

Equipping Integrated Natural Resource Managers for Healthy Agroforestry Landscapes

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Southeast Asia



World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

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Keywords

MDGs, ICRAF Southeast Asia Programme, CGIAR priorities, Malnutrition, poverty analysis, biofuel, watershed management, Tsunami, biodiversity conservation, capacity building, illegal logging smallholder agroforestry

Abstract

This paper reports on the ongoing work of the ICRAF Southeast Asia programme related to the priorities set by the CGIAR and MDGs. It also explains how the activities are in line with the program Revitalization of Agriculture, Fisheries and Forestry' announced by the Indonesian President on June 11 2005.

1. Introduction

The program 'Revitalization of Agriculture, Fisheries and Forestry' ('Revitalisasi Pertanian, Perikanan dan Kehutanan', 'RPPK') that the Indonesian President Susilo Bambang Yudhoyono announced on June 11 2005 makes clear that rural development is still considered to be a major engine of national development.

In its General Assembly in Marrakech the Consultative Group on International Agricultural Research (CGIAR) to which centres such as ICRAF, CIFOR, the World Fish Centre and IRRI (to name just 4 with activities in Indonesia) belong adopted a set of 5 priorities and 20 sub-priorities that match very well with Indonesia's ambitions.

The World Agroforestry Centre (ICRAF) is committed to the reconciliation of development and environmental sustainability goals by reducing rural poverty through rural landscapes in which domesticated trees, agriculture and elements of 'wild' nature provide multiple functions. Rather than training forestry, agronomy, economics or social science disciplinary experts, we believe that university education should equip 'Integrated Natural Resource Managers' for various roles in supporting the development of healthy agroforestry landscapes.

2. Millenium Development Goals and the science priorities of the CGIAR

The Millenium Development Goals can only be reached by reducing both *rural* and *urban* poverty. Key dimensions of poverty are lack of food (quantity, quality), lack of income to buy food, lack of access to clean water, lack of access to energy, lack of voice in the public and political arena, lack of access to relevant education and lack of respect as a human being. Integrated natural resource management is essential to address all these dimensions of poverty, both for rural and urban poor and forms of agroforestry (using trees on farm and in the landscape) can be an important component of integrated natural resource management reducing various forms of poverty.

Economic growth as provider of employment in urban and non-agricultural sectors has to be the main way out for the next generation of rural people across the tropics. This requires both the provision of affordable high quality food and the provision of clean water and other environmental services. Agricultural intensification has traditionally supported the 'affordable food' part of this relationship, but also caused concern on the environmental service side¹. Agroforestry as pathway for a more gradual intensification has the potential to balance the food and water aspects of urban Millenium Development Goals, while also improving rural livelihoods.

¹ The alternative development pathway based on imported food while conserving the local environment is only feasible for well-endowed countries with large oil or mineral reserves – so the agricultural and forestry sector has to be the basis for most countries' development. Indonesia's oil reserve is too small and its 'minable' forest resource almost depleted, so it's back to basics as driver of the economy

