Environmental Change in South-East Asia

People, Politics and Sustainable Development

Edited by
Michael J. G. Parnwell and Raymond L. Bryant

Global Environmental Change Series

ENVIRONMENTAL CHANGE IN SOUTH-EAST ASIA

In the wake of the Rio Earth Summit, how have political leaders sought to reconcile the quest for economic development with the new world-wide concern about environmental conservation? Do policy changes denote real political change or mere rhetoric designed to placate Western aid donors? How have non-state groups reacted to environmental change and government policies in a post-Rio world? These questions illustrate the need to situate the current interest in sustainable development in the context of broader questions pertaining to the political economy of environmental change.

Environmental Change in South-East Asia brings together scholars, journalists, consultants and NGO activists in order to explore how people, politics and the quest for sustainable development are interrelated in South-East Asia. As a region characterized by explosive economic growth, grave socio-economic inequities and pervasive environmental degradation, South-East Asia epitomizes the dilemmas facing policy-makers as they seek to implement sustainable development policies. It illustrates the centrality of politics to environmental change, and the human response to that change. Key economic and technical elements of the quest for sustainable development—ecotourism, plantation forestry, remote sensing and GIS—are set in a context that is sensitive to the political dimensions of that quest. Highlighting the practical political obstacles to the attainment of sustainable development in South-East Asia, the authors present an important and essential corrective to a literature for too long dominated by economists and ecologists. The authors assume that neither the quest for sustainable development nor the process of environmental change itself can be understood without reference to political processes.

Environmental Change in South-East Asia will be of interest to all those concerned with understanding the interaction of politics, sustainable development and environmental change in the developing world.

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1
INTRODUCTION
Politics, sustainable development and environmental change in South-East Asia

Raymond L.Bryant and Michael J.G.Parnwell

In so far as environmental change has become an important preoccupation of our times, 'sustainable development' has become the leitmotif of the environment and development literature. With its promise to set all environmental problems right (thereby averting a feared ecological Armageddon), it is not surprising that this concept has been embraced by policy-makers, business leaders, grassroots activists and scholars alike with, at times, almost religious fervour.

However, uncritical acceptance of sustainable development as the 'solution' to the world's environmental problems is problematic. To begin with, the meaning of 'sustainable development' remains elusive—a chameleon-like concept, it means many things to many people. Such flexibility helps to explain its popularity, but simultaneously raises serious questions about its utility as a concept capable of uniting widely disparate objectives and interests (Lele, 1991; Redclift, 1992).

Further, sustainable development is increasingly used as a means to classify a wide variety of economic activities according to their apparent 'greenness' or lack thereof. Thus, certain activities such as ecotourism and plantation forestry are 'sustainable', while other activities, notably manufacturing and clear-cut logging, are 'unsustainable'. This classificatory exercise, however, fails to take into account the location-specific nature of economic activities—what might be sustainable in one context might be unsustainable in another. More seriously, and as various chapters in this book illustrate, such an approach neglects to situate discrete activities in a wider political and economic context. How 'sustainable', after all, are economic activities that form part of a global capitalist economy which is seen by some to be incompatible with environmental conservation? (Redclift, 1987). If 'a capitalist society based on competition and growth for its own sake must ultimately devour the natural world, just like an untreated cancer must ultimately devour its host' (Bookchin: cited in Cutter, 1994, p. 217), then a reformist approach that promotes 'greener' activities is inevitably doomed to failure—unless the social context within which it is applied changes.

If the debate still rages as to whether sustainable capitalist development is an oxymoron, what is becoming increasingly clear is the intensely political nature of sustainable development—from its initial definition to its attempted implementation. However, the politics of sustainable development, as with the

politics of environmental change generally, has received surprisingly little attention in the literature. Rather, attention hitherto has largely focused on specifying the economic measures needed for sustainable development—that is, on seeking to integrate ecological factors into the economic calculations that are believed to underpin the decision-making process (Schramm and Warford, 1987; Pearce *et al.,* 1990). Such work has always had a quality of the surreal about it. How, after all, could it be possible for policies to be devised and implemented as if in a political vacuum? As scholars begin to explore systematically the ways in which discursive and material practices are politically constructed and mediated, it is becoming impossible not to consider politics in addressing the issues of environmental change and sustainable development (see Adams, 1990; Bryant, 1992; Harvey, 1993; Peet and Watts, 1993; Silva, 1994). Such 'political-ecology' research stands in sharp contrast to the economistic work that remains even today the predominant element in the environment and development literature.

In order to make sense of the inter-relatedness of politics, sustainable development and environmental change, it is important to locate general debates in an empirical or 'grounded' setting. Such work may be undertaken at various scales, but it is at the regional level that the interplay between political and ecological forces is most fruitfully analysed and understood (Blaikie and Brookfield, 1987). This book thus explores the interaction of politics and ecology in the South-East Asian setting. South-East Asia (see Figure 1.1), with its explosive mix of rapid but uneven economic growth and pervasive environmental degradation, is a region in which many of the political issues and problems associated with sustainable development and environmental change can be clearly seen. Here, perhaps more than anywhere else in the developing world, the contradictions between environment and development, economic growth and environmental conservation, are visible, and inform the political process. This is particularly the case with the exploitation of the region's forest resources: accordingly, and because of its current prominence, the ecological and social consequences of forestry provide an important focus for discussion in this volume.

