

CASE 4

PROJECT TITLE

Empowering Forest Dwellers and Managing Forests More Sustainably in the Landscapes of Borneo

AUTHORS

B.M. Campbell, P. Gunarso, K. Kartawinata, P. Levang, S. Rhee, D. Sheil, P. Sist and E. Wollenberg

ABSTRACT

This case study covers work in the Malinau catchment in East Kalimantan, Indonesia, a vast area of primary and secondary forest with scattered villages. The project has evolved to focus on key factors underlying poverty and forest loss. Inappropriate harvesting is reducing biodiversity, limiting regrowth of valuable species, and reducing water quality. The research aims to produce positive local impacts, while at the same time generating international public goods. Integration is achieved through a variety of annual and other meetings where multiple stakeholders, including especially local communities, gather to reflect on progress, and jointly plan for the next year. Conceptual models are used at such meetings to assist in building an integrated understanding of the inter-connected problems and opportunities. Participatory action research (PAR) is a feature of the work, allowing the research partnerships to rapidly adapt to fast-changing circumstances. The results have indicated the cost-effectiveness of reduced impact logging, but the difficulties of establishing and enforcing appropriate policies have proven to be the main factors limiting sustainable forest management. In the current phase of the work further effort will be given to spatial planning, in addition to capacity building of communities and district officials in this area. The research team has already contributed to the official land-use plan for the district, which incorporates some aspects of landscape management derived from the research.

LEAD CENTRE AND KEY PARTNERS

Center for International Forestry Research – CIFOR. CIFOR leads the project – it facilitates multi-stakeholder collaboration, as well as conducting components of the research, from local to global levels.

Forest community groups, district government (Malinau *Kabupaten*), Centre de Coopération Internationale en Recherche Agronomique pour le Développement - Forestry Division (CIRAD- Forêt), Forestry Research and Development Agency (FORDA – Government of Indonesia), Inhutani II (state logging company), Institut de Recherche pour le Développement (IRD), Mulawarman University, Tropical Forest Foundation (TFF), Yayasan Biofer Manusia (BIOMA – local research NGO)

Problem identification and description

The focus is the 250 000 ha Malinau catchment in Malinau District, East Kalimantan (Indonesian Borneo). Primary and secondary forests dominate the area, and have considerable global value for biodiversity. Most of the catchment was allocated to logging concessions, but the extremely rugged terrain has ensured that many areas remain inaccessible to all but small boats and by foot. The landscape has scattered villages, shifting agriculture and coal mining (CIFOR 2002; Yasmi 2003). Over the centuries, the Malinau catchment has been settled by multiple and culturally diverse groups of people, who migrated to and moved around the region for various reasons. Presently the population of the Malinau catchment is perhaps best characterized as primarily Dayak (an umbrella and exogenous term referring to the upland, indigenous groups of Borneo, who are now primarily Christian), and Punan (traditionally hunter-gathers who sometimes fall under the rubric of Dayak), with a few migrants from Java and other islands settling in the villages. In and around the town of Malinau, located in the catchment basin, the population is highly mixed, with a strong representation of local and non-local Muslim traders and migrants, as well as some Dayak and Punan. The area has undergone rapid change in the last decade – e.g., opening up of roads; expansion of mining; decentralization that has shifted the balance of power and introduced many new actors in the logging and governance arena; and high immigration as a result of new opportunities.

When research was initiated in the middle to late 1990s, the key perceived problems were

related to industrial logging by the large state companies. Key research concerns at that time addressed damage to the local environment by logging, concerns about the sustainability of timber supplies from the ostensible permanent forest estates, and the lack of benefits reaching local inhabitants.

Shortly after the passing of Indonesia's decentralization laws in mid-1999, small-scale logging became rampant throughout Indonesia, and especially in Malinau as the district is close to timber markets in Malaysia. In April 2000, the district head (*Bupati*) began allocating small scale logging permits (*IPPKs*) of 100-5 000 ha each to hastily formed small companies. At least 38 *IPPKs* have been issued in Malinau, granting access to more than 50 000 ha. This has resulted in extraordinarily high levels of intense, unsustainable timber extraction and conflict. The lack of benefits reaching local inhabitants remains a key problem, unsustainable logging has escalated to a new order of magnitude, and the lack of capacity and financial resources at district level have limited any serious attempt to manage natural resources. There is real confusion and uncertainty as to who – from local to national levels – is responsible for the different components of natural resource management.

The case study illustrates the complexity of operating at a landscape level, where the nexus of inter-linked and dynamic problems becomes apparent. For example, one component of the research initially focussed on reduced impact logging (RIL) (Figure 1). This work achieved positive results and demonstrated the cost-effectiveness of RIL under certain conditions. Unfortunately, the careful partnership that had developed with the state logging company,



FIGURE 1 Directional felling in a reduced impact logging (RIL) operation. The environmental benefits and cost-effectiveness of RIL operations have been demonstrated by the research under certain conditions

Inhutani II, turned out to be of little value. They had implemented the research together with the researchers and were interested in receiving RIL training. But with decentralization, their operations were halted (at least, temporarily) and a host of new small logging companies entered the area, none of which have demonstrated any interest in sustainable production.

Research objectives

Currently, one of the key objectives is to improve district (*kabupaten*) coordination of forest management in the Malinau catchment through improved stakeholder participation, conflict management, development of land-use plans, and monitoring. Another objective is to increase local people's access to, and control over, forest benefits. Another research objective is to implement sustainable forest management in the concessions through enhanced harvesting practices, stakeholder coordination, preparation of management plans and monitoring. This work explores technologies that can be applied to achieve both economic and biodiversity goals. While the Malinau research is intended to build knowledge, institutions, capacity and technologies that will have impact in the case study area, it also serves as a platform for experimenting and learning in CIFOR's overall efforts to

improve the relevance and effectiveness of forestry and natural resource management research.

