

## *Introduction:*

*Managing natural  
forests . . .*

*. . . or cultivating forests on  
farmlands?*







This book concentrates on the cultivation of forests on farmlands by smallholder farmers, not only because the practice constitutes altogether the most original and lesser known aspect of local forest management in the region, but also because, in our opinion, it represents the most promising field for the design of alternative strategies for the management of forest resources and forest lands.

Since the 1970s, the importance of indigenous communities' utilisation of forest resources in tropical countries and the relevance of local management systems for forest science, conservation and development have become well-recognized facts. Studies on local forest management have multiplied. Few of them, however, recognize the significance of the difference between 'natural forest management' and forest culture. If farmers in South-east Asia are often cited as skilled forest managers, it is barely acknowledged that an essential part of this forest management does not concern natural forests, but forests that have been planted on farmlands after the removal of pre-existing natural forests.

Why do people cut natural forests to replant the same kind of trees they have just chopped down? This book gives many elements of the answer to this question. Conclusions from 10 years of analysis of forests cultivated by smallholder farmers on farmlands do show that the management of self-established forest resources in natural forests and forest culture should not be confused any longer. Despite obvious biological and ecological similarities between cultivated forests and natural forests, their historical, socio-cultural, institutional and economic foundations as well as their social and political dimensions are totally different, if not divergent. Beyond the various examples given in this book, the underlying strategy of forest culture on farmlands bears a universal dimension, which justifies its separation from the common domain of 'natural forest management'. This separation is not only conceptual, but bears important practical as well as social, legal and political dimensions, as we will try to illustrate here.

Most examples of forest culture on farmlands given in this book are derived from Indonesia. This happenstance is more a consequence of the historical development of the research projects from which the book is derived—in particular the importance of FORRESASIA and former Institut de Recherche pour le Développement (IRD) research on such systems in Indonesia and the concentration of our Philippine study on critical examples of forest extraction by remote forest communities—than a reflection of any inexistence of such systems outside of Indonesia. The Lofoten Workshop has shown that other forms of cultivated forests exist in other parts of the world. The International Council for Research in Agroforestry (ICRAF) is presently documenting examples of traditional and modern forest culture from Thailand and the Philippines.

These cultivated forests are not home gardens. They usually form large blocks of several tens of thousands of hectares extending between open farmlands and natural forests. In Indonesia, they cover altogether an estimated 6 million to 8 million hectares. They are not, as commonly reported in most professional forestry circles, anecdotal components of backwards, traditional agriculture. Most of them assume a determining role in the farm economy, both through the provision of regular cash flow from traded commodities and for their risk-buffering function. They also constitute a major element of

smallholder agriculture at the scale of the country. In Indonesia, they provide 80% of the processed and exported rubber latex, 80% of the dipterocarp resin and 95% of the benzoin resin traded in and outside the country, between 60% and 75% of the main tree spices (clove, cinnamon, nutmeg) produced for national and international markets, roughly 95% of the various fruits and nuts marketed in the country, as well as a significant part of bamboos, small cane rattan, fuel wood, handicraft material and medicinal plants traded or used in the country.

These cultivated forests should not be integrated in the global category of 'secondary forests'. The term 'secondary forests' and the related concept of 'primary forest' (this latter concept being derived from the former through durable perturbation), though scientifically defined, do not constitute the only true representation of reality. On the contrary, they embody a specific vision of tropical forest. These two related concepts refer to a presently criticised representation of 'nature' by the ecological sciences, in which humans are not constitutive elements of the 'ecosystem', but do perturb the 'ecological balance'. It concentrates on a definition of forest that is uniquely physiognomic and silvigenetic. This representation denies the reality of millennia of co-evolution between human societies and forests, and it sends the economic, social, symbolic and political dimensions of forest history back to a secondary position. Even though cultivated forests are not 'primary forests' (and therefore should fall in the category of 'secondary forests'), even though some of them have the physiognomic characteristics of secondary vegetations, there are more dangers than clear advantages to classifying them as such. By assimilating them to any type of vegetation evolved from 'primary forest' through 'perturbation', it dilutes their specificity and obscures their originality. It finally justifies the lack of official acknowledgement (either political or scientific) of these cultivated forests.

