

UNDERLYING CAUSES OF DEFORESTATION IN THE MEKONG REGION

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INTRODUCTION

Deforestation is widely seen to be one of the key environmental concerns in tropical countries. The Mekong Region has experienced a particularly high level of deforestation in recent decades. The impacts of deforestation are multifarious and affect different environments and social groups in different places in different ways. Similarly, there are complex and numerous causes of deforestation, and these causes are contested by natural and social scientists alike. This paper is limited to consideration of causes, rather than impacts, of deforestation in the Mekong Region. As such, it examines the relevance of different types of explanation.

There are many *ways* to explain deforestation. In some cases, an instrumental approach examines the proximate causes of deforestation in the form of logging, land settlement, cash cropping, new technologies or forest management practices. In other cases, a structural approach tries to search for underlying, or ultimate causes of deforestation. In fact, it is often difficult to disentangle proximate and ultimate cause. Both get caught up in the politics of blame surrounding forest loss.

There are also many *modes* of explanation for deforestation. These modes are overlapping, but they also have discrete aspects. One mode (Mode 1 in Figure 1) employed to try to explain deforestation is a listing of various factors and an attempt to develop quantitative analyses of the extent to which particular factors contribute to forest loss. Such attempts (Brown & Pearce, 1994; Rudel, 1998) usually involve regression analysis based on local area data, such as provincial statistics, on forest loss and other indicators that are hypothesised to relate to deforestation. Such a mode can be used at more than one level of causal proximity or distance. A second mode (Mode 2) of explanation is structural analysis that examines the interests in forest, forest land and conservation values among different social, corporate and political players. This mode usually involves analytical connection of ultimate with proximate causation. A third mode of explaining deforestation is through historical analysis of changing forest and forest land uses. Such an analysis can be at one or more scales, from local (eg Hirsch, 1988) through national (eg Hirsch, 1987) to global (eg Mather & Needle, 1998). A fourth mode is also historical, but focuses more on issues of resource control and forests as arenas in which relations between peasants and the state are played out (eg Peluso, 1992). The historical modes of explanation tend to be more holistic. In the various debates over deforestation, these different modes often seem to talk past, rather than to, each other.

The Mekong Region has suffered a heavy degree of forest loss over the past several decades. The reasons for deforestation in the six countries through which the Mekong River flows are varied and complex. One way in which to examine deforestation in comparative context in such a large and diverse region is to focus on the relationship between deforestation and development. Given that Australia, Japan and other outside players influence policy mainly through various bilateral, multilateral and NGO interventions in the development arena, this is probably the most appropriate way in which to address the problem in a forum such as the current workshop.