There is now a rapidly growing literature on environment and development issues in South-East Asia (e.g. Poffenberger, 1990; Brookfield and Byron, 1993; Bryant *et al.,* 1993; Howard, 1993). Scholars have also begun to emphasize the ways in which regional environmental degradation is linked to the political process. Thus, one avenue of enquiry has been to describe how state policies provide economic incentives for large-scale logging, mining and other destructive activities (Repetto and Gillis, 1988; Barbier, 1993). An alternative approach has been to emphasize the manner in which the empowerment of political and economic élites is linked directly to profit-making from environmentally destructive practices (Hurst, 1990; Rush, 1991; Broad and Cavanagh, 1993; Colchester and Lohmann, 1993; Dauvergne, 1994). However, what this literature has scarcely begun to address is the question of the politics of

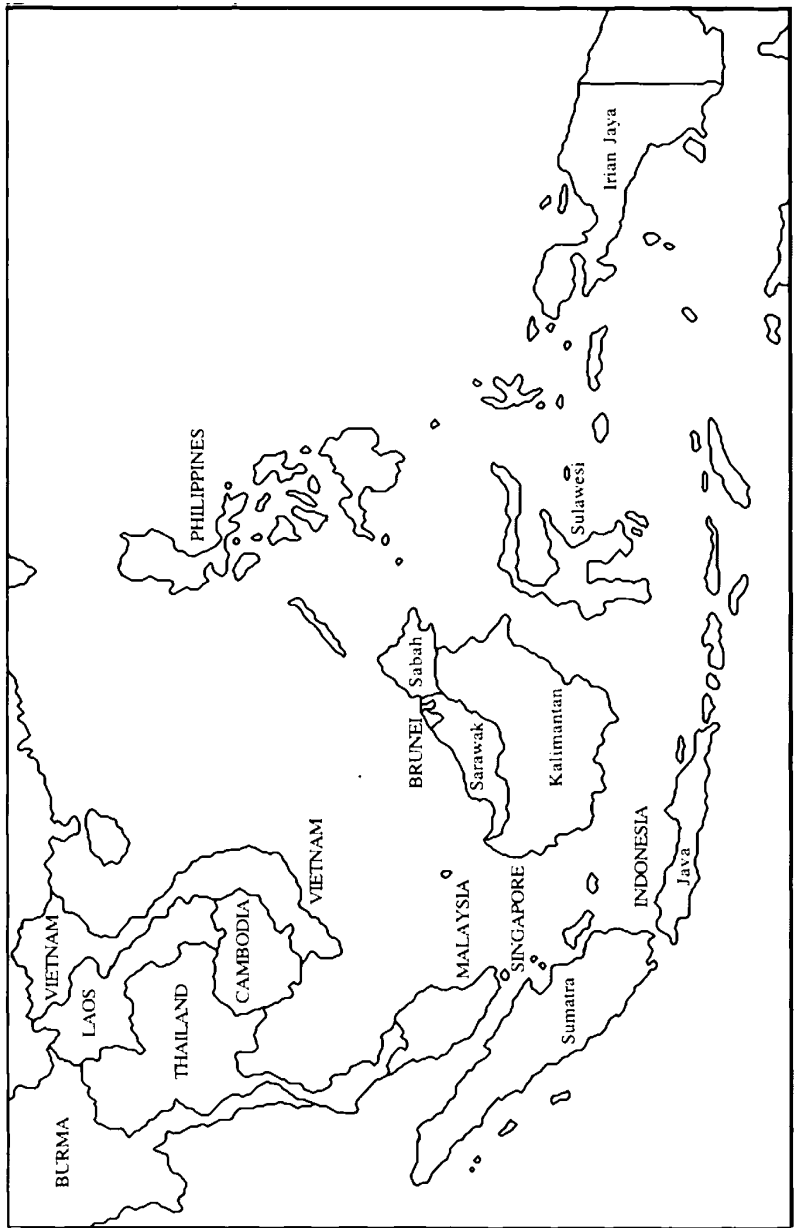

Figure 1.1 South-East Asia

sustainable development—that is, the response of state leaders and private citizens in South-East Asia to environmental change. In the wake of the Rio

Earth Summit, how have political leaders sought to reconcile the quest for economic development with the new world-wide concern about environmental conservation? Do policy changes denote real political change or mere rhetoric designed to placate Western aid donors? How have non-state groups reacted to environmental change and government policies in a post-Rio world? These questions illustrate the need for research that situates the current interest in sustainable development in the context of broader questions pertaining to the political economy of environmental change in South-East Asia.

This book is a preliminary exploration of this research terrain. It encompasses research setting out some of the key economic and technical elements of the quest for sustainable development (i.e. ecotourism, plantation forestry, remote sensing and Geographical Information Systems (GIS)), but in a context that is sensitive to the political dimensions of that quest. This book assumes, therefore, that neither the quest for sustainable development nor the process of environmental change itself can be understood without reference to political processes. The following discussion considers the grounds on which this assumption is based.

THE POLITICS OF ENVIRONMENTAL CHANGE

The past two centuries have witnessed human-induced environmental change on an unprecedented scale in South-East Asia. At the heart of this process has been the integration of the region into a globalizing capitalist economy, initially during the colonial era, but with greater momentum in post-colonial times. Yet such integration has not taken place 'naturally' but, rather, has been linked to political processes that have prompted South-East Asia's emergence as one of the key natural resource regions in the world.

In the late nineteenth and early twentieth centuries, the colonial powers reorganized and expanded pre-colonial patterns of resource exploitation in such a way that by the end of colonial rule export-oriented commercial resource extraction was central to economic life in the region. Certainly, this process occurred unevenly in South-East Asia depending on the vicissitudes of local political and ecological conditions as well as market demand. However, by the beginning of the Second World War, only the most remote territories were not integrated into national and international markets. The social and environmental implications of this process were immense. The growing resource dependency of South-East Asian economies was reflected in export and revenue figures as well as in social indicators such as occupational status. The most vivid indication of this dependency, however, was the identification of places—and even entire countries—with the large-scale production of selected natural resources and plantation crops which exploited land resources and prevailing natural conditions: Burma and Siam (Thailand) with rice, teak and minerals; Java with coffee and sugar; the Philippines with sugar, abaca and coconuts; and Malaya with tin, palm oil and rubber. Resource exploitation put South-East Asia

on the (colonial) world map, thereby creating national and local identities that are only today beginning to break down with the uneven spread of industrialization through the region.

The development of South-East Asia's resource-based identity was intimately associated with large-scale environmental change. Social and economic transformation was accompanied by environmental mutation: changes in forest cover and type, the extension of agricultural production, deteriorating soil conditions, and increasing levels of pollution. Prior to 1850, much of South-East Asia was covered in forests, but one hundred years later, large swathes of low-lying forest had already been cleared. This process was partly a response to the rapidly growing imperial and indigenous demand for timber for housing, government buildings, bridges, boats, fuel, railway sleepers, and so on.