INRM approaches

When the work started, the different lines of research were pursued rather independently, which allowed a broad diagnosis of local conditions. With this baseline, scientists then grappled with approaches and concepts to improve integration, so as to address some of the larger questions related to land-use planning and improving synergies amongst different researchers and partners. Part of this has entailed building conceptual and simulation models.

In terms of process, annual meetings are held to review progress and plan for the next year. There are at least three such meetings, a multi-stakeholder meeting at district level, a community level meeting (with representatives from various villages) and a researchers' meeting. The former two are designed to address issues of relevance to the non-research stakeholders, while the researchers' meeting allows more detailed discussion of conceptual frameworks, research findings and research activity planning. The three meetings are usually inter-linked to promote synergies (e.g., the community meeting may be used to build the capacity of community leaders to better articulate their viewpoints about particular issues at the district meeting). Another important process element is the adoption of participatory action research (PAR) by some of the research groups (the PAR work is visualised below – Figure 10). PAR facilitates integration amongst stakeholders and stimulates focus on the problems and opportunities identified by the stakeholders – these focal areas invariably require inter-disciplinary inputs.

In late 1999, CIFOR began a process to improve the integration of research. A problem-based conceptual framework was developed by local government officials, local community members, government and university researchers, CIFOR

scientists and timber concession supervisors. The framework has four levels:

- Level 1 = the central problem;
- Level 2 = “conceptual cornerstones” that describe important components of the central problem;
- Level 3 = elements that explain the important causes of the problems identified in the conceptual cornerstones;
- Level 4 = causes of the problems described in the elements.

The central problem and conceptual cornerstones are given in Figure 2. An example of Levels 3 and 4 for the cornerstone “Lack of adoption of best practices” is shown in Table 1. The purpose of the conceptual framework is to organize and communicate ideas about key problems related to forests and people in Malinau. The process of developing the framework itself helped increase awareness of land-use problems – and assisted in bringing diverse views into open discussion.

At a later annual meeting, researchers re-conceptualized the work in Malinau, with focus on the multi-scale nature of the work and how the different groups of researchers were interacting (Figure 3). In addition the focus was on the importance of selecting lines of enquiry that would result in impact. Key foci for impact became “improving the governance system”, “increasing revenues and well-being”, “improving land-use planning”, “improved landscape management” and “empowering local communities”.

The case study illustrates many aspects of INRM (Sayer and Campbell 2003). A wide variety of disciplines are involved: ecology, forestry, anthropology, sociology, micro-economics and political ecology. The research focuses on the trade-offs amongst the key stakeholders: the local community, logging companies, district government, national government and the global biodiversity community. A cornerstone of INRM is analysis and intervention at multiple scales – in Malinau this has involved working at

FIGURE 2 Conceptual cornerstones of the central problem in Malinau, as envisaged at a multi-stakeholder meeting in 1999

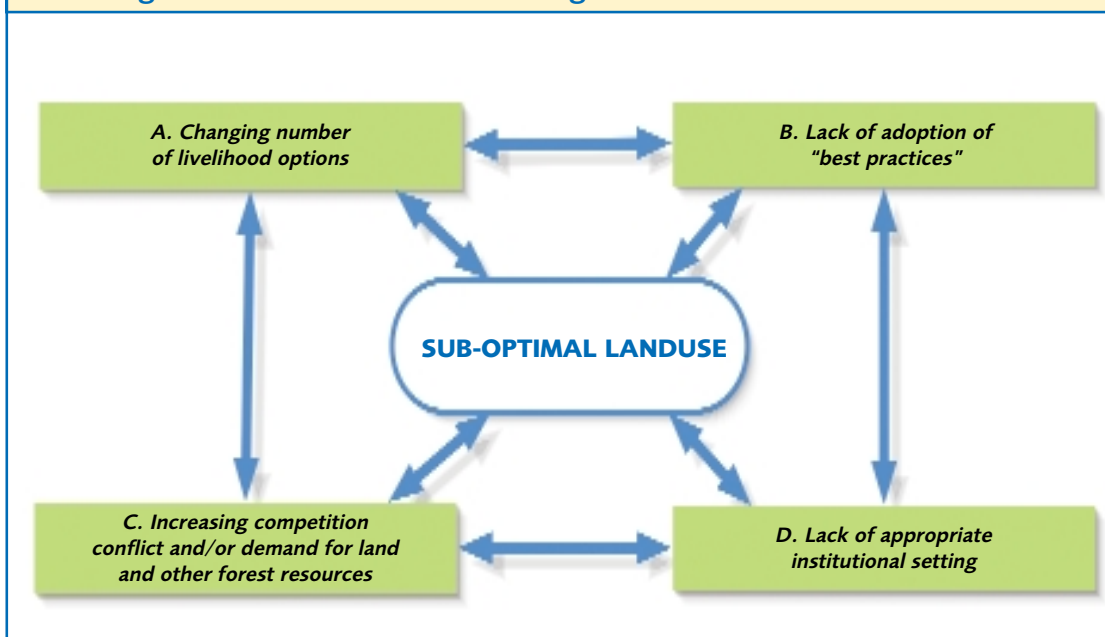


TABLE 1 Components of one of the cornerstones of the main problem – “lack of adoption of best practices”

ELEMENTS THAT EXPLAIN THE IMPORTANT CAUSES OF LACK OF ADOPTION	CAUSES OF THE PROBLEMS DESCRIBED IN THE ELEMENTS
1. Disincentives	1.1. Best practices more costly 1.2. Necessary reward and punishment do not exist 1.3. Policies/ regulations discourage adoption/ innovation 1.4. Insufficient law enforcement 1.5. Short term cost vs long-term benefits
2. Uncertainties	2.1. Tenure/ boundaries are unclear or in conflict 2.2. Changes in regulations, markets, technologies 2.3. Changing technologies may inhibit or delay investment in best practices 2.4. Increase risk associated with change 2.5. Degree of commitment varies among stakeholders 2.6. Lack of consensus in defining “best practices” 2.7. Political situation
3. Lack of capacity	3.1. Limited creativity and innovation 3.2. Limited human resources 3.3. Limited access to or lack of information, capital, knowledge, training 3.4. Unequal capacity among stakeholders 3.5. Weak control institution 3.6. Lack of support in organization system

household, community and district levels. We have also worked at national and global levels (Figure 3).

