

Collective choices and individual decisions

The sustainability of Indonesian agroforests

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For local populations, agroforest systems (see Chapters 7, 11 and 20 in this book) are a way of appropriating forest resources in a situation where most of the country's land was nationalized following Independence. Appropriation means the privatization of land plots and tree resources. Private ownership coexists with community management of certain products (fruits, fuelwood) and resources to which access is free (wildlife). Common law institutions lay down the rules for use of and access to resources, which are not rigid: they have been modified several times in response to changes in ecological, political and economic conditions (Michon et al., 1995).

Our analysis begins with a study of how damar agroforest resources in the south-western Sumatra region are appropriated and goes on to look at how the stakeholders concerned make their decisions. The rationales and objectives at play are examined with a view to explaining the dynamics of such systems and showing how social rules play a predominant role in ensuring their viability.

THE RULES AND HOW DECISIONS ARE MADE

Modes of appropriation

In a situation in which 77% of land is under state control, the issue of access to forest resources is crucial. The fact that the state owns most of the forest land does not mean that local populations do not have some rights of use over forest resources (provided the recognition of those rights does not run counter to higher national interests). It is therefore important to distinguish between land-ownership status (private, public or collective) and rights of use of resources.

Based on the analysis grid suggested by Weber (1995), the following aspects were used as references in our study of damar agroforests in Indonesia:

- The views and beliefs of societies concerning the living world.
- The rights of access to resources of real and potential users.

- The decision-making processes and rationales of the different stakeholders.
- The interactions between these components in view of overall dynamics.

The identification of the modes of agroforest resource appropriation was based on the interactions between the following five levels:

1. Beliefs.
2. Customs.
3. Modes of access and of controlling access.
4. Modes of transfer.
5. Modes of distribution or sharing.

The preconditions for maintaining an agroforest system in a given region are the beliefs and views of the environment shared by a community. The members of smallholder communities see themselves as slash-and-burn farmers (*orang ladang*) and damar farmers (*petani damar*: damar is a tree cultivated for resin production; damar resin is exported to paint and varnish industries) (see Plate 21.1). Land is classified according to the activities it supports – rice paddies (*sawah*), slash-and-burn (*ladang*), gardens (*kebun*), forest (*hutan*) – and resources according to the areas they occupy and their origins: wild or planted species in *kebun*, forest species, trees as land markers. Ceremonies are held when a *ladang* is set up and also take place every year to ensure the continued productivity of *kebun*.

Smallholder communities know and understand the rules and determination criteria concerning use of and access to resources. There are two types of criteria: the status of the resources and of the area considered (Table 21.1), and the social status of the decision-maker.

Damar agroforests systems are based on birthright, in which inheritance is one of the main modes of access to resources. The other modes are setting up a *ladang* and buying or selling gardens or rice paddies.

There are two distinct types of rights over resources. Inherited rights (*hak waris*) represent the inheritance passed on and are restricted by common law conditions concerning land alienation and the right to modify land composition: inherited rice fields and *kebun* cannot be sold without the agreement of all the living founding members and damar trees cannot be felled. Inherited rights on land are passed from the father to the eldest son. The younger sons and daughters are therefore traditionally excluded. These rules result in a system in which the village community is split into elder and younger branches (Mary, 1987), and make the system extensive (the search for new land to set up *ladang*) (Michon and Levang, 2000).

These restrictions do not apply to full ownership rights (*hak milik penuh*), which concern new gardens and rice fields set up by slash-and-burn. New

Table 21.1 Resource uses and their status

<i>Resources</i>	<i>Status</i>	<i>Uses</i>	<i>Income</i>
Rice	Private	Family consumption + sale	Subsistence Savings
Damar resin	Private	Sale	Subsistence Daily expenses
Coffee, pepper	Private	Sale	Annual and occasional expenses (pilgrimage)
Duku, durian	Communal/private (with an increasing tendency towards private status)	Consumption + sale	Occasional savings and occasional expenses (weddings, funerals, housing, etc.)
Other fruits	Communal	Consumption + sale	Regular
Fuelwood	Communal	Family consumption + sale	Regular
Timber	Private	Family consumption + sale	Savings
Wild (medicinal plants; bamboo; wild vegetables, etc.)	Communal	Family consumption + sale	Subsistence
Forest resources (rattan, hunted products, etc.)	Free access	Family consumption + sale	Occasional

Notes: Land (rice fields and *kebun*): individual appropriation.

Resources: private, communal, free access.

Source: Adapted from Mary, 1987.

gardens can therefore be sold, transformed or given to any member of the planter's family.