However, by far the main impetus for widespread deforestation was permanent agriculture, with cleared land being used to produce such cash crops as coffee, tea, rubber, sago, palm oil, rice, abaca and sugar cane. The sheer scale and rapidity of such environmental change were breathtaking. In British Burma, for example, the rice-growing area in the Irrawaddy and Sittang deltas expanded from between 700,000 to 800,000 acres in 1852 to nearly 6,000,000 acres in 1906, while during roughly the same period the local population climbed from about one million to over four million (Adas, 1974). In the early twentieth century, this area was the largest rice-exporting territory in the world. Yet such growth necessitated massive forest clearance with at least three million hectares of *kanazo* forest alone eliminated for this purpose (Adas, 1983). A comparable process of large-scale forest clearance occurred in other parts of South-East Asia around the same time (Tucker and Richards, 1983; Richards and Tucker, 1988; Rush, 1991).

Politics played a crucial role in the environmental transformation of South-East Asia. To take the Burmese case noted above, for example, the widespread conversion of forest to field in southern Burma would not have occurred without of a package of incentives offered to peasants by the colonial state designed to facilitate this process. Thus, peasants who undertook permanent cultivation in hitherto forested areas were entitled to tax holidays and legal title to the land. Further, the colonial state also funded the construction of canals and embankments, and improved river and land transport networks, 'to facilitate the movement of labour and export products and to make cultivation of empty lands possible' (Adas, 1974, p. 35).

However, the role of colonial rule in promoting resource exploitation and environmental change was even more far-reaching than this example would indicate. Indeed, colonialism resulted in a series of political and administrative transformations that have conditioned resource exploitation and environmental change to the present day. To begin with, colonial rule ushered in systematic changes in the way in which states were organized and run. Thus, administration was reorganized along functional lines with the result that in the field of resource management, departments responsible for the management of 'forests', 'agriculture' and 'mining' were created, beginning in the mid-nineteenth

century. Although the specific remit of these departments varied, they nevertheless shared a common objective—namely, to conceptualize and manage resources in a functionally defined manner in order to maximize commercial production.

Four important implications followed from this colonial functionalist approach to resource management. First, this approach greatly enhanced the 'efficiency' of resource extraction in South-East Asia. Such efficiency usually encompassed the selective conservation of especially valuable renewable resources (teak being the classic example), but in a context of expanded overall production. The goal was the attainment of maximum extraction levels consonant with long-term commercial exploitation. Second, specialized knowledge and professional training became pre-requisites for entry to service in the state. This process enabled the rapid accumulation of knowledge about the resource in question, but also encouraged a parochial outlook among staff. As J.S.Furnivall (1956, p. 77) noted, 'none of these officials saw life whole and, by reason of frequent transfers, none of them saw it steadily.' Third, conflict between specialist departments often ensued as a result of a basic disjuncture between the 'political and administrative world' and the 'real resource world' that it sought to administer. The latter did not neatly conform to official resource categories (i.e. 'forests', 'agriculture'), but overlapped categories in complicated ways thereby virtually guaranteeing bureaucratic conflict. Perhaps the most common type of bureaucratic conflict concerned agricultural and forestry officials, with the former keen to clear suitable low-lying forest for permanent agriculture and the latter often equally keen to protect such forest if it contained valuable commercial species. Fourth, the functionalist approach often exacerbated conflict between officials and private citizens. The advent of functionally defined departments signalled a growing effort by the state to regulate the activities of the citizens under its political control. Such regulation took several forms. Thus, while forest departments sought to deny or limit popular access to commercial forests, agriculture departments insisted on fixed and inflexible cultivation taxes which, during economic downturns, were the source of much peasant hardship (Scott, 1976; Peluso, 1992).

Colonial rule was also associated with the assertion of territorial political control. It was thus pardy about the definition of political control in terms of 'inside/outside' (Walker, 1993). There were two inter-related elements to this process. There was first 'external territoriality'—that is, the attempt to define state control clearly and permanently in terms of what was within its legal jurisdiction. Based on European notions of political power and of the state itself, the quest for fixed frontiers in South-East Asia went against the pre-colonial pattern in which a state was 'typically defined not by its perimeter, but by its center' (Anderson, 1990, p. 41).

As with the functionally defined state, the advent of fixed frontiers in South-East Asia had important implications for resource exploitation and environmental change in the region. Fixed borders thus permitted a state to act

with greater confidence within 'its' territory than was hitherto the case. Especially in 'peripheral' areas—often rich in forest and mineral resources—a state no longer need fear that its resource exploitation policies might precipitate inter-state conflict due to contested ownership. Fixed borders also reinforced the power of ethnic majorities over ethnic minorities in the region in so far as peripheral lands traditionally used by the latter and relatively free from outside control were incorporated into territories controlled by the dominant ethnic group. As the latter has sought to assert control over peripheral areas of the nation-state, ethnic conflict has been the almost inevitable result—conflict in part about who is to control resource exploitation and environmental change in the contested area. Finally, fixed borders have not always served to eliminate inter-state conflict over resources. As contemporary fishing disputes highlight, not all resources fit neatly within politically defined borders—migratory patterns of fish, for example, defy conventional notions of aquatic territoriality (Innes-Brown and Valencia, 1993). Once again, the disjuncture between the 'political and administrative world' and the 'real resource world' has been a fertile source of conflict in South-East Asia.