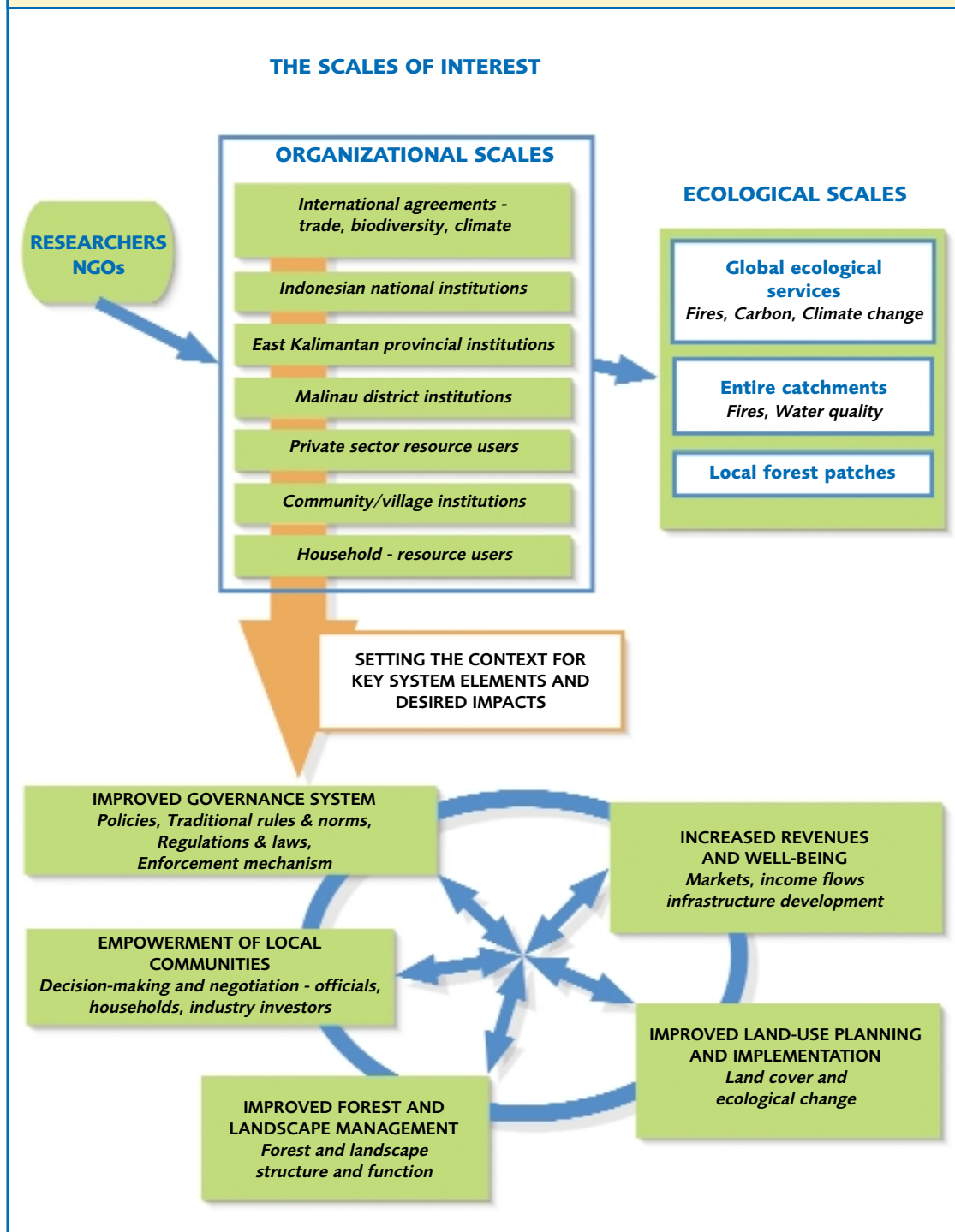
Some of the work was conceived as action research as part of a social learning process, which are also features of INRM. This has been particularly important given the rapidly changing circumstances in the District and the country. This approach enables rapid modification of research activities in line with the dynamic changes in the external context.

Some cornerstones of INRM need considerable strengthening in the Malinau work – not all our partnerships are built on sufficient mutual trust, respect and ownership. Given the complexity and dynamics of the partnership arrangements and the fact that three programmes at CIFOR are involved, further attention needs to be given

to managing the process, with clear leadership and lines of accountability. Some attention has been paid to achieving effective facilitation and co-ordination of interactive processes at the community level, but this needs strengthening at the district and higher levels.

While the work is implemented so as to be locally relevant, key questions of international significance are also addressed, e.g., understanding conflict and collaboration among stakeholders; facilitating a “people’s” science in determining options for managing their natural resources; understanding how to improve the role of forest communities in local government; understanding the impacts of decentralized governance; and understanding how concession management in wet tropical forests can be modified to improve biodiversity conservation.