Unlike conventional forest plantations, which are physiognomically and ecologically quite distinct from natural forests, these forests cultivated by smallholder farmers in the tropics do look like natural forests. But they are more than just managed forests. They are not the result of any integration of economic tree species in natural forests through gradual planting. They have evolved from the total clearing of the natural forest vegetation, usually through slash-and-burn agriculture, and the planting of selected tree species on the cleared plot. They are socially defined by bundles of rights that clearly differ from those concerning natural forests. As natural forests, they have clear economic functions, but they also serve as the material and symbolic foundation of particular social status or local identities, a role that is usually not assumed by natural forests. Locally, they never bear the name of 'forest', but are designated by terms closely related to the English term of 'garden'. The historical process of their establishment shows how they have often been erected against the natural forest itself, as a strategy to allow the continuation or the development of a forest-related economy in a context where this economy was threatened by the imposition of colonial or national forestry regulations on customary forest lands.

Cultivation and domestication of plant species represent a well-defined domain in the range of resource management possibilities. Technically, fruit culture for example is quite distinct from the collection and management of wild fruits in the forest. The same holds true for forest culture, even when practiced in a mode quite different from the canons of professional





A natural forest?



A durian forest cultivated  
in West Sumatra?



A benzoin forest . . .



. . . cultivated by farmers in  
North Sumatra?

**Cultivated forests are often  
'invisible'**



A damar forest cultivated  
in Lampung?





A natural dipterocarp forest in Kalimantan

**‘Forest management’ includes the management of both naturally regenerated forests and that of cultivated forests. Professional forest culture in the tropics occurs through the specialized plantation of homogenous stands of timber species. Local forest culture is quite different, as it reconstitutes diversified forest ecosystems adjoining farmlands.**



An Agathis plantation established by the public forestry services in Java for the production of damar resin



A dipterocarp forest planted for damar resin production in southern Sumatra farmlands



forest plantations. The specificity of the models that can be derived from existing examples of forest culture on farmlands is defined by qualities that extend far beyond pure technical or economic considerations. In areas where natural forests are still present and actively managed, the development of forest culture by smallholder farmers on farmlands is not neutral or accidental. It necessarily constitutes a strategy that questions the practical, conceptual and legal aspects of conventional forest management.

Our book tries to capture the multiple dimensions of this strategy and analyzes its comparative advantages. We speak for more attention and support for these systems. This book is not an ideological plea, but is built on the conclusions of a multidisciplinary analysis of scientifically collected facts and observations. We aim at attracting scientific and political attention to these systems, because they are altogether neglected, endangered and full of potential.

Professional foresters or the decision-making elite in forest management have never seriously considered indigenous forest culture, however sustainable and profitable it may be. Why has it been neglected? Probably because the existing systems are ‘invisible’. Their physiognomy is so close to an old-growth or a secondary forest that they are easily confused with a natural forest. They have been invented by politically ‘invisible people’: swidden farmers, who are generally considered bad managers of the forest. Their patterns are so different from those attributed to a ‘cultivated system’ that it might be difficult to admit that they result from active planting and planning. They globally do not ‘fit’ the conventional separation between forest and agriculture. Even though resulting from planting on farmlands, and acknowledged as specific tenurial properties in customary systems, they are usually classified as ‘natural forests’ in official land-use categories and therefore fall under the forestry regulatory framework. In most tropical countries, the ideology and the political considerations that found the regulatory framework of forestry tend to exclude smallholder farmers (and moreover swidden farmers) from the management of forestlands and resources. The public status of ‘forestlands’, the concessionary mode of forest exploitation and the legal restrictions on the trade of forest products represent measures that globally do not favour the sustainable management of forest resources by local communities. By not recognizing customary property rights on planted forests, by forbidding the local trade of cultivated timber and by not allowing management and harvesting activities in cultivated forests established on ‘conservation forest lands’, forest regulations also represent a major threat to the future of forest culture on farmlands. The ecological, economic and social success of the existing examples of the forest culture of smallholder farmers allows us to question the legitimacy and the efficiency of maintaining these particular forests under the common forestry regulatory framework.

Our argument in this book extends far beyond a recommendation for more support for existing systems. Our main objective is to define what benefits the concept of ‘forest culture on farmlands’, derived from the existing examples of cultivated forests in South-east Asia, can bring to forest management and development. In this book, we try to analyze which among its specific qualities can make it an interesting alternative to either forest extraction or specialized forest plantations.

