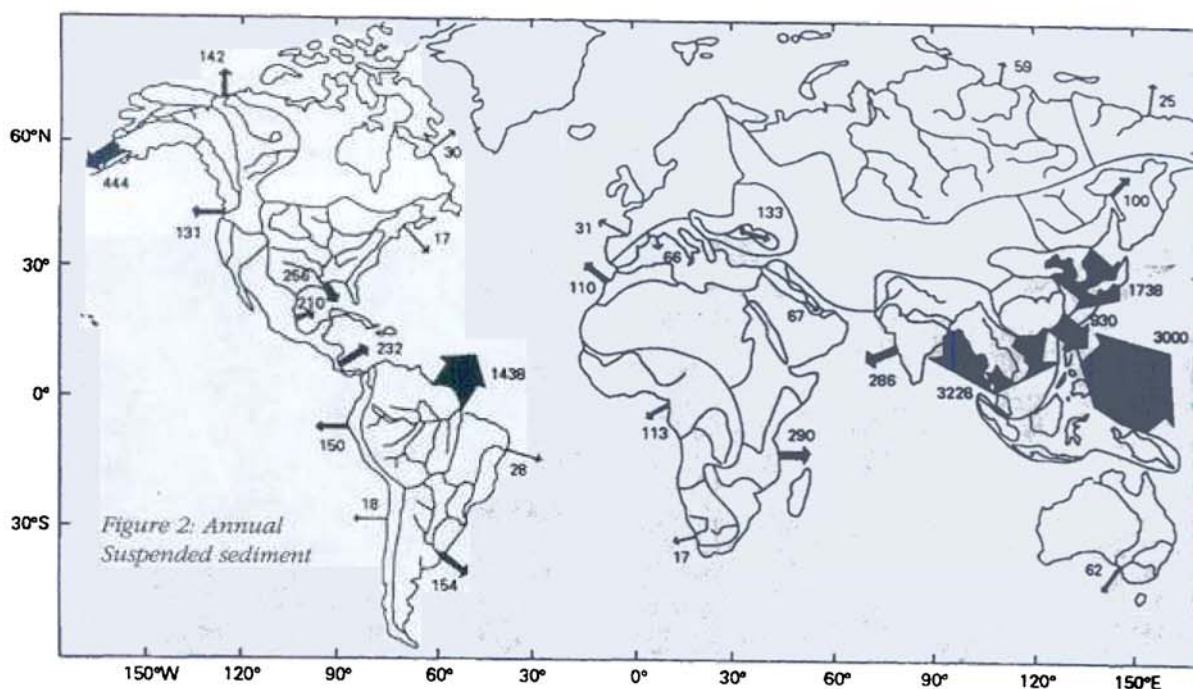


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Figure 1: Chiang Rai Province, Thailand.

very serious sustainability challenge. Population pressure has now reached unprecedented levels in many steep upper watersheds.

Consequently, Asia has the worst soil erosion problems in the world. Asian river systems are dumping into the sea ten times more soil than river systems elsewhere in the world. The Mekong River system, the Yangtze, and the rivers of the island nations of Indonesia and The Philippines are generating much more erosion than even the Amazon River basin or the Mississippi. Human pressure on the resource base is by no means the only major driving force for these enormous rates of sediment detachment and



deposition. South-east Asian landscapes tend to be geologically young and exceptionally steep. These factors are also important; but the densest populations on the globe are transforming these watersheds at a tremendous rate and exacerbating their degradation. This poses a threat to the economies of many countries and to the livelihoods of the ever-growing populations that depend on these resources.

Unfortunately, many programmes to arrest and reverse these trends have been unsuccessful. But the lessons learned have been instrumental in promoting a major change in thinking. The concept of *better land husbandry* represents a shift in emphasis away from a fixation with soil conservation to a more holistic care of the land for sustained production. It follows recognition that the farmer's market objectives can be reconciled with society's watershed objectives, such that neither loses and both gain. This affirms that the adoption of appropriate management practices that increase yields can likewise combat land degradation. Success depends upon enhancing rural peoples' inherent abilities to apply and adapt new and indigenous technologies and to involve local institutions to manage and conserve resources.