Science priorities for CGIAR

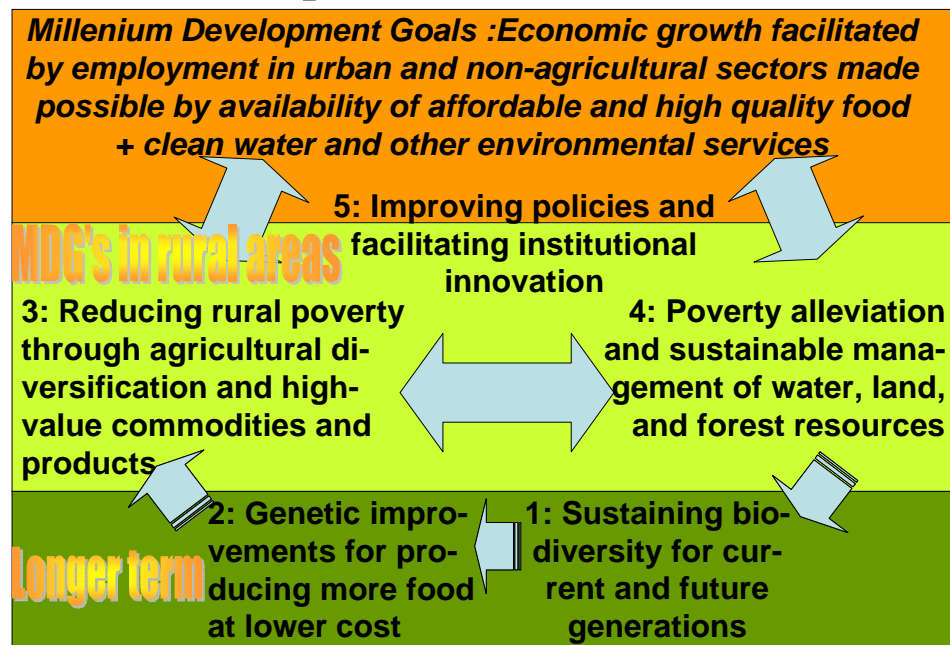


Figure 1. Relationships between the new CGIAR priorities and the Millennium Development Goals

In brief, the agroforestry research priorities to support Millennium Development Goals are thus to support rural development processes that:

- A. (=3) Reduce rural poverty through profitable farms based on agricultural diverse and high value commodities and products derived from trees,
- B. (= 4) Manage the water, land and forest resources in a sustainable way to maintain the provision of environmental services,
- C. (= 5) Improve policies and facilitate institutional innovation that balances the short and long term needs of both rural and urban parts of the population.

To support these processes in the long term, a continued investment in plant (and animal) genetic resources is needed to D. (=1) sustain biodiversity and E. (=2) provide tree germplasm of high quality. Aspects A...E, in a different order are the 5 priority areas adopted by the CGIAR as a whole in December 2005.

3. The program of ICRAF Indonesia linked to CGIAR and Indonesia's priorities

With the new articulation of the research agenda for the CGIAR as a whole into 5 priority areas by the Science Council, ICRAF's strategic choices are relatively straight forward: we deal with the '*tree on farm*' and '*tree in multifunctional landscapes*' component of all 5 of the CGIAR research domains, carried out in ways that provide mutual support to the forest, livestock, open-field agriculture, horticulture and fisheries aspects of rural landscapes.

The coloured cells (Fig. 2) in the list of sub-priorities of the CGIAR indicate the areas that have a strong link to agroforestry issues. Our work is linking trees to farms, agroforestry farms to their landscape context and consequences, and landscapes with farmers to the governance systems and external stakeholders that shape them. We thus try to reach across four system scales: trees, farms, landscapes and governance. At each

Priority 1	Priority 2	Priority 3	Priority 4	Priority 5
Sustaining biodiversity	Genetic improvement	Diversification & high value commodities	Integrated natural resource management	Policies and institutional innovation
1A Conservation of plant genetic resources for food and agriculture	2A Maintaining and enhancing yield of staples	3A Income increases from fruit and vegetables	4A Integrated land water and forest management at landscape level	5A. Science and technology policies and institutions
1B Promoting conservation / characterization of UPGR for income	2B Tolerance to abiotic stresses	3B Income increases from livestock	4B Sustaining aquatic ecosystems for food and livelihood	5B. Making international and domestic markets work for the poor
1C Conservation of indigenous livestock	2C Enhancing nutritional quality and safety	3C Enhancing incomes through production of fish and aquaculture	4C Improving water productivity	5C. Rural institutions and their governance
1D Conservation of aquatic and animal genetic resources	2D Genetic enhancement of high value species	3D Sustainable income from forests and trees	4D Agro-ecological intensification in low/hi potential areas	5D. Improving R&D options to reduce rural poverty and vulnerability

Figure 2. The priorities and sub-priorities for the Consultative Group of International Agricultural Research (CGIAR) in the period 2006-2010; colours indicate the subpriorities that include an agroforestry dimension



Figure 3. The four 'nested systems' that shape ICRAF's agenda for agroforestry research in South East Asia

level we explore the components, focus on the human dimension and consider the cross-scale linkages; this makes for 4 * 3 regional focal areas (Fig. 3). All our activities are aimed at research support for development – starting from the identification ('framing') of issues, through activities with partners, and the outputs we produce, we have the uptake and outcomes in mind, and gear

towards ‘impact’ on poverty and environment (Fig. 4). In discussions with the Ministry of Forestry, our program in Indonesia over the next 5 years will focus on 10 issues that are considered to be of high importance and where ICRAF’s activities can complement and support the national efforts (Table 1).