On the island of Java, lands not under forestry regulations often bear more trees than ‘forest lands’. These trees are





This picture (left) from West Java shows the boundary between 'state forestlands' on the upper, heavily deforested part of the slope and 'private lands' downhill, which are covered by forests cultivated by local farmers for multiple uses.

Forest conversion in Kalimantan



On the island of Java, lands that are not under forestry regulations often bear more trees than 'forestlands'. These trees are managed in forests that have been planted by farmers.

In many areas of Sumatra and Kalimantan, whereas natural forests are being overlogged or converted, the last patches of dense forest are located on farmlands and are in fact cultivated by local farmers and swiddeners.



A cultivated forests with fruit trees and timber species in West Java

Cultivated dipterocarp forest in southern Sumatra





managed in forests planted by farmers. In many areas of Sumatra and Borneo the last patches of dense forest are located on farmlands and constitute cultivated forest and agroforests, whereas natural forests are being overlogged or converted. In the eastern lowlands of Sumatra, rubber forests planted during the twentieth century by swidden farmers constitute the last large reservoir of forest biodiversity. All of Indonesia's exported damar resin (an important 'non-timber forest product' from Dipterocarps, the major constituents of South-east Asian forests) comes from cultivated dipterocarp forests. In many areas, most of the sustainable relations between local people and forest resources no longer occur in the natural forest but through one or another type of planted forest. These are important facts to consider, especially in the present context of depletion of natural forests all over the planet.

Grouped under the evil term of 'deforestation', the global dynamics of forest conversion nurture worries about the unavoidable demise of all old-growth forests on the planet, and about the environmental consequences of this forest conversion. As a reaction, many conservationists, after having defended the idea of 'integrated conservation and development', presently plead for enforced conservation, arguing that people and forests are incompatible on the same unit of land.

Primary, old growth forests of the humid tropics constitute irreplaceable ecosystems harbouring the highest known concentration of terrestrial biodiversity. True efforts have to be made to conserve significant examples of these unique systems. Most primary forests, however, are not exactly 'virgin', and the conversion of primary forests does not necessarily mean the end of forests. Primary forests are necessarily replaced by 'something else'. The examples detailed in this book show that this 'something else' can still be related to a real forest and does allow for the preservation of many true forest functions: soil protection and the regulation of water flows; production of forest resources like timber, fibres, exudates, game and fish; chemicals or plant foods; habitats for forest species; and a good proportion of the original forest biodiversity.

Can the transfer of these original examples to other parts of the world be achieved? How can it be successful? We do hope this book will help to answer these important questions.