Contour Farming Systems for Continuous Food Cropping on Slopes: Rethinking the Basics

Many households are forced to grow food crops on steep slopes because they lack alternative opportunities for basic livelihood. But continuous crop production on steep slopes causes annual rates of soil loss that often exceed 100 t/ha. This is 10-20 times or more the rate at which soils

are to form. Upland farmers need simple, low-cost ways of cultivating sloping land that provide them a sustainable way of farming without losing their soil. For more than two decades, researchers, farmers and extensionists have been working to refine various types of contour vegetative strip systems as a practice to address this need. Annual crops are grown in the alleyways between the strips. The installation of contour hedgerows provides landscape filters that dramatically reduce soil losses by 50-95% and create natural terraces that stabilize the land and facilitate management intensification. These advantages have led to widespread promotion of hedgerow technology, particularly systems using leguminous trees. But, unfortunately, adoption has been poor. The systems on offer usually proved to be too labour-intensive to attract farmers' sustained interest.

By observing the farmers' adaptation of these systems during the past decade, we found that a few farmers spontaneously tried very simple contour strips that were composed only of natural vegetation. After we validated their effectiveness and further refined their management, we found that they were a very popular solution with farmers. We then began to popularize this simple indigenous practice more widely.

Natural vegetative strips (NVS) are contour strips that are installed simply by laying out contour lines across a field, and then allowing the natural vegetation to grow in a strip along these contour lines. They have been proved to be exceptionally effective in soil conservation, often virtually eliminating soil loss from the field one to two years after installation, even on slopes of 30-40%. Forward-facing

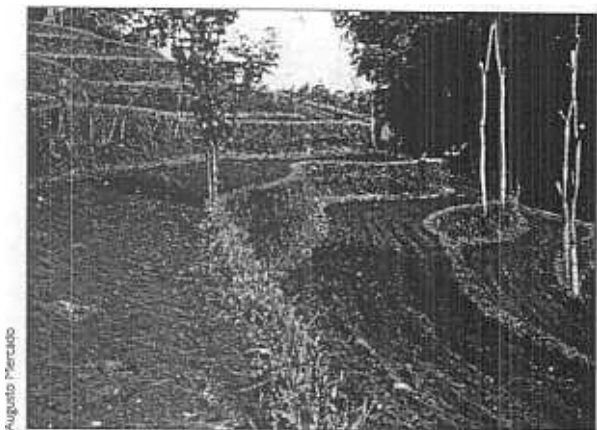


Figure 3a.

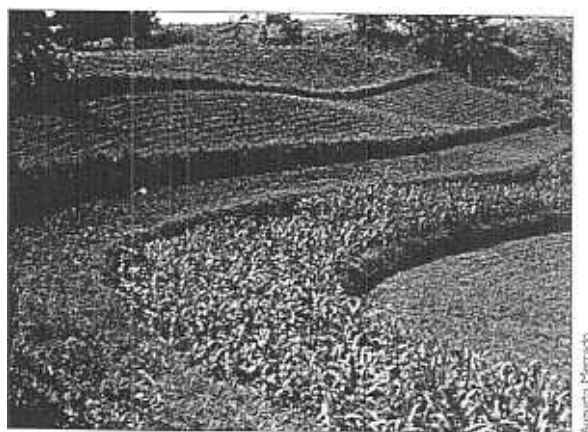


Figure 3b.

terraces form naturally over the years. The figure on the right shows a field in which the natural strips have been established for three years. The left one shows a field where the farmer installed the system seven years before the photo was taken. Excellent terraces are formed in the course of normal farming operations. NVS do not require any outside source of planting material, often a constraint in the promotion of new conservation farming practices. Because they are composed of regenerating perennial grasses native to the area, they are robust and stable, needing only minimal maintenance over the years. They generally do not grow as vigorously as exotic forage grasses, but this ensures that they don't compete so vigorously with the farmers' more valuable annual crops, which is often a problem with forage grasses in contour strips.