Community institutions and common law (*Adat*) leaders ensure social enforcement of the rules. Its impact varies from village to village, depending on the degree of internal social cohesion and the extent to which individuals obey community rules.

Decision-making processes

Agroforest management decisions are taken on an individual level, under the watchful eye of the community. The importance of the damar resource in

terms of identity and heritage is one of the keys to agroforest sustainability in the region.

Decisions are based on several constraints: natural constraints (the time taken for a species to reproduce, to produce, seed germination patterns, seasons); socio-cultural constraints (taboos, restrictions on use, the dominant birthright concept, the possibility of excluding outsiders); economic constraints (return on investment, access to seed, access to land, food security) and external constraints (state taxes on wood and resin access to land, recognition of smallholder land). They are also governed by the interactions between the different stakeholders in the system, represented by individuals and their social status, their relations with *Adat* leaders and village leaders, the quality of intercommunity relations and those with entities outside the farming community (traders, state representatives, foresters, the police, etc.).

Individual decisions are thus determined by both the above constraints and the need to respect collective choices. The degree of social control will depend on the extent of cohesion within the village and the ability of institutional representatives to manage the established uses and exclude certain practices or users, and to maintain land security within a system of social relations.

The interactions between individual choices and social control mechanisms vary and can change considerably depending on the period considered in the agroforests and villages studied.

AGROFOREST DYNAMICS: THE INTERACTIONS BETWEEN INDIVIDUAL AND COLLECTIVE CHOICES

Until the turn of the last century, common land was forest, for swiddening and as a gathering and hunting area and farmers were able to obtain exclusive, permanent dammar-tapping rights (which were theoretically transferable to their heirs). Private land included homes, fruit plantings around homes and irrigated rice fields. Individual access to land was only possible with the agreement of the community, and was obtained by clearing a forest plot and planting it with crops (Michon et al., 1995). Treecrop planting was forbidden in forest areas.

Several factors prompted the lifting of this ban at the turn of the last century. Damar trees were disappearing from the landscape due to over-tapping. The resin price boom, the diseases affecting the pepper trees grown in forest areas and the impossibility of keeping out illegal tappers meant that the species was disappearing at an alarming rate (Michon et al., 1995). It became crucial to change common law so as to regenerate the species by planting it on common land. Lifting the ban led to the rapid expansion of agroforests in the region, initially by confirming individual rights over the tree resource (damars produce resin after twenty years) and then by extending those rights to cover land. This possibility of revising the rules governing collective choices enabled the individualization of agroforest plots and

reflected the flexibility and adaptability of those rules in response to changes in ecological, technical and economic factors.

Another example, the clove boom in the 1960s, showed the importance of social control mechanisms in sustaining agroforests. We observed two cases in the villages studied in the region. In villages with strong social cohesion and respect of collective choices, cloves were planted on a massive scale in existing *kebun* or by setting up new *kebun*. The fact that collective choices and rules – not felling damars, the duty to pass on an identity through land inheritance – were respected, and the flexibility of the agroforest structure, meant that cloves could profitably be included in the agroforest system, below the canopy of damar trees. When the clove trees were hit by a disease that killed all the plants, the farmers had not significantly modified their damar *kebun* and suffered little from the economic consequences of this disappearance.

This disease had disastrous consequences in other villages. Cloves were introduced in new plots and often replaced damars, large areas of which were often felled to draw maximum benefit from the new resource. Collective choices were sometimes non-existent or at least were not respected, and once the clove trees were hit by disease, the villages were left destitute for want of enough productive damar *kebun*.

These examples highlight the crucial role of social and institutional control in the choices made and in the future of agroforest systems. Some villages made the most of the opportunity but ensured that their decision was reversible, enabling them to ensure the sustainability of their community and agroforests, while others seized the opportunity at the expense of their existing system and were subsequently confronted with the irreversibility of their decision and with difficulties affecting a whole human generation.

INDIVIDUALS AND SOCIETY: THE SUSTAINABILITY OF AGRO-FOREST SYSTEMS

Agroforests are characterized by the elaboration of views and interpretations of nature shared by the members of a given community. The different forms of individual and collective intervention in such systems are organized based on these views and interpretations. The prevailing constraints are both known and integrated into the decision-making process.

Agroforest sustainability is linked on the one hand to the ability of social control mechanisms to adapt to changes in individual aspirations and choices. The current structure confirms that rights are becoming increasingly individualized, within the limits imposed by common law, which is sometimes weakened as a result (there has been an increase in thefts in some villages). It is also linked to the respect and effective weight of those social-control mechanisms. Long-term transmission of a heritage is seen as a duty which has

enabled several villages to adopt new short-term speculative activities without jeopardizing the foundations of the system.