FIGURE 3 The spatial and organizational scales of the work in Malinau, which set the context for the key system elements and the desired impacts of the research.



Results

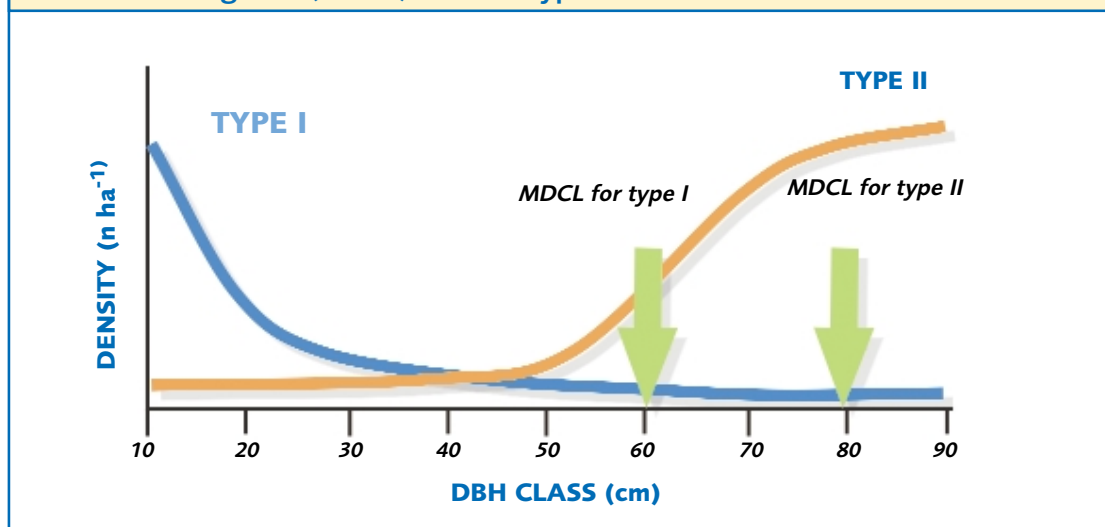
Technical forestry interventions

The technical work on forest management built on the work of FORDA and CIRAD in neighbouring districts. It demonstrated the cost-effectiveness of reduced impact logging under certain conditions, and showed that there is an upper limit to the amount of damage that the forests can endure without severely reducing their ability to recover (Sist *et al.* 1998 a). Guidelines were developed to improve the ecological sustainability of production in mixed dipterocarp forests of Borneo and neighbouring regions (Sist *et al.* 1998b). Some work addresses how wildlife can be maintained in logged landscapes. The complexity of these forests and the demands being placed on them should not dissuade us from seeking incremental improvements in harvesting practices. The recommendations (Sist *et al.* 2003), which need further field testing include: 1) integrating reduced-impact logging practices into normal management operations; 2) cutting 8 trees ha^{-1} or less (with a felling cycle of 40 to 60 years to be determined according to local conditions); 3)

defining minimum diameter cutting limits according to the structure, density and diameter at reproduction of target species (Figure 4); 4) avoiding harvesting species with less than 1 adult tree ha^{-1} (diameter at breast height (dbh) ≥ 50 cm over an area of 50-100 ha, i.e., avoiding species with less than 100 adults in 100 ha); 5) minimizing the size and connectivity of gaps ($<600 \text{ m}^2$ to the extent possible); 6) refraining from treatments such as understorey clearing; and, 7) providing explicit protection for key forest species and the ecological processes they perform.

Figure 4 shows the minimum diameter cutting limits for Type I species – which refers to most dipterocarps – that should be associated with an extraction rate threshold of $\text{dbh} \geq 60$ cm. For Type II species, such as *Dipterocarpus crinitus* and *Agathis borneensis*, logging applying the current minimum diameter cutting limit will drastically reduce the adult population density, and will leave few young individuals. The removal of the reproductive individuals will have negative long-term consequences on the reproduction biology and regeneration success

FIGURE 4 Ecological harvesting prescriptions according to population diameter at breast height (DBH) structure. Type I = most dipterocarps; Type II = e.g., *Dipterocarpus crinitus* and *Agathis borneensis*. Arrows show the suggested minimum diameter cutting limit (MDCL) for each type.



of this species. Hence, for Type II species, we recommend increasing the minimum diameter cutting limit (dbh > 80 cm in the case of *Agathis borneensis*) to retain at least one adult tree ha⁻¹ in the harvest area.

The reduction in activity of the state logging company Inhutani II (see section on problem description), diminished the chances for widespread uptake of the results. In the new phase of the project we will need to engage a new range of logging companies, who are operating under very different circumstances. Fortunately, the results are being used to inform national policy as well as logging in other countries. Approaches and principles derived in the Indonesian work are now being modified and applied in Brazil by CIRAD and EMBRAPA. Further, the principles derived in the research will be adapted to improve the existing standards for Indonesia.

Landscape and biodiversity values

Much of the global concern about tropical rainforests centres on the alarming loss of biodiversity. There is also substantial concern about the poverty and historical marginalization of indigenous communities. What has attracted less attention is the degree to which these concerns are linked. While biodiversity assessment has become a widespread preoccupation, the information generated often has little impact. Decision makers, from local politicians to concession managers and international policy makers, faced with the demands of various commercial stakeholders and development programmes still find it difficult to react to lists of species and other biological survey data. The interests of many stakeholders, especially commercial enterprises, are relatively clear and easily communicated. But, for indigenous rural communities, their needs and perceptions remain hidden to outsiders unless a specific effort is made to reveal them. Where external decisions have local impacts, the concerns of local communities are often overlooked, and undesirable impacts, though

common, are inadequately anticipated. What is needed is an understanding of local needs, and a means to make these more influential in the decision-making process.