# I – The framework of Forresasia:

*sustainable  
development  
of forest resources,  
which alternatives?*



*Specialized plantations?*



*Extractivism?*



*Agroforestry?*







## 1. Objectives

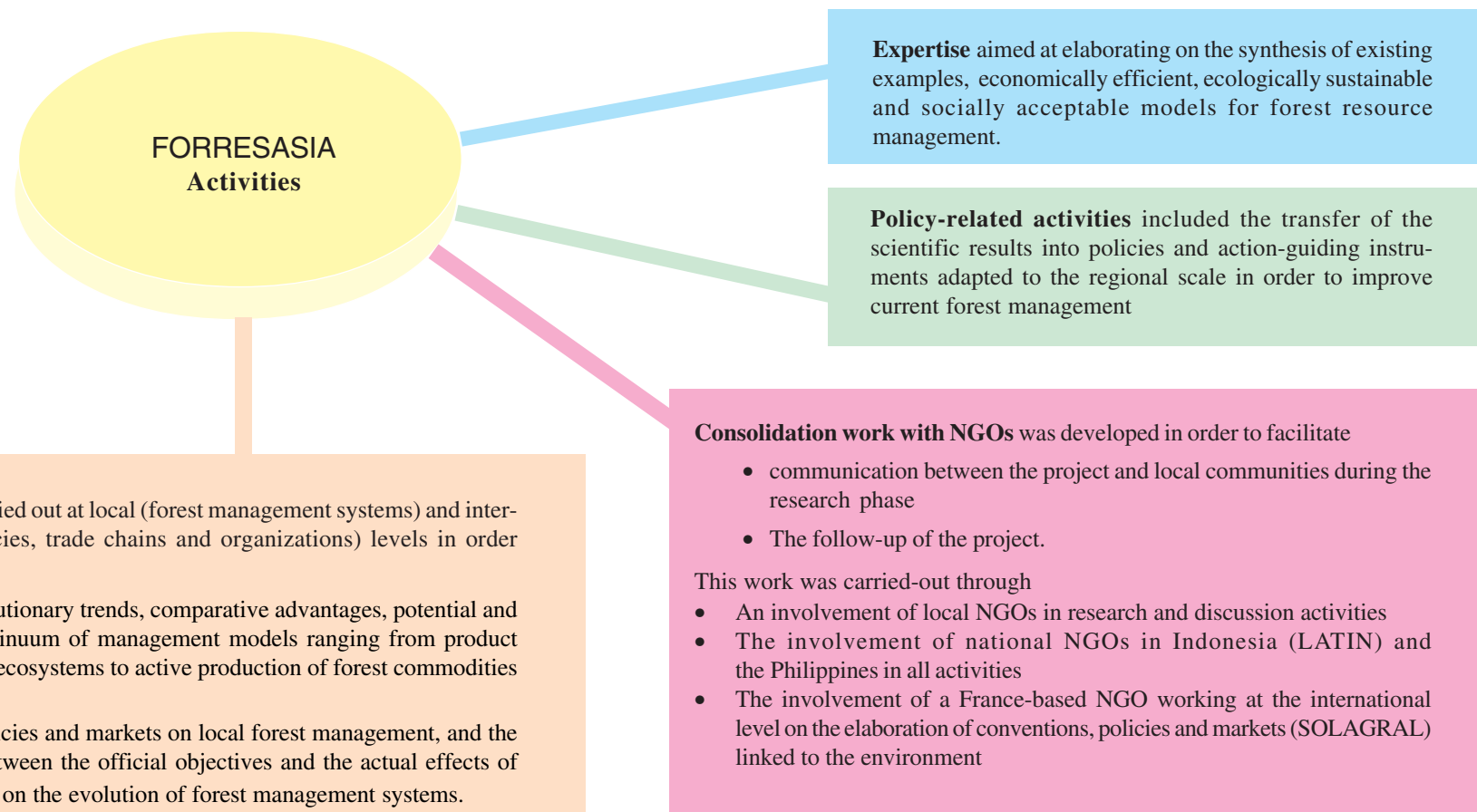
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In the context of growing dissatisfaction with the dominant models of forest development promoted by professional forestry —namely, timber extraction from natural forests as presently practiced, specialized plantations of forest crops over huge areas and rigid social forestry— the overall objective of the Forresasia project was to evaluate how alternative solutions for a ‘better’ management of forest resources could be inspired by local forest management systems. For the project, the concept of ‘better’ management included values related to management practices: eco-friendly and able to conserve biodiversity; economic development —income enhancement at the local level through sustainable development of commercial forest resources— and social development. In particular the latter should include welfare improvement, as well as the development of social and environmental justice, for local populations.



## 2. Activities

Our activities included scientific investigation and analysis, technical expertise, and policy recommendations.





### 3. The general framework of forest management in South-east Asia

Island South-east Asia was selected as an interesting area for the project for both the originality and the diversity of local forms of forest management, which includes many active examples of the forest culture of swidden farmers, and the growing constraints burdening local farmer forest management.

- The dominant modes of forest management in the region concern timber extraction from natural forests through the concession system, and forest conversion to large-scale plantations of fast-growing tree species for the pulp and paper industry. Large private or corporate firms, able to invest heavily and having close connections to policy-makers and political circles, dominate these two modes. Besides these systems, a whole range of local forest management systems can be encountered, with (1) various types of extractivism from the traditional extraction models of forest nomads or semi-nomads, or those of settled farmers, to emerging extraction activities developed by unemployed urban dwellers, (2) a burgeoning sector for small-scale timber extraction driven by local entrepreneurs, and (3) discrete, but fully developed and diverse models of local forest culture, ranging from complex agroforests (forests integrated into farmlands) to specialized woodlots.