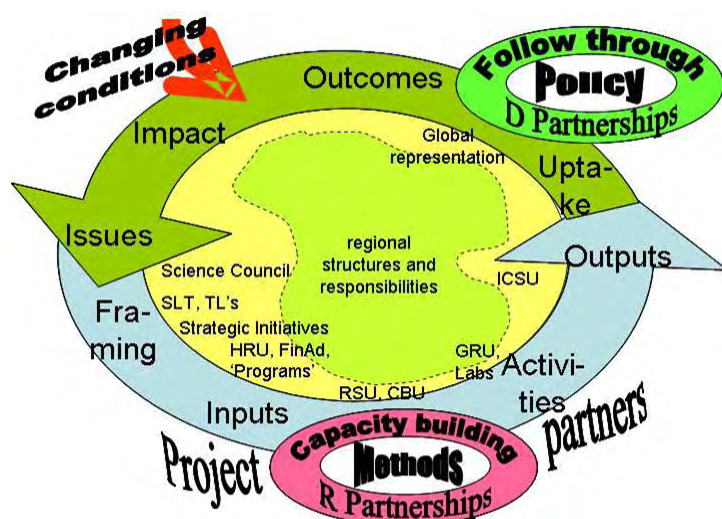


Figure 4. The framing-activity-output-outcome-impact cycle as used at ICRAF to manage and review the coherence of our program

Table 1. Match of forest-related priorities of the Government of Indonesia and ICRAF focus

Government of Indonesia and Ministry of Forestry priorities	Current activities of research and implementation agencies in the Ministry of Forestry	Agreed focus in ICRAF Indonesia in 2006 – 2010 period
Governance issues 1. Stop illegal logging	Demand control by restructuring forest industries. Supply control by legal enforcement and social fencing	1a. Evaluate experience with community-based resource management in W. Lampung and across Java 1b. Economic incentives for local forest conservation under various forms of ‘social forestry’/ community-based forest management 1c. Community empowerment in efforts to combat illegal logging through various forms of community-based forest resource management, based on wood and non-wood forest products
Trees, Farms and Markets		
2. National reforestation and land rehabilitation program (GERHAN or GNRHL)	RHL – coordinates program implementation at Kabupaten level FORDA – supportive research on implementation issues, including implementation of charcoal and wood vinegar to increase food crop and forest tree productivity; getting my-	2a. Nursery support for ‘Trees Farmers Want’ and improved GERHAN implementation 2b. Spatial analysis of ‘ten factors constraining farmers tree planting (agroforestation)’ 2c. Capacity building and institutional strengthening for “tree farmers” to enable them to establish nursery and grow trees