'Internal territoriality' was a second means by which the colonial state sought to assert political control over people and resources. Here, the objective was to develop a national profile or inventory of all people and resources within a given nation—state as part of a broader attempt to promote economic activity and central political control. Using such tools as the map and census, the colonial state was able to achieve these objectives to an extent that pre-colonial states were never in a position to do. In some cases, the specific objective was to obtain an accurate picture of private land-holdings and agricultural production in order to facilitate taxation (Adas, 1974; Scott, 1976). In the case of forest management, the goal was to differentiate between state- and non-state-owned territory—hence, the creation of 'reserved' state forests in which non-state access and rights were severely curtailed, if not eliminated altogether (Peluso, 1992; Bryant, 1994). In diverse resource sectors, therefore, the colonial state measured and mapped to enhance central control over resource use and management (a similar process occurred in nominally independent Siam/Thailand: see Vandergeest and Peluso, 1993; Winichakul, 1994).

Finally, colonial rule was linked to the systematic introduction and dissemination of European science and technology in South-East Asia. To some extent, this point has been implicit in the discussion so far. Thus, the census and map which helped to define internal and external territoriality (thereby permitting increased resource exploitation) formed part of a broader set of statistical techniques that was applied to increasingly powerful effect in the quest to map, measure and manipulate. The functional organization of the state itself reflected new principles of 'scientific' administrative organization and efficiency in the nineteenth century. An array of powerful new technologies—the railway, the telegraph, the steamship—facilitated the flow of resources, people and information both within the region and between South-East Asia and other parts

of the world. Equally significant but less evident was the application of science and technology to enhance resource production levels and productivity. Thus, the use of mechanical means to extract minerals (including petroleum), the scientific estimation of tree growth rates, and the genetic manipulation of cash crops (e.g. rubber) were means to maximize the physical output of the natural resources themselves.

As European science and technology were introduced to facilitate resource exploitation and environmental change, the state became ever more critical of non-state and 'traditional' approaches to resource use and environmental management. Shifting cultivators in particular were singled out as practising a'primitive' and 'destructive' land use, but peasants too were often condemned for their 'ignorant' and 'backward' ways (Peluso, 1992; Bryant, 1994). As human-induced environmental change intensified in the twentieth century, the propensity of the state to differentiate between 'scientific' and 'unscientific' resource use increased, thereby exacerbating conflict over the environment.

The political and administrative changes just described with reference to colonial times have conditioned resource exploitation and environmental change in post-colonial times as well. Indeed, what is striking when comparing the colonial and post-colonial eras in terms of resource exploitation and environmental change is the essential continuity of processes and practices between the two eras. Certainly, the magnitude of environmental change and resource exploitation has increased enormously since countries in the region obtained independence. Thus, the proportion of the national territory under forest cover has declined precipitously in most countries: for example, in Burma from 75 per cent to 39 per cent, and in Thailand from 69 per cent to 15 per cent, between the late 1940s and the late 1980s. Yet, the political and economic processes associated with such rapid change do not differ substantially from those elaborated during the colonial era. The scale of the problem has become more apparent in the context of a more populous and economically prosperous South-East Asia, but the underlying logic is similar.

Nevertheless, there have been political and economic developments in the region since independence that have influenced patterns of resource exploitation and environmental change. A key development in this regard is associated with the emergence of close links between political and economic élites in many South-East Asian countries. The emergence of 'crony capitalism' has been an especially important process in patterns of resource exploitation in the region. The allocation of timber leases by politicians to allies and family members in order to advance personal or party political interests has been a regular phenomenon in contemporary South-East Asia. Thus, during the Marcos era, most of the Philippines' commercial forests were given out to friends and allies of the President who felled forests indiscriminately and in clear violation of the rules governing forest exploitation (Remigio, 1993). In Indonesia, the advent of the New Order government of President Suharto in 1967 was associated with a massive expansion in the logging industry subject to few restrictions on its

operations. Key timber concessions have been given invariably to those closely linked to the President, including members of Suharto's immediate family (Dauvergne, 1994). Control over resource use has thus been an important source of political patronage designed to award supporters and punish opponents in the broader struggle for political power. Widespread environmental degradation has been a central outcome of this process.

A further change relates to the growing importance of trans-national corporations (TNCs) in South-East Asia's contemporary economic development. Although there were a few TNCs in colonial times (e.g. the Bombay Burmah Trading Corporation Limited with timber operations in Burma, Siam and Java), it is only since the end of the Second World War that these organizations have become prominent. An early focus of TNC activity in the region centred on the natural resource sector. Thus, firms such as Weyerhauser, Georgia Pacific, Mitsui, C.Itoh, Mitsubushi, and Amaco have played an important role in the creation of large-scale timber and mining operations in the Philippines, Malaysia, Indonesia and Papua New Guinea (Hurst, 1990). Such firms are also active in the drive to plant eucalyptus and other fast-growing species as part of a globalizing pulp and paper industry (Lohmann, this volume). More recently, TNCs—many of Japanese provenance (see Cameron, this volume)—have been instrumental in South-East Asia's nascent industrialization. The important role of TNCs in the natural resource and industrial sectors illustrates that it is not only states that are having an important effect on environmental conditions in South-East Asia.

Since the mid-1980s industrialization has been an additional factor in understanding environmental change in the region. Although industrial development has been the goal of all states in the region since independence (including the mainland socialist states), it is only in recent years as Japanese, South Korean and Taiwanese firms have transferred operations to South-East Asia that this goal has been within their grasp. However, such industrialization has been concentrated largely in Malaysia, Indonesia and Thailand (the 'new NICs') and Singapore (the original South-East Asian 'Tiger' economy), and has yet to have an appreciable effect in other countries. The environmental effects of this change are none the less increasingly evident in the form of increased air, land and water pollution (McDowell, 1989). Such pollution exacerbates regional environmental degradation which is already quite severe in many places as a result of unsustainable natural resource extraction practices.

A final change that needs to be noted relates to the uneven spread of democratization in South-East Asia since the 1980s which has enabled non-governmental organizations (NGOs) and grassroots organizations to lobby government and business for changes in resource use practices and policies. Yet as Eccleston and Potter (this volume) make plain with reference to environmental NGOs, the record of 'civil society' activism is not straightforward, but rather depends on local political conditions including the nature and degree of civil liberties, the relative tolerance of the state towards

popular protest, the extent of civil society 'cohesion' and organization, and so on.