Local farmers, especially in Indonesia, have developed original models of forest plantations that do not follow conventional models of industrial silviculture, but usually exhibit an interesting diversity of cultivated tree crops, management intensities, and collected products. FORRESASIA, together with former and ongoing IRD/ICRAF projects, has devoted a large part of its resources to the documentation and understanding of these systems.

- For the last 20 years, forest logging, migration, the development of small-scale sawmills (especially in the Philippines) and large-scale industrial plantations (oil palm, fast growing trees) on forest lands have led to a critical loss of the original forest cover and to an intense erosion of biodiversity, especially in lowland forests.
- Forest management in the South-east Asian region is dominated largely by strong, public policies and forest regulations, and is greatly influenced by the political, economic and military elites. From a legal point of view, most areas considered as 'forest' in Indonesia<sup>(1)</sup> and the Philippines<sup>(2)</sup> are under state jurisdiction and control. In the sphere of forest management, the national constitutions, though acknowledging the existence of customary systems, give preference to government-approved institutions and projects. Local communities keep their customary rights on

1. Lynch & Talbott 1995;  
Lynch & Harwell 2002.  
2. Colfer & Resosudarmo 2001.

forestlands and resources only as long as the government has no other projects for the land. Forest policies in both Indonesia and the Philippines demonstrate a negative perception of forest dwellers and swidden farmers. For policy-makers and forest administrators at all levels, local farmers are mainly forest destroyers who need to be taught how to manage forests in a rational way, how to restore degraded lands and how to plant trees. Therefore, policies, regulations and development plans for forestlands give preference to contracted firms (for logging and estate plantations). Some policy instruments directly target the forced conversion of local agricultural and forest-related practices into more 'modern' forms of intensive field management.

As a consequence, local systems of forest management, and particularly the cultivation of forests on farmlands, are not supported, and often not even accepted, by the state in both Indonesia and the Philippines. For the last 20 years, this has entailed

- the multiplication and intensification of conflicts between local people and outsiders over access to forestlands and resources and over the sharing of forest-related benefits;
- a strong destabilization of customary systems for forest management;
- a forced transformation of many local systems and practices, and the related erosion of local practices and knowledge.

This translates into a dilapidation of essential forest resources, the disruption of traditional lifestyles and a correlated degradation of local welfare, as well as the loss of local control over lands and resources.

The situation has drastically deteriorated since 1998 with the eruption of the economic and political crises in Indonesia and, to a lesser extent, the Philippines. Recent development in Indonesia gives some hope, however, for more local control of forest resources. But will it translate into a reinforcement of local systems of forest management and forest culture?

## **4. The study sites**

The study sites were selected to include a range of forest management systems, from pure extractive systems to various degrees of forest resource domestication and plantation through either diversified forest culture, agroforestry or conventional plantation models. The study sites are located on the large, forested islands of the Indonesian and Philippine archipelagos.



The main interests in the Talang Mamak and Melayu areas in the Bukit Tigapuluh area, in Riau province are traditional extractivism, the expansion of smallholder rubber production and conflicts with a large-scale commercial project.

The main interest in the western Toba highlands in North Sumatra is benzoin domestication in cultivated forests.

The main interest in the Maninjau area in West Sumatra is the cultivation of fruit and timber forests in the context of permanent rice farming.

The main interest in the rubber-growing Muara Bungo area in Jambi is the intensive forest use aided by exceptional economic and climatic conditions.

The main interest in the Krui area in Lampung is the domestication of a resin-producing tree and the conversion of natural forest into a human-made dipterocarp forest in the context of swidden rice farming.



The Bulungan district in East Kalimantan features traditional and modern multiproduct extractivism.

The main interest in the Kutai district in East Kalimantan is the evolution of bird's nest management in a context of increased market demand.

The main interests in the Pasir district in East Kalimantan are the management of rattan cultivated forests in the context of swidden farming and conflicts between oil palm and pulp plantations and rattan farmers.