	corrhiza inoculation techniques tested and implemented	of good quality 2d. Support to FORDA mycorrhiza study for Dipterocarp enrichment planting of rubber agroforests
3. Revitalisation of agriculture, forestry and fisheries	Focus on NTFP markets... Gaharu, Rotan, Bambu, Damar Enhancing rural incomes through agricultural diversification and value addition linking poor to markets Technology development on wood drying, preserving, processing and waste utilization	3a. Improvement options for smallholder rubber, coffee, oil palm, timber and mixed fruit agroforestry from economic + environmental perspectives 3b. Analysis of multiple (agro)forest development options in areas suffering from food insufficiency and poverty, such as East Nusa Tenggara (NTT) and West Nusa Tenggara (NTB) 3c. Household economic analysis of options for value-adding to various forest products
4. Malnutrition (esp. eastern Indonesia)	Site-level analysis of roles of income & public health care in forest margin malnutrition. Databases on nutritional quality of tree fruits and lesser-known crops available	4a. (<i>new topic</i>) Analysis of the role of landscape level fruit tree diversity in nutrition & health; analysis of available databases 4b. Identify combinations of trees and food crops that provide medium-to-long term incomes to communities while providing food during early development stages 4c. Develop pilot project on smallholder agroforestation in NTT/NTB (see also 3b)
5. Save energy – Biofuel	Some work on Jatropha	5. (<i>new topic</i>) Analysis of biofuel options from perspective of total energy balance, nutrient recycling and value-chain?
<i>Jasa lingkungan – Landscape level environmental services</i>		
6. Flood & landslide control and reward mechanisms for watershed functions	Gerhan prioritization of 'degraded watersheds'	6a. Rethinking critical watershed functions based on quantifiable indicators; 6b. Rapid Hydrological Appraisal methodology; 6c. Support for RUPES National Committee and its policy analysis of legal options for regulating and facilitating ES rewards
7. Coastal protection forest – post-Tsunami	Participation in Aceh reconstruction and rehabilitation efforts	7a. Support for nurseries for 'Trees farmers want' in Aceh/ Nias; 7b. Analysis of coastal protection function requirements
8. Clean Development Mechanism (CDM)	Active participation in cross-ministerial processes for CDM, including the Designated National Authority (DNA), and international negotiations	8a. Carbon stock appraisal (RaCSA) methodology; 8b. CDM development support in analysis of additionality and leakage in various land use change scenarios (dynamic baseline plus various local/generic policy interventions) 8c. Facilitate small-scale CDM in forestry sector
9. Effective biodiversity conservation beyond protected areas	Active participation in cross-ministerial processes for conservation in and outside of protected areas and in	9a. Rapid agrobiodiversity appraisal: RABA; analysis of agroforest role in landscape connectivity for effective conservation

	international negotiations	9b. Joint FORDA-CIFOR-ICRAF biodiversity analysis of (agro)forest-landscape mosaics
<i>Strengthening Institutions</i>		
10. Capacity building	Internal human capital building in MoF and support for decentralized forest management capacity	10a. Indonesian network for Agroforestry education as part of Southeast Asia network: SEANAFE 10b. Provide research support and facilitate international university access for PhD programs 10c. Training of trainers on new topics

4. Examples of ongoing work in ten priority domains

The key lesson from the past is that these issues can not be addressed in isolation. In the rest of this presentation I will briefly discuss some highlights of recent/ongoing work. These examples, and their combination, may give a sense of what skills will be needed to equip Integrated Natural Resource Managers for a role in healthy agroforestry landscapes.

4.1. Stop illegal logging: Learn from the HKm application in Sumber Jaya

Legality of any past or current use of forest resources in Indonesia depends on the perspective, as only a small part of the 'state forest lands' has been legally claimed by the state as such (Contreras-Hermosilla and Fay, 2005). Substantial parts of the forest have multiple claims of 'ownership' (Fay and Michon, 2005), that often refer back to the pre-colonial, colonial, post-colonial (pre-Orde Baru), Orde-Baru or Post-reformasi periods in Indonesia's history (Galudra et al., 2005; Verbist et al., 2006). Often these multiple claims have led to conflict and the use of fire (Dennis et al., 2005). Fortunately, some of the lessons are being learned about the relevance of 'social fencing' and a positive role for the local communities surrounding forest areas in managing and deriving benefits from the forests. A recent impact study of the process of land and tree tenure reform (Colchester et al., 2005) has indicated substantial gains, but also some remaining challenges. Where the Hutan Kemasyarakatan (HKm) rules are followed, as the case in the Sumber Jaya area in West Lampung where ICRAF and partners have been actively involved in negotiation support (Pasya and Fay, 2006), impacts are remarkably positive. Suyanto (2006) document a 2-3 fold increase in asset value of the land managed, real commitment to protecting the remaining forests and decrease in income inequity in the communities concerned. Gender analysis indicates that male bias in income is proportionate to male bias in work load in the coffee gardens in the area (Khususiyah and Suyanto, 2006). It seems that major progress on the 'illegal logging' issue can be made when the land tenure conflicts are mapped and addressed, when local communities get respect and a role in forest management and when the institutions that are supposed to support law enforcement get openly scrutinized for their role.