The role of the state is crucial in this process. Thus, the ability of NGOs and grassroots organizations to protest against resource practices that lead to environmental degradation is contingent upon the state's willingness to allow such protest in the first place. In Burma, for example, the ruling junta has crushed all manifestations of popular discontent in the wake of the 1988 uprising. In contrast, in the Philippines, the demise of the Marcos regime as a result of popular action ('people's power') in the mid-1980s has facilitated a political climate in which popular protest is the norm, and in which there is scope for community-based environmental management initiatives (Braganza, this volume). Other countries fall between these two extremes. Thus, in Indonesia, Thailand and Malaysia there is room for resistance, but in each country civil society activism is constrained through formal and informal means including legal restrictions on action, threats to close an organization for 'inappropriate conduct', and the threat (or use) of military force. Further, the ability to protest does not imply successful change on the ground. Here again, the role of the state in introducing reform is crucial. For these reasons, it is premature to equate the rise of civil society activism with a political 'sea-change' in South-East Asia. As various chapters in this book highlight, NGOs and grassroots organizations can play a significant role in altering patterns of resource exploitation and environmental change. Yet the persistence today of practices such as large-scale logging and dam construction in the face of local, national and international popular protest serves to emphasize that, however important they may be, these actors do not determine the course of events. Rather, the latter are an outcome of a complex political process in which diverse and often competing groups seek to influence how the environment is changed, and in whose interest.

THE POLITICS OF SUSTAINABLE DEVELOPMENT

During the 1990s the politics of environmental change has been given a new twist. Following the Rio Earth Summit in June 1992, the need to promote sustainable development has been almost universally accepted by state and non-state groups in South-East Asia. Yet, as noted earlier, such virtual unanimity belies serious differences over the meaning of that concept—differences which have come to the fore as governments in the region introduce policies they suggest are in keeping with sustainable development. In effect, political conflict over the environment persists but in a new guise as different groups struggle over the meaning of the concept, and even over who is to be responsible for its implementation.

An initial source of conflict has centred on the question of whether a given practice constitutes sustainable development or not. Two types of conflict merit attention. The first type of conflict is concerned with the modification of 'traditional' state-sponsored activities such as logging, mining, transmigration

and dam construction that are widely blamed for much of the environmental degradation that has occurred in South-East Asia. The response of the state (and in some cases business) has been to minimize the destructiveness of these activities in the past while at the same time introducing new measures to render such activities less detrimental to long-term environmental well-being in the future. Thus, various states have sought to reform logging practices in keeping with 'forestry action plans' with the assistance of Western aid agencies and consultants (see the chapters by Lang, Rigg and Jerndal in this volume). In Sarawak (Malaysia), for example, the government is developing an integrated and multi-sectoral approach to forest land use management and has also established 'the largest wet tropical forest reserve in the world' along the Indonesian border as one response to criticism of unsustainable logging practices in the state (Bruenig, 1993; Tasker and Ai, 1994). Yet such efforts have not stopped the criticism of state-sponsored activities that are seen to be inherently in conflict with sustainable social and environmental conditions. There is a strong degree of two-handedness in state activities: on the one hand facilitating or even encouraging the continued rapacious exploitation of the resource base, whilst on the other seeking to create a virtuous external image by engaging in various forms of ecological 'window-dressing' or 'façadism'.

The second type of conflict is concerned with 'new' state-sponsored activities such as ecotourism and plantation forestry that are hailed as being the epitome of 'sustainable development'. States and businesses in South-East Asia have used the 'green' image of these activities in order to promote their rapid growth, and to overcome local opposition to them. Indeed, these 'green' activities have been somewhat of a boon to political and economic élites who have co-operated closely in the establishment of the timber plantation and ecotourism industries. Yet these activities have often had adverse local social and environmental ramifications, and have generated considerable opposition from grassroots groups. 'Eucalyptus politics' has been especially pronounced in largely deforested Thailand as the government—with the assistance of Thai and foreign firms (notably Shell)—undertakes a massive reforestation campaign. In doing so, however, it has prompted the creation of a vocal anti-plantation movement that condemns plantations as being ecologically destructive and detrimental to local villager interests (Hirsch and Lohmann, 1989; Puntasen *et al.,* 1992; Lohmann, this volume). Further, the official claim that such plantations relieve the pressure on existing tropical forests is contested by these groups who point to growing evidence that companies are felling old-growth forests to make way for eucalyptus plantations (Sargent and Bass, 1992). A similar process of conflict is developing around the booming ecotourist industry, raising comparable issues about the ecological viability of an ostensibly 'sustainable' activity (Cochrane, this volume).

The development of conflict over plantation forestry and ecotourism is symptomatic of a wider material and discursive struggle as sustainable development policies affect power relations in society generally Just as human-induced environmental degradation reflects, and in turn, often reinforces power

relations, so too the quest for sustainable development has a socially differentiated impact that is ripe with political meaning. Thus, the spread of eucalyptus plantations, golf courses and ecotourism facilities has prompted opposition through much of South-East Asia not so much because of the dubiousness of the green credentials of these activities, but because their spread has often resulted in widespread land dispossession and financial hardship among local poor people. In contrast, these 'growth' industries are among the top money-spinners for business in the region (see the chapters by Lohmann, Cameron in this volume). Thus, as with 'traditional' logging and mining activities, the new 'green' industries tend to reinforce political and economic inequality wherever they are introduced.

However, an important difference between the traditional and new industries is that political and economic élites have been able to use the latter (in a way not possible with the former) to support their general claim that they are promoting activities consonant with sustainable development. That general claim is used, in turn, by states to proclaim their 'responsible' stewardship of the environment, solicit donor assistance, and neutralize popular criticism. Thus, the Thai, Malaysian, Indonesian and Filipino states use green discourse associated with the promotion of the new 'green' industries to enhance their position in society, while the former socialist countries of mainland South-East Asia are now following a similar route. Even in the case of the region's 'pariah' state, Burma (Myanmar), a national campaign to 'green the central dry zone' is being used to promote the ruling junta's commitment to sustainable development (Government of Myanmar: Forest Department, 1994). Just as states use the quest for sustainable development to promote their own interests, so too businesses use their participation in the new 'green' industries as proof that they are good corporate citizens fulfilling the leading role in the fight against environmental degradation that was envisioned for them at the Rio Earth Summit in 1992 (Middleton *et al.,* 1993). The new 'green' industries thus generate important discursive benefits for both states and businesses in South-East Asia.