Using a variety of participatory ranking and scoring exercises, detailed valuations of the species, forests and landscapes were derived, illustrating the local values of biodiversity (Figure 5). These values are often different from those held by the global community, but many species and habitats valued by local people have global significance (Sheil *et al.* 2003). The work was complemented with ecological samples, seeking to understand the range of sites and habitats. It was suspected that certain sites often have special significance for local people, and might contain restricted habitats and species. For example, the limited areas of limestone outcrops provide a habitat for valuable birds-nests (cave swiftlet nests are highly valued for Chinese soups), but also for many other restricted species.

There is a much clearer appreciation of numerous important topics that sit between the original research topics, such as why logged-over forest generally has such low value to local communities when compared with pristine areas, and how many of the pristine values could be maintained by careful spatial planning and changed logging practices. For example, regulations that require concession holders to repeatedly slash all undergrowth and climbers after felling are intended to reduce aggressive weeds to encourage regeneration. In practice, it cuts a vast range of valued and useful species, including rattan and timber seedlings. This slashing may be more damaging to the forest than the harvesting itself, and it is suggested that this policy should be reviewed (see previous section). Further work needs to be conducted to develop biodiversity guidelines within RIL operations. There is now a clearer set of priority areas and species, where they occur, why they are important, what they are vulnerable to, and what could be involved in their protection and maintenance. This has been useful for informing land-use planning.

Local communities have complex relationships with their environment that need to be understood and taken into account in decision- and policy-making. This message requires a paradigm shift for all the institutions and processes related to forest management. Decentralization has opened many issues to localized scrutiny. Numerous local institutions, both governmental and NGO, are seeking ways to integrate the needs and aspirations of local communities within national development strategies and conservation plans. In this era, where payments for biodiversity services are being considered, understanding the landscape and its values is an essential first step. Local communities seemed genuinely pleased that outsiders should seek out their views. They recognize the benefits of openly discussing topics to which they have previously given little explicit attention, and of learning how to make their views apparent to outsiders. There will always be difficulties in integrating local perspectives with real change unless the process is iterative. The key point is to develop a dialogue.

Household livelihoods

Household level research in the Malinau and adjoining watersheds provides a detailed picture of villagers' multiple livelihood activities and dependencies on forest resources (Levang *et al.* 2003). It has not only demonstrated that villagers have a broad portfolio of livelihood strategies, but has also specified the relative importance of certain activities over others in terms of access to forests and/or markets. This is related to whether villagers live upstream or downstream. The upstream-downstream gradient also corresponds to ethnic divisions, with primarily Punan groups (the poorest and historically most marginalized group) upstream and Dayaks and others downstream.

In short, this research shows that upstream villages, which are farther away from markets, but are closer to the forests, are much more strongly dependent on forest resources for subsistence such as hunting (Figure 6), and for cash income such as harvesting eaglewood (*gaharu*) (Figure 7), while also maintaining small swiddens. As one moves downstream, villages become more heavily dependent on

swidden agriculture and wage labour (unavailable upstream due to the lack of infrastructure), and less on forest resources to meet subsistence needs and cash income. This characterization can be explained by a dependence on access to forest resources and markets. The driving force in livelihood choices seems to be a trend towards increasing dependence on cash. Three kinds of households can be distinguished – a diversified type, *gaharu* collectors, and a subsistence type (Figure 8). The diversified



(PHOTO: DOUG SHEIL)

FIGURE 5 Punan women from Long Jalan expressing the relative importance of different types of land and location in their landscape. Logged over forest is generally seen as very undesirable for these forest-dependent people. Our evaluations allow steps to be taken to address this.

type is close to markets, has high off-farm activities, low forest product cash income, and high rice production. The *gaharu* collectors specialise in this forest product and achieve high cash incomes from its sale. The subsistence type is far from markets and has low cash income, and does not produce high quantities of rice.

This increasing dependence on cash in part explains many villagers' eagerness to strike deals with entrepreneurial timber companies that have become so prevalent in the Malinau district since Indonesia's transition towards decentralization. Remoter households desire cash to achieve better access to education and health. Our research shows that the near complete absence of these services in the upper reaches of the Malinau and adjoining watersheds has, unsurprisingly, engendered high levels of illiteracy and infant mortality.

Our livelihood research, particularly on, and with, upstream Punan villages and Punan who have moved downstream, challenges many of the stereotypes of forest-dependent people as

having an intrinsic conservationist ethic. The research has highlighted the factors that motivate and limit their livelihood choices, as well as the trade-offs entailed in their choices. This research has assisted the Punan to more consciously think about opportunities, constraints, and trade-offs, while also providing strong data to argue their case when discussing health and education issues with the district government. Lastly, it contributes to other components of INRM research in Malinau, by showing in detail the dynamic relationship between changing biophysical landscapes and changing livelihood portfolios and decisions.

Spatial planning

The focus in the biophysical and technical work shifted from stand-level work on improving logging to district-level work on improving the understanding of landscape dynamics, and contributing tools/approaches and information for spatial planning and decision-making. A wide variety of research has led to greater understanding of the possible trajectories of change, and a simulation model has been prepared to

demonstrate different scenarios. If current practices continue unabated, then the future for forest in the landscape is limited. Figure 9 presents the projected land cover classes in a 250 000 ha area along the Malinau catchment based on current patterns of land use, and assumes present levels of logging continue into the future. The landscape changes from a largely forested landscape to a largely unforested landscape within 15 years as large- and small-scale concessionaires convert primary forest to modified forest and bushland. Local people have little direct impact. Such models make the classic



(PHOTO: EDMOND DOUNIAS)

FIGURE 6 Dayak men relaxing after hunting. The forests are an important habitat for the bearded pig, a delicacy in these parts. Widespread landscape degradation causes a decline in this important source of protein.