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IDEAS ABOUT DEFORESTATION AND DEVELOPMENT

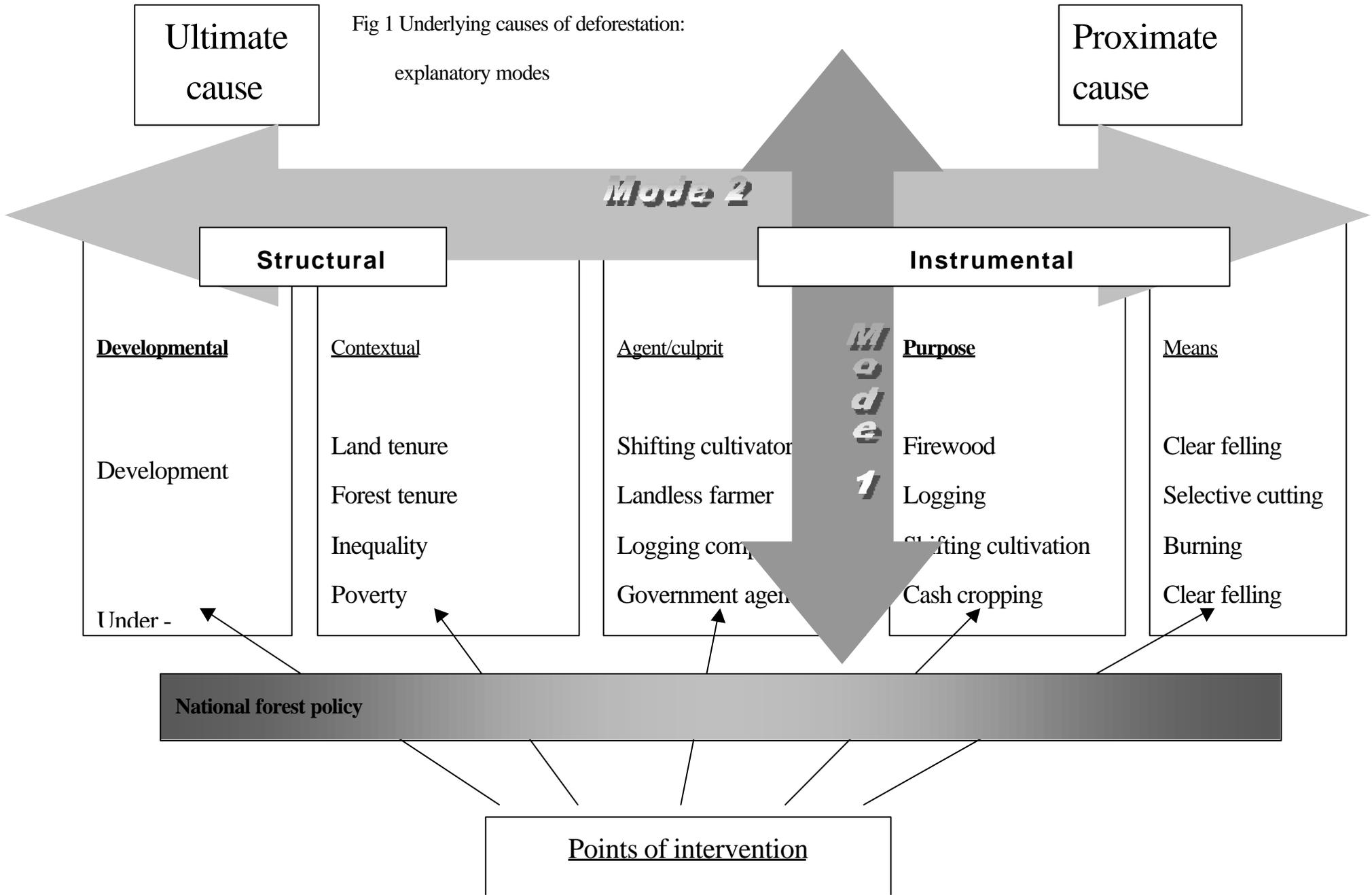
In an article published twelve years ago, I proposed a twofold approach to understanding the relationship between deforestation and development (Hirsch, 1987). That paper focused on one country – Thailand – which had, according to most published data, experienced the highest rate of forest loss in Southeast Asia, and virtually the highest in the world. Broadly, it was suggested that whereas deforestation is commonly understood as a problem of underdevelopment, it is more helpful in a country with a strong developmental push to understand deforestation as a product of a particular type of development, resulting from key ideological and material dynamics within the development process. A regionally differentiated approach served to highlight the significance of regional as well as national political economies in shaping and understanding deforestation.

This paper attempts to extend and apply such an analysis in comparative framework to the six countries of the Mekong Region. In 1987, only Thailand had a marked development dynamic in the sense of a fast-track, proto-capitalist and outward oriented approach to economic transformation. The three countries of Indochina (Cambodia, Lao PDR and Vietnam) had only just embarked on their economic reform paths, and the Cold War divide still fractured the region economically and politically. Burma was still on its isolationist path, while China's rapid economic growth of the 1990s was in an embryonic stage. There has since been a convergence in many aspects of development direction in the Mekong Region, as the governments of all countries have embraced the market, have pushed for regional integration within a globalised economy, and have carried out fundamental changes in forest policy. It is thus timely to revisit the deforestation and development relationship in the wider Mekong context, looking not only at the key developments in each country but also at regional forest dynamics and interactions.