When adopters were surveyed about prospective changes in the value of their land as a result of installing NVS, they reported that their expectation was a 35-50% increase in its sale value (Stark, 1999). Most farmers that have installed NVS tend to see them as a foundation for further development of a more diverse and complex agroforestry system. They plant fruit or timber trees along the strips to take advantage of the deep, fertile topsoil that accumulates just above the grass. Nevertheless, they continue to produce annual crops, often moving towards higher value crops, or employing more intensive management on their food crops. This they attribute to their greater confidence that they can reap greater returns from their land. The elimination of off-field erosion, and the gradual terrace formation process, enables the soil to rebuild fertility.

Numerous workers have noted the resilience of soil fertility in contour hedgerow systems. The unique quality of natural strips is that they provide a contour buffer strip solution so simple that it is suitable to farmers who have no cash and very little labour to spare. NVS thus provide the opportunity for millions more Asian farmers to rapidly contour and begin protecting the soils on their sloping farms. It is a practice that provides a foundation for regenerative agriculture. Currently, the NVS system is spreading among farmers in The Philippines. It has underpinned a conservation farming revolution in the uplands in Mindanao, particularly in terms of conservation awareness, and the confidence and ability to cope with soil erosion on very steep slopes. A research and development network to further validate and

extend these and other types of simple landscape filters urgently needs to be developed and supported throughout the uplands of Asia.

Building on Indigenous Strategies to Improve Shifting Cultivation

In the areas of upland Asia that are remote from roads and markets, shifting cultivation continues as the economic mainstay of the communities. The conditions that historically underpinned the sustainability of "traditional" forms of shifting cultivation, however, have largely vanished. This happened because of dramatically increasing population densities, official notification of remnant wildlands into protected areas, other competing land uses, and state policies to sedentarize agriculture and discourage the use of fallows and fire. In the face of these increasing land-use pressures, farmers can no longer practice fallow periods that allow recovery of secondary forest and rejuvenation of exhausted soils. The resulting trend has been shortening fallows, lengthening cropping periods, and rapidly degrading environments throughout South-east Asia's montane areas. Crop yields are declining, labour required to control weed growth is increasing and household food security is threatened. Badly degraded fields are often abandoned to imperata grass [*Imperata cylindrica* (L.) *Raeuschel*] infestation.

There are many compelling examples where shifting cultivators have successfully managed local resources to solve local problems. Technical approaches to stabilizing and improving the productivity of shifting cultivation systems, on the other hand, have not been notably successful. The challenge is to identify the most promising indigenous practices, validate and refine them, and extend them to other communities coping with similar land-degradation problems. The resulting increased productivity will more ably support the growing population densities of the uplands and alleviate the pressure to convert remnant forests into agricultural land.

Farmer responses to intensification pressures achieve either more 'effective' fallows, which help improve their annual crop production, or more 'productive' fallows that add perennial economic species to increase and diversify their income. Thus, managed fallows cover a wide spectrum, from growing viny legumes as dry season fallows lasting only

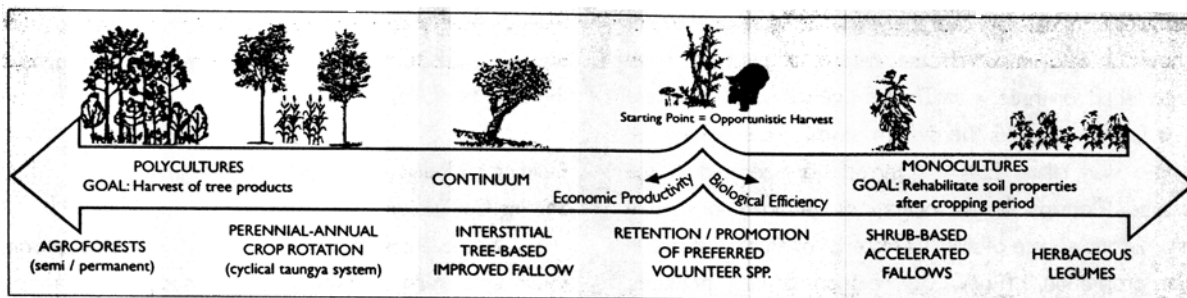


Figure 4. Upland farming communities employ a wide spectrum of indigenous approaches to modify fallow vegetation in South-east Asia. These solutions provide a foundation for efforts to help communities improve their shifting cultivation systems (Source: Cairns and Garrity, 1999).