It is worth noting that the process of increased security and individualization is internal to the system. Individualization was linked to the desire for more secure rights of use and their increased transmissibility. The individualization process is gathering speed, with the advent of new economic openings for certain resources already found in *kebun* (such as fruits and wood) (see Plate 21.2). However, it is not assimilable to total privatization (Michon and Levang, 2000).

The ban on felling damar trees, the clear distinction still made between newly created and inherited goods, and the flexibility of community structures all help to guarantee the sustainability and reproducibility of agroforests in the coming years, as do the structural advantages of such systems, which integrate biodiversity (Michon and De Foresta, 1995).

Empirical studies have identified a multitude of modes of renewable resource appropriation worldwide and observed a degree of confusion between the notions of communal ownership and free access (Berkes et al., 1989; Weber, 1995).

Indonesian agroforests are just one way of tackling renewable resource management, amongst many others. Private ownership is not the only way of encouraging stakeholders, in this case smallholders, to invest long term. The damar trees in these agroforests take twenty years to provide an income, roughly the length of a human generation. In addition to the importance of land security, it is clear that community control and socio-cultural values play a crucial role in the reproduction of both the damar resource and agroforest systems as a whole.

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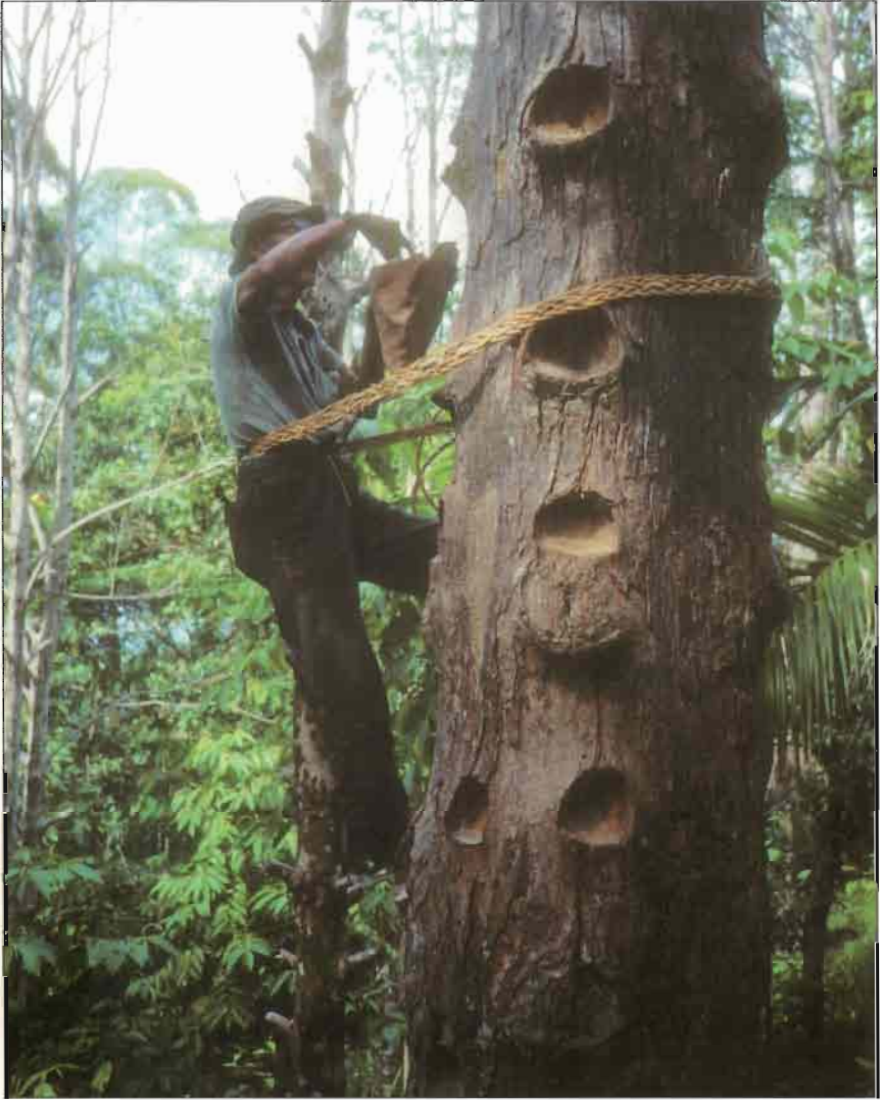


PLATE 21.1 Tapping of the *damar* tree



PLATE 21.2 A family collecting *duku* in Pahmungan village, Lampung area, West Sumatra

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