ULTIMATE AND PROXIMATE CAUSATION

Figure 1 is a schematic representation of the ways and modes of explaining deforestation. Instrumental ways of explaining deforestation are concerned primarily with proximate factors such as the immediate means used to clear forest (burning, cutting), the purpose to which forest use and destruction is put and the agents – or culprits – in deforestation. Structural ways of explaining deforestation – what we are calling underlying causes – tend to focus more on contextual and developmental background factors and require an understanding of the societal, economic, political and ecological contexts in which deforestation occurs.

Fig 1 Underlying causes of deforestation:
explanatory modes



The first mode of explanation described above involves attempts to factor out the different instrumental means, purposes or agents of deforestation respectively. This mode is inherent in forest politics, where blame is to be attributed to particular individuals, social or occupational groups. The policy implications of such an approach are to modify behavior through coercive means or various incentives and opportunities to those seen as responsible. The second mode of explanation attempts to link the more proximate phenomena to ultimate, or underlying, causes that may be seen as more fundamental – and sometimes also as more intractable. Nevertheless, the policy implications of this approach shift attention from immediate agents of deforestation toward questions of land tenure, poverty alleviation and other less direct measures. Meanwhile, historical approaches recognize linkages between different agents, purposes and means of clearing forest, while also paying attention to the structural background to the phenomenology of deforestation.

DEVELOPMENT AND DEFORESTATION IN THE MEKONG REGION

The pace of economic development in the Mekong Region has been extremely rapid, as has the rate of forest loss. Figure 2 shows the official figures for percentage of land under forest cover in the Mekong countries. Figure 3 shows the overall forest loss of dry, more open canopy forest and moist, more closed canopy forest between 1970 and 1990 as measured by (Bernard & De Koninck, 1996) It can be seen that large areas of Thailand and Vietnam have lost most of their forest cover during this time. While Cambodia, Laos and Burma have maintained higher levels of tree cover, there has been considerable degradation of the remaining forest.

In all countries, the area under trees and the area classed as forest land differs considerably. Figure 4 shows the area remaining under forest in 1993 and the proportion of land classified as forest reserve by province for Thailand. There is thus a considerable discrepancy between forest policy and ground reality. In recent years, forest policy has been revisited and there has been a significant international involvement in policy formulation through official development assistance (ODA) from bilateral and multilateral programs.

COUNTRY EXPERIENCES

While deforestation is a concern in all countries in the Mekong Region, and while there are both macro-ecological and economic linkages that transcend national borders, there are country-specific aspects of deforestation that need to be considered in turn. Each country's experience is influenced by its political economic framework and trajectory, development direction, civil society concern with environmental issues including forests, and governmental approaches to forest policy. Furthermore, within each country, area/region-specific trends and processes are apparent.

Figure 2. Percentage Change in Forest Cover in the Mekong Region
Source: World Resources Institute data