a few months, to incremental inclusion of more economic perennials into the 'fallow' until it develops into a long-term complex agroforest. Our understanding of farmer-generated solutions is increasing. Figure 4 categorizes indigenous strategies for fallow management that fall along a continuum from productive to effective fallows. Figure 5 is a map that shows where in Asia these various systems are practised. A range of case studies has now provided a foundation for the development of a coordinated effort to help communities improve their shifting cultivation systems. They are also helping to formulate more robust arguments for the

empowerment of local communities to manage their own natural resources.

The work on indigenous fallow management (IFM) is linked with the global Alternatives to Slash-and-Burn (ASB) Programme, a global effort to mitigate the impacts of deteriorating shifting cultivation systems. A large body of promising indigenous strategies has already been identified and examined. Future actions should build upon this foundation and seek ways to share the emerging knowledge more widely among shifting cultivation communities.

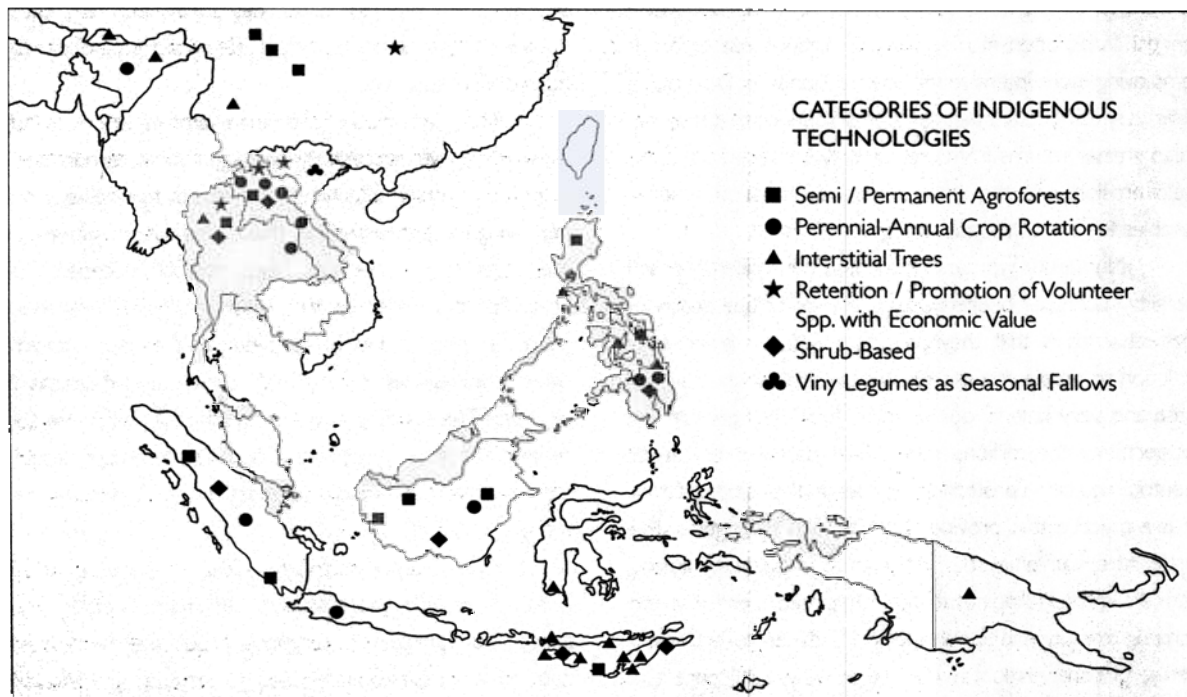


Figure 5: Throughout South-east Asia there are many promising indigenous approaches to manage fallow vegetation for sustained productivity.(Cairns and Garrity, 1999).