It is not surprising, therefore, that the issue of who is to control the formulation and implementation of sustainable development policies is of growing popular concern. At one level, it would appear self-evident that it is the role of the state to undertake this task. Yet, as noted above, the state acting often in conjunction with private business has played a prominent part in generating the environmental problems that now confront South-East Asia. How can the state be trusted in such circumstances to implement policies that would resolve those problems?

Beyond the question of the environmental credibility of the state, there is also the question as to whether the state even has the capacity to implement and enforce sustainable development policies that would, inevitably, entail significant changes to the political and economic *status quo*. While the region has its share of what might be termed 'strong states' (i.e. Burma, Indonesia), it also includes a

number of 'weak states' (i.e. Laos and the Philippines) which may not be in a position to co-ordinate centrally the reform process—even if the political will to act were there in the first place (Migdal, 1988: see also the chapter by Usher in this volume). Further, the prevailing pro-business intellectual climate among the multilateral institutions and Western governments is such that 'less government' is frequently seen as the preferred development option—a perspective given practical significance through the mechanism of 'structural adjustment' programmes.

At the same time, the growth of civil society activism has prompted the growth of what has been termed 'civic politics'—politics between different groups in society that falls outside the realm of state-centred politics (Wapner, 1995). Thus, for example, NGOs and grassroots groups lobby business directly to alter environmentally damaging practices through the mechanism of media publicity and boycott campaigns. Yet such civic politics can, and in places such as the Philippines and Thailand today increasingly do, take the form of community environmental management initiatives designed to pursue 'sustainable development' independent of state control and direction (Leungaramsri and Rajesh, 1992; Braganza, this volume). In this manner, the politics of sustainable development is becoming intertwined in a much broader process of political, economic and social change in South-East Asia.

OVERVIEW

The objective of this book, then, is to contribute to the understanding of human-induced environmental change and the quest for sustainable development in South-East Asia. In this volume, people (indeed, actors) are placed at centre stage, politics provides the back-drop, and the script follows the process of resource (especially forest) exploitation. The production in the main takes the form of a rich and diverse narrative drawn from a broad cross-section of loci, foci, scales of analysis, and ideological perspectives. The latter are contributed by scholars, journalists, consultants, and representatives of NGOs and advocacy groups, who offer views both from within and outside the region. We have attempted to present an holistic view of the context within which the process of sustainable development can, or might, occur. We avoid the superficial notion that sustainability simply concerns the nexus of production and environment, but instead seek to emphasize the complex interplay of politics, history, society, culture, regionalization and globalization, in creating a formidable barrier to the promotion and adoption of sustainable economic practices.

The analyses are informed by in-depth and/or field-based research, and are on occasion quite hard-hitting when drawing attention to the human consequences of poorly conceived development projects, the misuse of political power, and the prioritization of resource exploitation and economic growth over conservation and redistribution. Criticism is fairly evenly apportioned between domestic and

international actors, with politicians and planners in the former, and Japan and the Nordic countries in the latter, the subject of particularly close scrutiny.

The volume is structured in four main parts. The first examines the political context of ecological change in South-East Asia. Larry Lohmann leads in with an incisive assessment of the political ecology of resource exploitation, using the fascinating illustration of the burgeoning pulp and paper industry to draw out some of the sinister processes whereby land is being transformed on a dramatic scale from natural or degraded forest into a mono-culture of commercial plantation forest. The discussion emphasizes the extreme vulnerability of local people and local environments in face of the immense power of business, military and political élites in Thailand and Indonesia who are driven by an urgent desire to capitalize on this industry's short-term potential, either for themselves or as conduits for international capital. Protest is 'dealt with', not responded to. The two-handedness of government to which we referred earlier is clearly manifest in this context: heavy subsidies are provided to promote an industry which either directly or indirectly (by displacing people to the forested margins) places pressure on the region's few remaining stands of moist forest, whilst governments seek to improve their 'green' credentials in the public eye by claiming to be 'reforesting' the countryside. Meanwhile, a complex social, cultural and political struggle is mitigating prospects for sustainable development.

Bernie Eccleston and David Potter also focus on the political context, in this case the role it plays in defining the conditions within which the growing corpus of non-governmental organizations must operate in South-East Asia. Case studies of Indonesia, Malaysia and Vietnam show how powerful government and business organizations, buttressed by global economic and political structures, are able to influence the pace and extent of democratization, and with it the role, freedom and effectiveness of NGOs. Symptomatic of their juxtapositioning in this respect, environmental NGOs typically point to the lack of democracy as constituting a significant impediment to the advancement of their fellow citizens' human rights, whilst politicians have often used the power of the media to project a countervailing image of NGOs as 'anti-democratic subversives and saboteurs'. Paradoxically, when governments were rooting around for respectability ahead of the 1992 Rio Earth Summit, NGOs suddenly became flavour of the month—a situation which has subsequently led, in some cases, to an increased domestic tolerance of their activities, a closer dialogue, and the narrowing of formerly diametrically opposed positions.

The chapter by Owen Cameron shows how South-East Asia's increasing integration into regional and global systems has added to the pressures which are being placed on the region's natural resources and environment and which, in turn, serve to compromise the potential for sustainable development. Japan, as an important global and, especially, regional power, has played a significant role in the environmental transformation of South-East Asia, both through its voracious market for the region's forest, marine and other resources, and by helping to

intensify the process of industrialization therein. Cameron asks whether South-East Asia can learn anything from Japan's domestic experience of environmental conservation, but in truth the latter has largely been made possible by exporting degradation and the externalities of growth to her South-East Asian neighbours. Unless the dynamo economies of South-East Asia can do likewise to their late-starting neighbours, it is difficult to see how the experience can be repeated. Meanwhile, commentators see a tension between Japan's professed aim of becoming a world leader in the field of international environmental policy, and its continuing and over-riding commitment to the promotion of its own economic development.