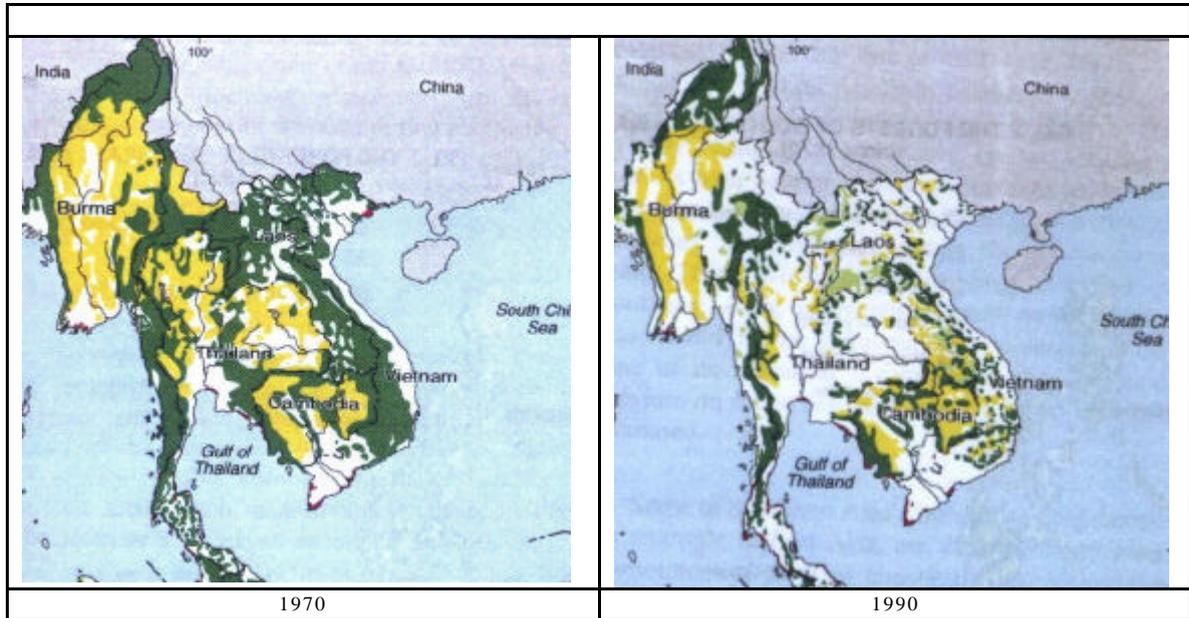


Figure 3. Forest change in mainland Southeast Asia

Light shaded areas are dry forest, dark shaded areas are moist forest.
Source: Adapted from Bernard and de Koninck, 1996, pp 3-4.

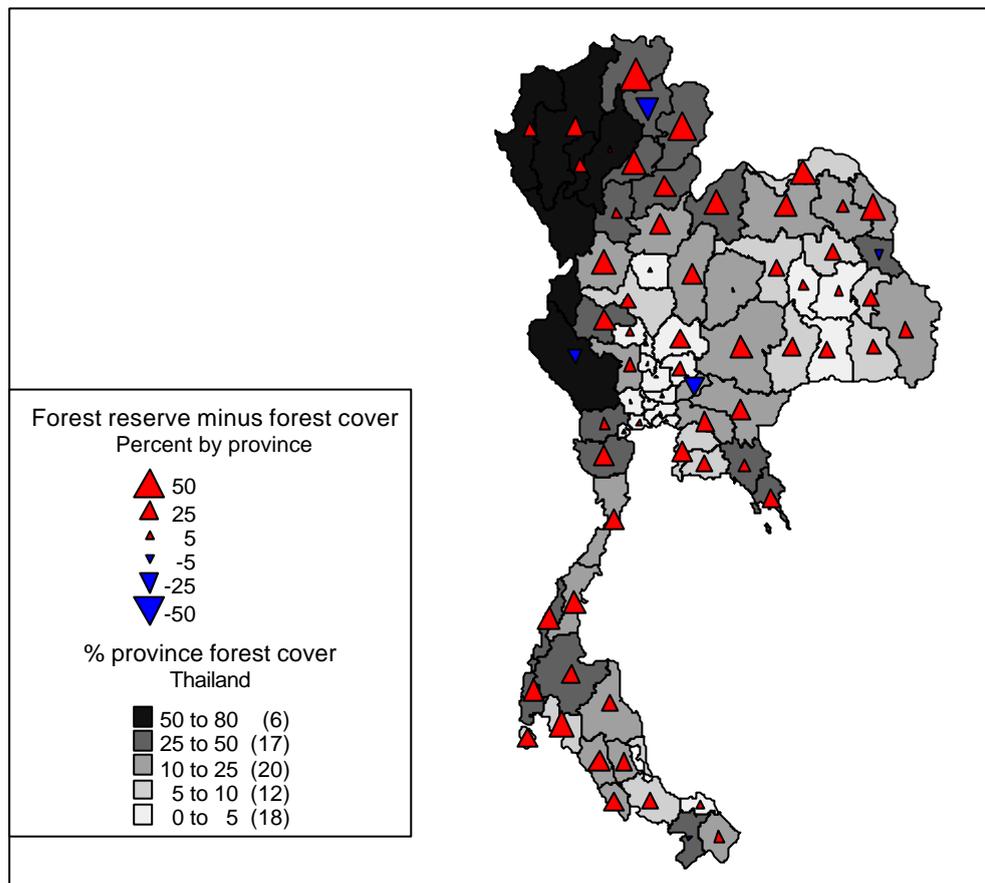


Figure 4. Forest reserve and discrepancy between forest reserve and forest cover in Thai provinces, 1993. Data from Royal Forest Department, Thailand.