FIGURE 7 Eaglewood (*gaharu*) is the main source of cash for certain Punan groups. Combining timber extraction with sustaining non-timber forest products is one of the major challenges

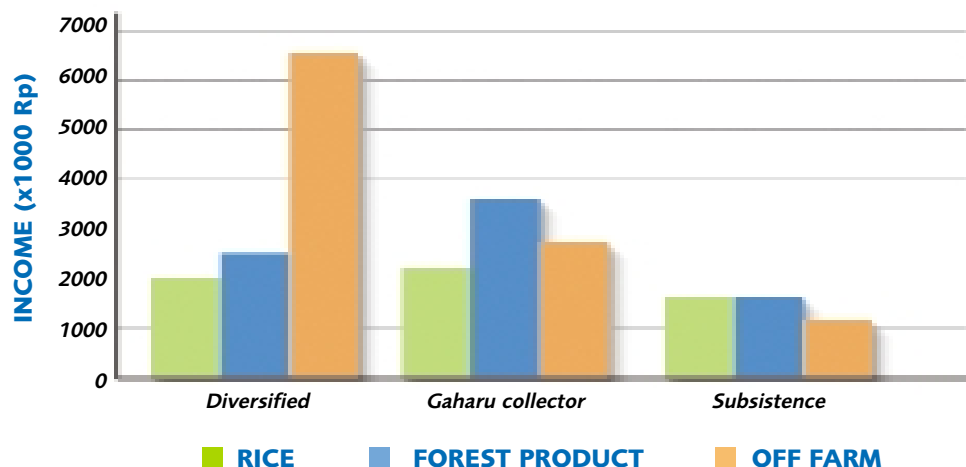
errors of exercises such as the “Club of Rome”. The model is meant to indicate the consequences of current trends – it is not predictive, as it does not incorporate how people’s activities will change in response to changing situations.

In the current phase of the work further effort will be given to spatial planning, in addition to capacity building of communities and district officials for spatial planning. The research team has already contributed to the official land-use plan for the district, which incorporates some aspects of landscape management derived from the research.

Governance, from local to international

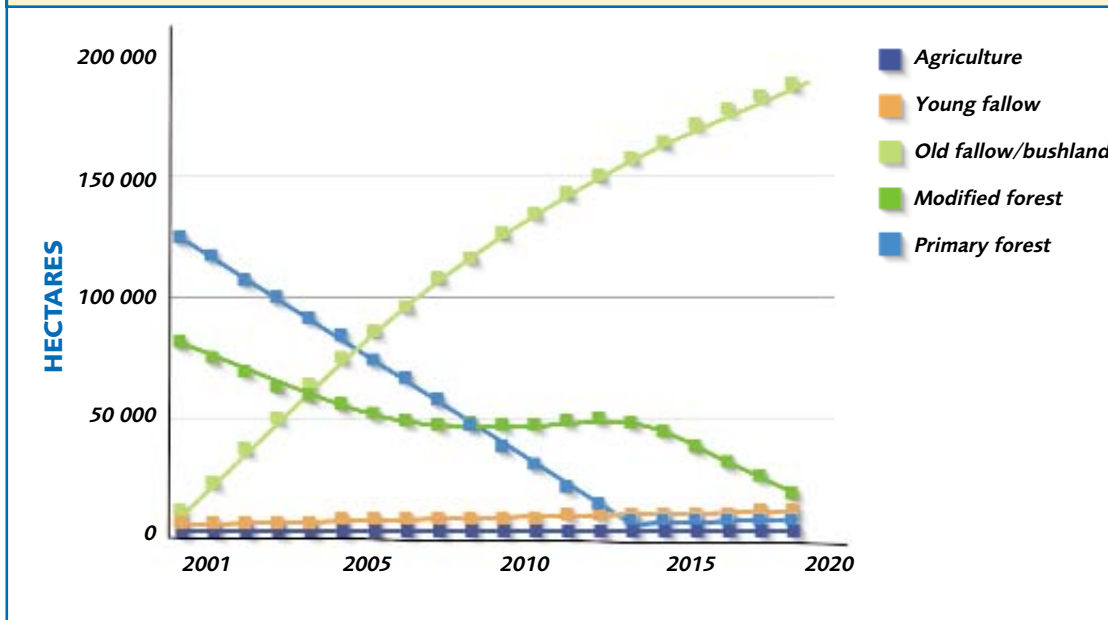
Given the diversity of players at different scales and the skewed power relations, a focus of the work is how best to undertake negotiations among the multiple stakeholders in such arenas. By adopting a learning process with the communities, one of the research teams was able to adapt to the swiftly changing circumstances (Figure 10). The learning cycle was rapid, allowing for several cycles in a few years: first the focus was on ‘Future Scenarios’ as a means to plan for the future, then on village mapping (as a pre-condition to negotiate customary rights with

FIGURE 8 Contribution of different kinds of income according to settlement type (for off-farm activities and forest products this is cash income, while for rice production this is cash and subsistence income).



Source: Levang et al. (2003)

FIGURE 9 Projection of the land cover classes in a 250 000 ha area along the Malinau catchment.



government), and then on increasing communities' participation in local government's land-use decisions and village boundary demarcation. At the request of the communities themselves, considerable attention has been paid to boundary issues – to identify how these are recognized and negotiated, and how they lead to particular rights and responsibilities. The communities used maps derived from such exercises in order to negotiate their territorial areas with the district and logging companies.