The second section of the volume illustrates some of the processes and forms of human-induced environmental change which are occurring in South-East Asia today Colin Sage uses the example of Indonesia's transmigration programme to highlight the considerable difficulties that migrants and indigenous peoples alike have experienced in sustaining their livelihoods after resettlement. The use and abuse of land resources are described in some instances as 'mining'—treating potentially renewable resources in much the same way as non-renewable resources such as coal and petroleum—driven by the urgency of short-term needs, a lack of appropriate knowledge on the part of transmigrants, and inadequate administrative support and funding. Sage's detailed research has highlighted the complexity and diversity of livelihood strategies and local settings, and he uses this to argue the need for a people-centred approach to sustainable development which is sensitive to the heterogeneity of local needs and potential.

The remaining chapters in this section deal with the little-known, land-locked country of Laos. Jonathan Rigg and Randi Jerndal ask whether the Lao PDR's relatively recent arrival on the fringes of the global capitalist system, following the partial dismantling of its command economy, might allow the opportunity to learn some lessons from the mistakes made by her neighbours in the field of resource and environmental management. The early signs are sadly unpromising: the country's resource base, especially the extensive forests, are already being targeted as a source of much-needed foreign exchange. International agencies and foreign businesses have become powerful agents of forest exploitation, whilst the Lao government struggles to keep up, making policy decisions 'on the run' and prompting questions about who is effectively in control—a crucial issue in the context of sustainable development. A similar situation prevails in relation to the exploitation of the country's massive hydro-power potential. Anne Usher shows very clearly how northern interests and agencies, especially from the Nordic countries, have provided both the means and the incentive to harness this 'white gold'. Through the 'pervasive appraisal optimism' which exudes from the proponents and evaluators of dam schemes (and especially aid donors and financiers), the negative environmental and social consequences are signifihard currency and an environmentally benign, or even 'green', source of energy. Local people who face the brunt of these activities have very little opportunity to

express their preferences or feelings, and there are few NGOs cantly downplayed, leaving a widely held perception of a 'win-win' situation: to work as advocates. Meanwhile, the close link between aid provision and the pressures for resource mobilization greatly restricts the Lao government's room for manoeuvre.

The third section integrates discussion of the various methods which strengthen our understanding of human-induced environmental change in South-East Asia with further illustrations of its process and context. Victor King highlights the role that the academic community can play in researching the human consequences of environmental degradation, drawing illustrations from collaborative research programmes which have explored human-environment interaction in South-East Asia from a variety of perspectives. He then presents findings from a collaborative research project on Borneo in which he was recently involved, under the aegis of the UK Global Environmental Change Programme which has sought to wrest global environmental research from the domain of the natural sciences. King's chapter deals with the very topical issue of drought and forest fires, and attempts to identify the respective roles played by commercial logging, shifting cultivation and global climatic change in the apparently growing incidence of these devastating phenomena. His findings point to the value of locally informed research and the dangers both of generalized views and those informed by stereotypes and scapegoating, not least of native shifting cultivators. The study also shows how environmental change arising from human actions is having a major effect on human livelihoods.

Duncan McGregor *et al.* provide, in admirable detail, evidence of the value (and also some of the shortcomings) of various methodological tools — Geographical Information Systems, aerial photography and remote sensing— in providing the informational basis for identifying and evaluating environmental change, and for the construction of predictive models with which to inform future policy. They argue that the growing awareness of the nature and consequences of environmental change in South-East Asia has not been matched by appropriate efforts and mechanisms to quantify and map the progress and processes of change. Their worked examples of land conversion in Sabah, Thailand and Brunei emphasize the value of being able to make comparisons across time and space, synthesizing large banks of environmental data and presenting them in an accessible format. Armed with such information and methodological tools, practitioners are better able to identify the nature and extent of resource depletion and environmental degradation, and to lay the foundation for more sustainable ecological practices.

In contrast, Chris Lang emphasizes the weakness of the Tropical Forestry Action Plan (TFAP) as a largely theoretical tool for regulating forest exploitation, especially where the process of its compilation and implementation is inherently flawed. Using the example of the TFAP for Vietnam, Lang shows how a reliance on foreign consultants and a very limited degree of consultation with local people and community organizations yielded a Plan which contained numerous internal contradictions and which, when implemented, would do little to

preserve the country's rapidly diminishing forests. Popular misconceptions of the role played by shifting cultivators in rainforest destruction run unquestioned throughout the Plan, whilst some of the main causes of deforestation—commercial logging (legal and illegal), large-scale development projects, land encroachment—are addressed only tangentially. The complexity of both the process and impact of deforestation is also largely overlooked, rendering almost impossible the introduction of small-scale and locally based initiatives which are seen by many to hold the key to sustainable development.

Finally, the volume explores some of the options for change which are necessary if sustainable development is to be turned from rhetoric into reality As one of the region's booming industries, tourism provides an excellent basis for exploring the potential for sustainable development. Ecotourism is often cited as an ideal means of promoting 'sustainable tourism' in South-East Asia, but when Janet Cochrane probes beneath the surface of this phenomenon she finds little more than mass tourism re-packaged in a 'greener' guise. She finds that the opening up of national parks in Indonesia to the tourists' gaze has had a significant, and seldom beneficial, impact on ecosystems, wildlife and local people. We should not be greatly surprised by this: 'sustainable development' is an oxymoron—environment and exploitation cannot be rationalised, and thus any form of tourism will have a range of impacts, however 'green' it may be made to appear. 'Ecotourism' has come to describe any holiday that is centred around a natural attraction; the label has become both fashionable and marketable.