1. Thailand

Thailand has lost at least half of its forest cover since the early 1960s. Officially, about one-quarter of the country is still forested. However, it is widely accepted that this is an overestimate of area under forest in or close to its natural condition. Figure 4 shows the provincial differences in remaining forest cover.

Loss of forest in Thailand has been associated largely with various development processes. Until 1989, logging concessions covered large parts of the forest area that lay outside national parks and wildlife sanctuaries. Concern over the effects of legal and illegal logging led to a logging ban in 1989, after disastrous floods in southern Thailand led to heavy loss of life. These floods were attributed in part to the clearing of land for timber. Other development pressures that have led to widespread forest clearance include clearing of land for planting cash crops such as cassava, kenaf and sugar cane. Northeastern Thailand's more open dry dipterocarp and savanna forests, and land previously forested with dipterocarps, dry and moist evergreen forest on the eastern and western edges of the Central Plains have been largely cleared and are now under cash crops. Road construction has facilitated such clearing and cheap transport of produce, while ambiguous tenure relations in forest reserve areas (Hirsch, 1990) have combined with market pressures for clearance of such land, often in the wake of earlier logging operations.

In northern Thailand, shifting cultivators have received much of the blame for loss of teak and mixed deciduous forest in upland areas, and this has been a hotly contested issue for some time. The fact that most of those blamed are ethnic minorities without Thai citizenship, and that upland livelihoods have become embroiled in the politics of opium, further clouds the issue. Crop substitution programs have often exacerbated the problem, as the cabbages and other cash crops to be planted in place of opium require large areas of land, heavy chemical applications, and attract those with capital to invest – raising questions over the extent of actual substitution involved. Debate continues over the sustainability of different shifting cultivation systems, with many NGOs and supportive academics claiming that some ethnic groups, notably the Karen and Lua, practice more sustainable cultivation than others, notably the Hmong, partly because of a lesser involvement in the market economy. Others demonise all “hill tribes” as destroyers of the forest, as non-Thai and as producers and consumers of opium, causing problems for their lowland Thai neighbors. The simplifications on either side of this highly charged debate are part of the politics of blame that have long been part of forest politics – and hence policy impetus.

Southern Thailand has seen its moister, mainly evergreen forest replaced over wide areas by rubber plantations. Additionally, peninsular southern Thailand's mangrove forests have been decimated along the eastern Gulf of Thailand shoreline, while the western Andaman shoreline now faces similar pressures on coastal intertidal forests. Shrimp farming has been the main reason for mangrove clearance, and this has been exacerbated by poor land tenure definition in mangrove forests.

Thai forest policy has involved considerable controversy between the Royal Forestry Department, NGOs, local communities and foreign consultants. Following the 1989 logging ban, a process to develop the Thai Forestry Sector Master Plan was set in train. The foreign consultant hired to help prepare this plan was Jakko Poyry, a large Finnish international forest consultancy. The industrial focus of the Master Plan was criticised by many in Thailand's environmental movement. An important thrust of forest policy in the 1990s has been the zoning of land into different watershed classifications and the expansion of protected areas. This process has retro-actively created land tenure uncertainties for many forest-dwelling

communities and for those who had cleared land for cash cropping in forest reserve areas, many having had previous tacit government support for such agricultural expansion.

2. Lao PDR

Lao PDR has a much higher proportion of its land under forest than Thailand or Vietnam. Officially, the country has about half its territory under forest cover, down from two-thirds in the early 1960s. Many regard this as a gross over-estimate, depending on the level of degradation required for reclassification. While there has been a steady loss of forest since the early 1960s, the underlying causes have most likely changed considerably over time. During the Second Indochina War, large areas were bombed along the Ho Chi Minh Trail near the border with Vietnam and in the northern central province of Xieng Khouang. After 1975, the socialist regime maintained a policy of rice self-sufficiency, which encouraged northern provinces in particular to clear upland forests for rice cultivation. Meanwhile, the massive internal refugee problem after 1975, when one-quarter of the country's population had been displaced by US bombing, led to clearing of new land. This was – and continues to be – exacerbated by the problem of unexploded ordinance, placing otherwise fertile lowland areas out of safe cultivation and requiring further clearance. Another powerful pressure for over-exploitation of the forest has been the dependence, until the early 1990s, of provincial budgets on logging revenues, encouraging unsustainable logging practices.