#### Sources:

- Elevation data from The GTOPO30 Global 30 Arc Second Elevation Data Set (<http://edcwww.cr.usgs.gov/landdaac/gtopo30/gtopo30.html>)
- Administrative unit boundaries from Uwe Deichmann and the Center for International Earth Science Information Network (CIESIN), Columbia University and World Resources Institute

## Indonesia

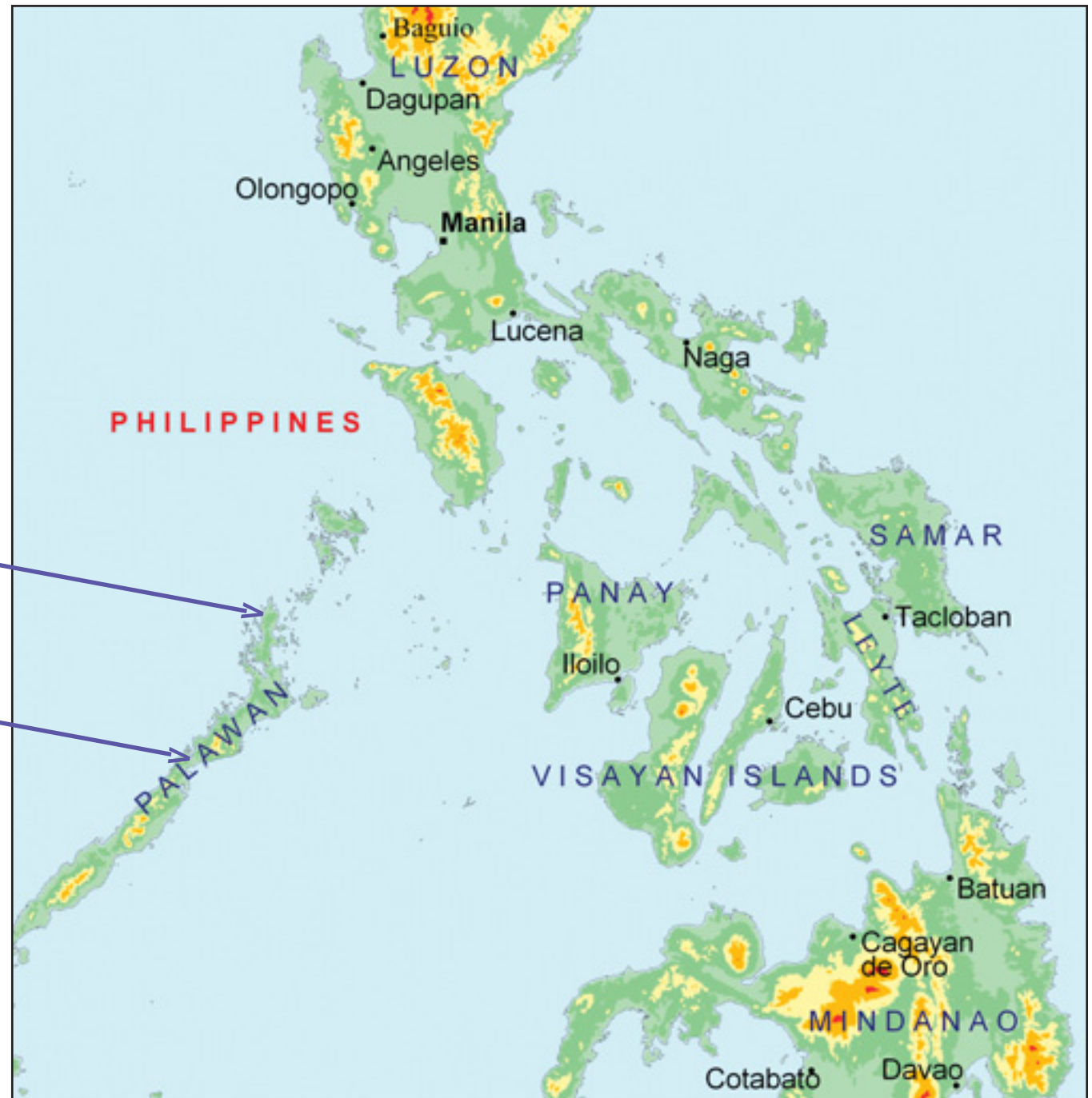
Blue boxes indicate the sites where complete surveys were conducted. Orange boxes indicate the sites where only supplementary information was collected, basic information being available through previous projects of FORRESASIA scientists.

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The main interests in El Nido Province are its famous caves and associated bird's nest production.

The still densely forested Puerto Princesa Province is the setting for many extractive activities and part of the Certificate of Ancestral Domain Claim awarded by the government to Batak tribes.



**The Philippines**