4.2. National reforestation and land rehabilitation program: Lessons from the Smallholder agroforestry on degraded soils (SAFODS) project

Compared to the early phase of the national reforestation and land rehabilitation program, there has been substantial progress in shifting the program to the use of 'Trees Farmers Want' and to the support for local tree nurseries that can provide relevant planting material as well as local income. Tree-site-matching for degraded soils remains a challenge, however. A recent re-analysis of data suggests that landscape and soil information can give a good prediction of tree growth for some species, but not for others (Lusiana, 2006). Ongoing research on mycorrhiza for Dipterocarp enrichment planting of rubber agroforests (Tata and van Noordwijk, 2006) suggests that inoculation requirements may be over-estimated and enrichment planting may be easier than perceived. Sustainability issues relate to various soil properties, but especially soil organic matter (Hairiah et al., 2005) and belowground biodiversity Giller et al. (2005). Agro/re-forestation of *Imperata* grasslands (Purnomosidhi et al., 2005) requires special care as the grass tends to come back until land is shaded for at least 85%, while intercropping tends to become less interesting after 50% shade level is reached. The WaNuLCAS model can now be applied to carry out an ex ante evaluation of plant spacing and management options (Khasanah, 2006). The FALLOW model for land use mosaics (Suyanto et al., 2005) allows us to explore the combination of fire control, spread of technical information and market forces that will be needed for 'spontaneous' agroforestation of 'degraded lands'. A shift from a 'project' to a 'programmatic' approach is, however, slow to implement.

4.3. Revitalisation of agriculture, forestry and fisheries

Economic actors in Indonesia respond to long term trends as well as uncertainties. Rather than a 'project' approach to the 'revitalization' issue, clarity on the overall incentive structure is needed. The 'policy analysis matrix' instrument provides a good indicator (Budidarsono, S., 2006; Tomich et al., 2005). Currently several food crops and sugarcane are affectively 'protected' and 'subsidized', while smallholder timber is still taxed. A change in the high-level policies in this regard is likely to have more effect than many well-intentioned attempts to develop 'technologies' for agroforestry, forestation or integrated farm management.

It has for long been an intriguing question why the Indonesian smallholders who produce most of the country's rubber have not readily adopted clonal rubber – while the potential yields per tree can be 2-3 times higher and the initial spread of rubber occurred in situations with much less communication and market integration than have applied the last decades. Experiments by ICRAF and partners show a range of management styles with risk aversion a main reason for the main 'rubber agroforest' style of the past (Wibawa et al., 2005; 2006). However, with the high current prices for latex the shift to clonal rubber seem to pick up speed. Our ability to forecast the performance of mixed stands is improving rapidly, with the SExI-FS tool (Harja and Vincent, 2006) a visually attractive and data-efficient approach.

New options for making money from trees are under development. The 'sick tree revolution' is on its way, as the inoculation technique promises to produce gaharu (eaglewood or agarwood) in any *Aquilaria* tree infected (Sumarna, 2005). This 'domestication' of the disease follows on the domestication of the tree that technically is not difficult to grow. The option of producing wood with a price of 200\$ per kg in stead of 200\$ per m³ is a staggering one. Of course the price will collapse if every one starts to grow the tree. The early adopters will be the main beneficiaries... The tree requires shade in the early stages and is compatible with rubber (and other) agroforest management. An initial exploration of the elasticity of supply and demand is urgent to predict the trajectory of prices and production volume.

Improvement in marketing skills may be at least as important as technical changes in the production stage of agroforestry. Recent experience with banana marketing from the Halimun ecosystem near Bogor confirms this interpretation, at least for a 'peri-urban' environment, in between the largest urban centre of Indonesia and the last remaining substantive forest area on Java (Tukan et al. 2006).

4.4. Malnutrition and poverty analysis (esp. eastern Indonesia)

In 2005 a number of cases of malnutrition and infant mortality, especially in eastern Indonesia, got attention in the news. The causes are probably a combination of reduced spending on public health care and education, land use patterns not suitable for local climate and soil, poverty linked to lack of economic opportunities, and lack of attention to maintain or enhance local sources of fruits in the landscape. In a country as rich in nutritious fruit tree species, this form of malnutrition is unnecessary.

Overall about 80% of Indonesia's population is either living in 'upland crop mosaics' or in 'intensive rice/urban' landscapes downstream of these mosaics (Hadi and Van Noordwijk 2005, 2006). The number of people directly or indirectly linked to 'forest' is less than 10%.