Shifting cultivators are often blamed by government for deforestation. A central plank of government policy has been the resettlement of all shifting cultivators by the year 2000, though this is clearly unachievable. An increasing number of agencies within Lao PDR also now see this policy as unrealistic and undesirable in the longer run. The impact of shifting cultivation continues to be a hotly discussed issue in Lao PDR.

Regional patterns show a much higher degree of forest loss in northern Laos than in other regions. This is in part related to the drier types of forest and poorer soils in this region, and in part to cultivation and migration patterns. While shifting cultivation is practiced in all regions, the Mon-Khmer communities of southern Laos have practiced a more stable pattern of rotational swidden farming.

Sustainability of logging is an issue in all regions. Most logging in Lao PDR is now carried out under the auspices of one of three military-owned logging companies, in the northern, central and southern regions respectively. The most intensive logging is carried out in areas earmarked for hydropower development, most notably to clear the designated reservoir area of vegetation. However, this occurs before contracts are in place, so that it is highly likely that some areas that are clear-felled will not actually be flooded by reservoirs. The most intensive logging operation in recent years has been the clearing of the 450 square kilometre area due to be flooded by the Nam Theun II Dam in central Laos, but the World Bank has yet to make a decision on loan guarantees for this build-own-operate-transfer project.

Forest policy in Lao PDR has also been influenced by external consultants, notably Jakko Poyry in their role in the Forest Management and Conservation Project (FOMACOP). As in Thailand, this project received considerable criticism from NGOs as a result of the industrial emphasis. Another significant plank of Lao forest policy has been the forest land allocation project, in which village boundaries have been demarcated to provide for zoning of conservation, production and protection forest. Interest has also been shown by international investors in plantations, mainly of exotic species such as eucalyptus, on degraded forest land. However, the definition of “degraded forest” is also subject to contestation.

3. Vietnam

As in the case of Thailand, Vietnam has been heavily deforested over the past several decades. During the Second Indochina War, the United States Air Force had a deliberate policy of destroying forest cover for the communist forces in the South. This led to destruction of at least two million hectares of forest in the Central Highlands and of mangrove forests along the southern coasts. After 1975, the principal forces for deforestation changed. In northwestern Vietnam, rapid loss of forest occurred in provinces such as Son La and Lai Chau, in part due to a similar policy of rice self-sufficiency described above in relation to northern Laos. The Central Highlands were the destination of several million lowland Vietnamese who moved to New Economic Zones under land settlement schemes, in part to overcome the crowding of the lowlands, in part to rebuild lives disrupted by the war over previous decades, in part as a government policy to maximise resource utilisation and, in one analysis, to “colonise” a part of the country mainly inhabited by ethnic minorities.

Regional patterns of forest loss in Vietnam reflect the history of political and economic development of the country. Northwestern Vietnam, whose forest cover assisted Ho Chi Minh and his forces in their guerrilla war against the French, is now substantially cleared of forest. As in other countries of the region, shifting cultivators attract government censure as destroyers of the forest.

Shifting cultivators in the Central Highlands are even more vilified than those in the North, despite the fact that, like their Mon-Khmer kin in southern Laos, they practise quite stable rotational patterns of cultivation. Logging has increased dramatically in the Central Highlands, as has clearing of land for cultivation. Coffee and other cash crops are grown in plantations in areas until recently under forest.

Large swathes of mangroves that had survived, or recovered from, the wartime devastation have now been cleared again. This time, however, the destruction is mainly for shrimp farming. Ca Mau Province in the far south of the country has been particularly affected by mangrove clearance. The World Bank is currently embarking on a large coastal protection project in this area, which will concentrate on mangrove forests.

Forest policy in Vietnam includes a large tree planting program, particularly on the “bare hills”. Associated with this policy is a distribution of about one third of all forest land nationally to individual households under a forest land allocation scheme. Unlike Laos, where the equivalent scheme devolves management to the community level, in Vietnam the household is seen as the basic management unit.