At the national-district nexus, analyses were undertaken of decentralization impacts, and facilitators worked with different groups to increase dialogue and action at the district level. Institutional analyses indicated the problem of the local legal system, and the key players identified the need for assistance with drafting laws and regulations (Barr *et al.* 2001; Rhee 2003). A workshop on this topic has just been conducted, which will hopefully lead to better preparation of local laws.

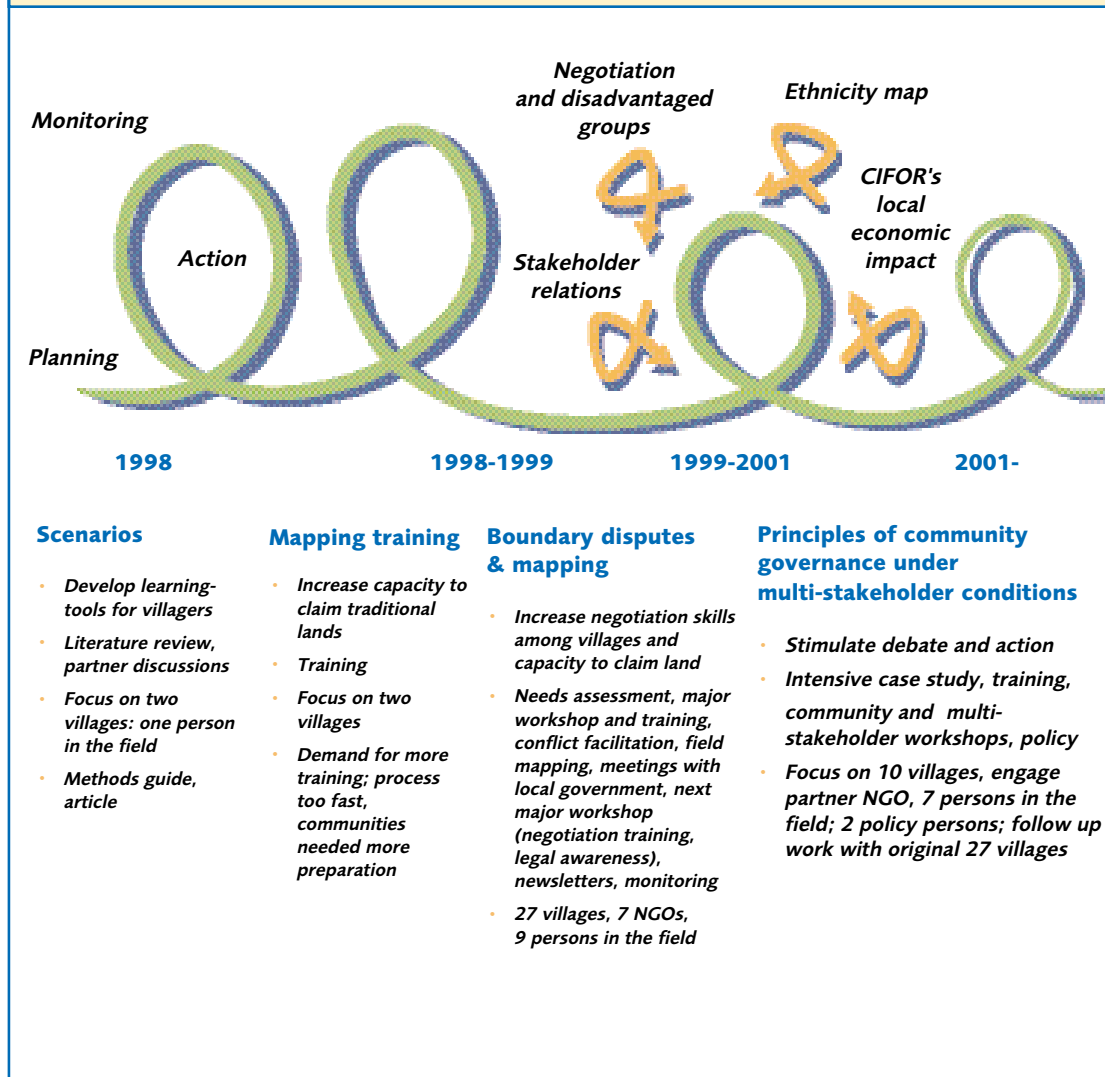
Work at the international level has largely been a search for long levers to facilitate changes in

development trajectories. One of the potential levers that has received considerable focus is the work on financial institutions, where attention has been drawn to the lack of sustainability in pulp and paper investments (this industry is a major cause of deforestation) (Barr 2001). Another line of inquiry is related to conservation concessions, where links were made between a local community and a major international conservation organization. The work on empowering communities has led to a situation where some local communities are interested in discussing such concessions to better understand how they function. Work at the level of the Convention for Biodiversity (CBD) sees CIFOR playing a role in influencing the way in which the convention is implemented.

Empowering communities

Much of the above work can be said to be leading to empowering local communities, who are politically weak in the face of logging companies, district officials and entrepreneurs. The participation of Punan and women in our

FIGURE 10 The learning cycles and their characteristics (1998-2001) for the group focusing on community issues



community work in Malinau has visibly increased. Communities have learnt to better state their needs and what they imply to outsiders. This allows them to better articulate their preferences in various forums. They are articulating more sophisticated land-use visions and spatial plans. We have assisted communities to map their areas, thereby allowing them to better negotiate with timber companies, and giving them greater confidence in presenting their case at the district level.