Spatial patterns of poverty in Indonesia are still poorly understood. Overall there is no statistically significant relation between 'poverty' and 'forest cover', but at more local scale accessibility can influence both (Dewi, 2006). On Java there seems to be a negative relationship between the 'Human Development Index' (HDI) and forest cover at district scale; the southern part of Sumatra (consistent with the name 'N Java for Lampung') fits in this pattern; the rest of Sumatra and all other islands except for Papua tend towards a positive relationship between HDI and forest cover (Van Noordwijk et al., 2005). Higher resolution than district level statistics is needed to identify intervention points for local government. In African countries with low fruit consumption, ICRAF and partners have some success in promoting fruit consumption at schools.

4.5. Save energy – Biofuel

The recent price increase of fossil fuel was linked to world political developments – but it is conform the long term trend of a resource where consumption exceeds new discoveries of reserves and the current rate of use causes global warming. Better utilization of the energy in biomass that are treated as 'waste' (including rice straw, wood waste and waste of agro-industrial processes) could reduce the 'addiction' to fossil fuels. Based on the technology developed in Malaysia, oil palm can become an attractive fuel soon if the current trend of increased price for oil continues. For all use of biomass as fuel, however, the net effect may be less than expect if there is no effective nutrient recycling. Integrated systems are needed, at a scale where residues can be returned to the land. In this context the 'hype' about *Jatropha* as the new energy crop for remote areas with degraded soils needs to be judged against current understanding of the technological options.

4.6. Flood & landslide control and reward mechanisms for watershed functions

Every flood and landslide returns the public debate to the question of 'cause'. The main cause of human damage continues to be 'being at the wrong place and time', as the number of people living in reach of mudflows and high water levels keeps increasing. While the public debate remains focussed on trees, the real determinants are probably in the soil. Current understanding of the role of the soil in regulating infiltration and overland flow points at 'thresholds' in non-forest land use types: well managed agroforestry landscapes and even 'open field agriculture' with strategically placed 'filter' elements, can still maintain water flows at the level expected from a natural forest on the same site (Agus et al., 2004; 2005; Malmer et al., 2005; Van Noordwijk, 2006a). Results from the third phase of the Alternatives to Slash And Burn project in Indonesia (Agus and van Noordwijk, 2005) focussed on the substantial differences between soils in the same landscape in Sumberjaya – where some don't erode even after full exposure to sun and rain for 3 years, and others yield muddy streams even with natural forest cover.

Participatory landscape analysis (Widodo, 2006) and exploration of the local ecological logic (Mulyoutami and Joshi, 2006) can help to identify and overcome the communication gaps between stakeholders. A form of 'rapid hydrological appraisal' that pays attention to local and

public/policy perceptions, in comparison with landscape analysis and water balance models (Van Noordwijk, 2006b), can help to clarify where and how ‘rewards for environmental services’ can be used effectively and efficiently. The use of instruments such as ‘payments for watershed services’ receives much attention, but is constrained by lack of clarity on what the service is and by how decisions can be effectively influenced (Swallow et al., 2005; Van Noordwijk, 2005). An experimental approach (Leimona, 2006) to test how much actual sediment reduction in a river can be bought with a limited budget may help to make such payments better planned.

4.7. Coastal protection forest – post-Tsunami Aceh-INRM

The December 2004 Tsunami has been a dramatic reminder of the risks that millions of people in Indonesia and elsewhere in Asia take by living close to a coast where the protective tree cover has been replaced by houses. Much of the public discussion has focused on mangroves and their replacement by tambak (fish/shrimp ponds). A recent survey by Indra and Budidarsono (2006) suggests that the most rapid expansion of tambaks along Aceh’s coast occurred in the 1980’s, but that, despite concerns of virus disease on the most profitable shrimp, it can still absorb a lot of labour (630 person days ha⁻¹ year⁻¹) and reward for labour at a level close to Rp 50,000 day⁻¹, substantially above other types of agriculture. Any reduction in tambak linked to coastal protection will thus have to provide attractive economic alternatives. ICRAF and partners became involved in the post-Tsunami natural resource management issues, especially along the western coast of Aceh, with some of the worst-affected areas depending on tree crops (rubber, cacao, coconut, other palms) for their pre-Tsunami economy and likely in future. The combination of post-conflict and post-tsunami resettlement and forest use calls for urgent analysis and application of the full INRM toolbox.