The military plays an important part in logging in Vietnam. Increasingly the military has to find its own sources of income, and logging concessions are one of the more lucrative ways of raising revenue. Vietnam sources a large part of the timber that it exports to Japan and other northeast Asian destinations through ports such as Qui Nhon from its western neighbours, Cambodia and Lao PDR.

4. Cambodia

Cambodia was, until recently, the country in the Mekong Region with the largest proportion of its territory under forest. It is also the country which has experienced the most dramatic pace of deforestation over the past decade, mainly associated with poorly controlled logging operations. These have taken place both in government controlled areas and in parts of the country that were until recently under the control of opposition forces, notably the now defunct Khmer Rouge.

In western Cambodia, logging and associated deforestation was for long associated with the Khmer Rouge and its need to raise funds to purchase weapons for its fight against the Hun Sen regime. However, timber interests have survived the decline of the insurgency. Close links with Thai interests have facilitated this continuing timber trade, and Thailand remains the main market.

Northeastern Cambodia is the most heavily forested part of the country, and indeed of the Mekong Region. However, large logging concessions have been granted by the central government to Indonesian logging and plantation interests, threatening the forest and the minorities of Ratanakiri and Mondolkiri provinces. Sensitivity over Thailand's role as market for Cambodian timber has led to an increasing export trade through southern Laos, but the ultimate destination remains Thailand, with long queues of log-bearing trucks visible daily at Chong Mek on the Lao-Thai border, mainly carrying Cambodian timber.

5. Regional Issues

In addition to the country-specific aspects of deforestation, it is also worthwhile considering the regional issues that arise in an increasingly interlinked regional resource economy. Thailand's logging ban led to an immediate shift of interest among Thai timber traders to neighbouring countries, and the pattern of exports from Burma, Lao PDR and Cambodia reflects this clearly.

A second regional issue is the tendency to lay blame for deforestation on the more vulnerable groups, notably shifting cultivators. There is now a convergence in many areas of policy between countries in the region, and a tendency to focus blame on more proximate causes and actors. Ironically, in Thailand it is the poor occupants of forest reserve land who have been identified as proximate agents in deforestation, yet their settlement of such land has its roots in the Thai state's long-standing policy to diversify away from rice production by promotion of dryland export crops.

The Greater Mekong Subregional cooperation program, promoted by the Asian Development Bank with the support of many bilateral and multilateral agencies, involves large scale infrastructure development that has implications for regional forest cover. The accessibility afforded by the expanded regional road network can be expected to increase the rate of log extraction and, more generally, encourage settlement and clearance of land for cash cropping in hitherto isolated parts of Lao PDR and Cambodia in particular. Hydropower projects promoted under the same program also involve forest clearance and increased access to hitherto remote forest areas. The market development promoted by the program also puts pressure on forest products previously used mainly for local subsistence purposes.

CONCLUSION: POINTS OF INTERVENTION

The diagram in Figure 1 suggests that points of intervention through development assistance need to work through national forest policy, but also that they can address the different types of cause of deforestation laid out above. At the most general level, development assistance is targeted at developmental well-being. However, there are certain aspects of development that exacerbate forest pressures. Development agencies need to ensure the compatibility of their non-forest related development programs with more specific forest-sector work. For example, promotion of certain types of cash cropping can greatly increase pressure on currently forested land.

A number of contextual underlying causes of deforestation are also subject to external intervention. Development programs cover issues such as land tenure, macro-economic stabilisation and poverty alleviation, all with their own positive and negative implications for forest cover. Similarly, development programs may target particular groups seen as agents or culprits in deforestation, or they may focus on particular activities and purposes that are seen as the reason for forest loss. More specific forest sector programs may look at "end-of-pipe" measures that concentrate on the symptoms, or means of forest clearance such as fire.

While there are roles for foreign intervention through bilateral, multilateral and NGO program in forest policy in the Mekong Region, it is important to recognise specifically what is being targeted. Compatibility between different interventions requires an understanding of the structural and historical linkages between political and economic development paths and the more local, immediate and proximate causes of deforestation.

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