Our research related to empowering communities has also demonstrated the complexity and centrality of articulations of ethnicity and history in local people's claims and negotiations with respect to control over, and access to, forest resources (Sellato 2001). Due to possibilities created through Indonesia's decentralization processes, the Malinau district government has issued small scale logging permits, which, if the government could have fully captured these revenues, would have

allowed the district government to collect US\$5.3 million from April 2000 through February 2001 for the district budget, or nine times the district's planned budget for 2000 (Barr *et al.* 2001). Due to the unstable legal situation, the extent to which these fees and taxes were paid to the government is unclear, with some companies fleeing their concessions without paying. Nevertheless, as part of the process of receiving these contracts, the logging entrepreneurs had to first obtain agreement from the local communities who claimed the forest areas, and agree on a per cubic meter compensation fee, normally between less than US\$1 to US\$4 per cubic meter (Barr *et al.* 2001). Thus, communities can now benefit from logging, yet the increased value of timber for villagers, in the context of weak governance, has sparked conflict between and within communities as to who has a legitimate claim to forest areas and their attendant fees (Barr *et al.* 2001; Rhee 2003). Articulations of ethnicity and history have become key instruments to legitimate claims – asserting indigenism, demonstrating deeper historical roots, and possessing evidence of certain historical agreements between communities have all become mechanisms to legitimise claims to forest resources and contracts with logging entrepreneurs (Barr *et al.* 2001). Part of our research focuses on how to build the mediation and facilitation skills of villagers and district government officials to move toward resolving these conflicts between villagers, companies and the district government.

One CIFOR community researcher is also a member of Setulang village (one of 27 villages in the Malinau watershed), and provides an additional means for dissemination and uptake. For instance, this individual has been invited by the district head (*Bupati*) to join senior government officials at the provincial capital for a meeting of the Kenyah Association of East Kalimantan, providing five days of close contact with senior officials and a forum for disseminating ideas throughout the province. Setulang has refused to give permission for logging on its lands. So far, they have refused the offers of eight

companies, one of which offered US\$300 000 for the forest area of 5 300 ha. This is a large sum of money for a relatively poor village of 900 households, but the villagers have seen that logging elsewhere has not brought long-lasting wealth and has destroyed the quality of the rivers. Setulang was recognised for its activities by being one of the 150 finalists for the World Water Prize (out of 850 entrants) (Figure 11).

Lessons learnt and future challenges

Achieving impact locally

Achieving a secure forest estate is a complex challenge because of the range and diversity of the stakeholders involved, and their overlapping interests. Over the years a unique partnership has evolved in the district. Researchers and local groups are collaborating to identify and address the needs of stakeholders by finding the best ways to manage a large forest. The lessons we have learned are providing us with baseline information, and are laying the basis for finding negotiated solutions that will last into the future. As a result of the developing partnerships, CIFOR is receiving requests for help from different stakeholders – local government has requested help on legal drafting and land use planning; the large-scale logging company has requested training on RIL and how best to work with communities; and communities have asked for help with mapping, negotiating, forest management plans etc.

In a recent community meeting (in 2003), 52 representatives from around Malinau evaluated the "benefits or use" of CIFOR. The majority of responses were positive on CIFOR's role, with communities pointing to CIFOR's role in improving human resources (through advice, information provision and discussion), strengthening relationships among villagers through conflict resolution, and facilitating dialogue between villagers and the district government.

As this case study demonstrates, CIFOR and its partners face formidable challenges to the



FIGURE 11 Dayak fishing on the Setulang river, Malinau. The Setulang community has given considerable attention to conserving the forest in the catchment to maintain the quality of the river water.

successful implementation of INRM in Malinau. We have assessed these challenges and crafted strategies to overcome them. The central challenge is perhaps the uncertainty and ambiguity of the Indonesian decentralization process. Thus, in the forestry sector there are doubts as to precisely who is authorized to issue timber concessions (Barr *et al.* 2001). To address this issue, CIFOR plans to continue to work with Inhutani II, whose permit was issued by the central government, while also preparing to work with district-authorized concessionaires. Related to this last point, CIFOR will also widen the scope of RIL training to include communities, district forest service, and other stakeholders. Further, CIFOR will clarify roles and responsibilities with partners and other stakeholders through cycles of shared learning at district, national and international levels. An important component of this will be to develop an overview of all research activities and interactions in Malinau, and to iteratively hone and integrate research priorities and activities. As part of the shared learning plan and to overcome uncertainties in forest governance,


recognition that partnerships are the key to scaling up. At the national level, CIFOR has an office in the Ministry of Forestry, where regular dialogue occurs. Another key partner is the Tropical Forest Foundation, which will conduct Indonesia-wide training on logging practices in conjunction with CIFOR. Deeper partnerships are planned with key national players such as the World Wildlife Foundation (WWF).

At the international level better relations are being forged with ITTO, CBD and CARE. Already mentioned is the case of RIL findings from Malinau being modified and used in Brazil thanks to the assistance of ITTO. Another example is that of a planning and negotiating tool termed “Future Scenarios” (Wollenberg *et al.* 2000), which has been tested in Malinau and is the subject of a manual. CARE has expressed interest in the manual, and is using such tools in some of its integrated conservation and development initiatives. If the research tools developed by CIFOR can be widely used in the development work of a large international development NGO, then CIFOR will achieve

CIFOR will establish a consultative group at the district level, and will set up mechanisms for closer cooperation among stakeholders and partners.

Scaling up for broad impact

While much of the above may sound like rather site specific development work, researchers have been involved in producing global public goods, in the form of peer-reviewed papers, booklets and manuals, on processes, approaches and methods. These have been widely disseminated, but probably more important has been the



major indirect impacts on development. Similarly, the work in Malinau has been used to critique the 'ecosystem approach' of the CBD. If CIFOR can influence the operationalization of the 'ecosystem approach' then projects throughout the globe will be adopting approaches that have their roots, at least partially, in the Malinau experience.

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