4.8. Clean Development Mechanism (CDM)

Data collected in Indonesia during the Alternatives to Slash and Burn project have contributed to the global understanding of the carbon stocks that can be expected under various land use systems in the natural forest -- logged forest – agroforest – tree (crop) plantation – open-field agriculture range Palm et al. (2005). Despite its ambitious name, the practice of the applications of the ‘Clean Development Mechanism’ to land use change are complex, with many administrative requirements that have little relation to the target of enhancing terrestrial carbon storage. Analysis of a situation where logging is still the most profitable use of labour suggested that a 4-fold increase in the profitability of agroforestry will be needed before it can compete with logging as sustainable land use option (Lusiana et al., 2005; Suyamto and van Noordwijk, 2005). For other CDM applications the issue of *baseline* and *leakage* requires integrated bio-economic models in a spatial context. The FALLOW model can now be used for this purpose (Suyamto et al., 2006).

4.9. Effective biodiversity conservation beyond protected areas

Earlier data collection by the Alternative to Slash and Burn (ASB) program and related ICRAF work had suggested that agroforests can harbour not only a lot of plant and animal species, but that this biodiversity can also be of real conservation value if most of the forest has disappeared from the landscape. Data analysis by Rasnovi et al. (2006) now confirms that the contributions of rubber agroforest to tree diversity are evident at landscape as well as plot scale. There is some selection against late-successional tree species (with spatially limited seed dispersal) and in favour of wind dispersed trees, but the overall diversity profile is remarkably similar. O’Connor (2006) quantified birds in the coffee agroforestry landscape mosaic of Sumber Jaya and found that multistrata coffee gardens are richer in bird species than more open coffee monocultures – but that the difference is unlikely to be large enough to get an Asian equivalent of Central America’s ‘bird friendly coffee’ market. As a reward mechanism for agrobiodiversity

conservation the riparian rubber agroforests of Jambi may make more chance, as the rapid appraisal (RABA) suggests (Kuncoro, 2006).

In practice the global interest in biodiversity is still strongly biased towards organisms with which humans can identify. The highly endangered Sumatran Orangutan is one of the species that still gets the imagination going. In a joint effort with Conservation International, ICRAF has started to explore options for conservation that are compatible with local livelihoods (Manurung, 2006). The issues of land tenure and multiple claims on forests appear to play a prominent role in the area, as they do elsewhere (De Foresta, 2005; Galudra et al., 2005). We will need to find ways to combine 'regulation' and 'incentives' (carrots & sticks) in new ways to achieve these goals. (Van Noordwijk, 2006).

4.10. Capacity building

For all the issue discussed so far *human capital* is often a limiting step. Implementation of the policies and practices that could bring both development and environmental sustainability closer by can be difficult as long as the relationships between forests, INRM, poverty and incentive mechanisms are not broadly understood. A single person in a 'legal advice' role can obstruct progress in local negotiations. It is therefore important that capacity building to equip Integrated Natural Resource Managers for healthy agroforestry landscapes is not restricted to the creation of a new type of 'specialist' in agroforestry (Rudebjer et al. (2005). These ideas need to be more broadly shared and incorporated in the curricula of many disciplines. Problem solving skills, systems analysis, negotiation support, understanding of tradeoffs – essentially the same skills can be learned under many different headings. Names of study programs and title obtained will have to follow the market of demand and supply – but at more fundamental level the capacity building of integrated natural resource managers will have to continue.

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The World Agroforestry Centre is the international leader in the science and practice of integrating 'working trees' on small farms and in rural landscapes. We have invigorated the ancient practice of growing trees on farms, using innovative science for development to transform lives and landscapes.

Our vision

Our Vision is an 'Agroforestry Transformation' in the developing world resulting in a massive increase in the use of working trees on working landscapes by smallholder rural households that helps ensure security in food, nutrition, income, health, shelter and energy and a regenerated environment.

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Our mission is to advance the science and practice of agroforestry to help realize an 'Agroforestry Transformation' throughout the developing world.



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