Just as Cochrane uses her intimate knowledge of ecotourism development and the Indonesian setting to excellent effect, so Rili Djohani's involvement with WWF Indonesia is used to inform her assessment of the potential stewardship role of the formerly nomadic Bajau people in managing the country's recently designated marine parks. As such, the case study informs the general concept of sustainable development by exploring the principle and potential of popular participation. The Bajau have an intimate familiarity with the marine environment, and an inherent understanding of the limits to, and consequences of, its exploitation. Their stewardship of marine parks, were there the political will and foresight to incorporate a marginal minority people in this way, has the added advantage—crucial to the 'development' component of the sustainability issue—of creating a role and economic function for the Bajau in a situation where their traditional way of life is rapidly being transformed, and their access to marine territory and resources increasingly being constrained by competition from external sources. Whilst there may of course be a sense in which their stewardship of the marine environment would both camouflage and ultimately hasten their own demise, it also represents a pragmatic means of achieving two important objectives in the face of what might be seen as the inevitable and irrepressible forces of change.

Another pragmatic response, this time to the rapacious exploitation of the rainforests of Sarawak, is suggested by Mike Parnwell and David Taylor.

Commercial logging has seriously depleted the stock not only of trees but also a wide variety of non-timber forest products which are of considerable importance to the lives and livelihoods of forest-dwelling societies in this Bornean state. Parnwell and Taylor describe the 'mining' of forest resources, and also the human impact. They also focus on how the societies concerned have responded to increasing resource scarcity, and draw lessons from this to suggest future development paths. One pragmatic means of dealing with the exigencies of change is to foster a 'capture-culture' transition which some Iban communities have spontaneously adopted. This involves the domestication of certain rainforest products and species, the pursuit of which in the wild is taking up more and more time and energy as they become increasingly scarce in their natural habitat. Several such products, in addition to improving standards of nutrition and health, could provide the basis for the development of non-farm activities such as handicrafts production for the burgeoning tourist market. As with the previous example, however, such a policy response may serve simply to camouflage the more fundamental processes which are being exerted on the forest ecosystem and forest-dwelling communities. But on the other hand, it represents a pragmatic means of coping with a seemingly inexorable and irreversible trend of rainforest destruction.

The chapter by Alan Dykes explores the role of environmental education and research as a means of promoting conservation principles and practice. Using the atypical example of the oil-rich Sultanate of Brunei Darussalam, Dykes shows how the absence of strong economic imperatives and pressures to exploit its rich rainforest resources has allowed the Brunei government to manage these resources in a sustainable manner. The utilization of the Temburong Forest Reserve for educational purposes—a field centre was established there in 1990—helped to counter pressures to flood part of the region for a hydro-power project. Equally importantly, the field centre has helped to raise awareness within Brunei's largely urban population, and especially among the younger generation, of the importance of environmental conservation. Awareness, concern and commitment may be seen as essential prerequisites to sustainable development in the longer term.

Finally, Gilbert Braganza considers the role of community-based management in underpinning sustainable development in the forest regions of the Philippines. This insightful account stresses the social, political and economic parameters of environmental exploitation and conservation. It emphasizes the importance of local-level approaches, as both an ideology and a strategy of sustainable development. The Philippines in the more open, tolerant and democratic post-Marcos era offers conditions which are conducive to such an approach. Indeed, one of the initiatives created by sustainable development in the Philippines has been the participation and involvement of all sectors of civil society in the development process. However, a number of contradictions and tensions has emerged as community-based initiatives have been put into practice. Local political structures have sometimes blocked the effective implementation of this

planning principle (see also Rigg, 1991). Meanwhile, the government has occasionally lacked faith in its own rhetoric, and is seemingly reluctant to abandon completely the established top-down orthodoxy. Inherent weaknesses have also emerged in the government's own understanding of the sustainable development concept, and in the division of (competing) departmental and ministerial responsibilities. Nonetheless, the principle of place-based and bottom-up initiatives is now firmly established in the Philippines. In this way the poor, disadvantaged and marginalized are able to take the initiative in defining sustainable development.

We round off the discussion by considering the future prospects for sustainable development in South-East Asia. In order to present a balanced (or noncommittal) assessment, we consider three scenarios: 'worst-case', 'ideal' and 'middle path'. Only the last of these stands any realistic chance of achieving the underlying objectives of sustainable development. The consequences of *laissez-faire,* which underlies the worst-case scenario, are too grim to contemplate and, we believe, will lead (and, indeed, are leading) to the introduction of reactive, remedial and preventative measures. The best-case scenario, something akin to 'Ecotopia' (Pepper, 1984, p. 206), is seen as too idealistic to be realistic, given the deeply rooted socio-political barriers which exist in South-East Asia to a fundamental challenge to the *status quo*. Thus the compromise scenario, where movement towards the requirements of sustainable development occurs with a gradual but growing momentum, seems the most likely to prevail. With it rests a grain of optimism for a sustainable future.

We hope that this volume will make a valuable contribution to the sustainable development debate, not least by highlighting the importance of context and locally informed insight in facilitating our understanding of the complex and varied processes which are involved. These, we believe, are an important prerequisite for the effective operationalization of the sustainable development concept.

Part I

CONTEXT

2
FREEDOM TO PLANT
Indonesia and Thailand in a globalizing pulp and paper industry

Larry Lohmann

> Success is measured by the freedom to plant fibre crops…. Our objective should be to create and move inside an ever-increasing friendly circle of public opinion.
>
> (Fernandez Carro and Wilson, 1992)

Over the last decade some of the most important changes and conflicts involving the use of land and water in rural South-East Asia have stemmed from the regional and global expansion of the pulp and paper industry. Natural forests have been chipped, vast monocultures of eucalyptus and acacia established, and giant pulp mills built along major waterways, provoking rural strife and political debate throughout the region.

This chapter will sketch some of the pressures behind, and some of the dangers of, the expansion of the pulp and paper industry in South-East Asia. It will then describe some of the mechanisms by which the industry has enclosed land and water in two of the countries most affected, Indonesia and Thailand, and outline the various forms of opposition the industry is meeting. Finally, it will indicate some of the strategies by which the industry is attempting to manage this resistance.

AN EXPANDING INDUSTRY

The pulp and paper industry in both Indonesia and Thailand has been strongly influenced by patterns of regionalization and globalization of fibre production, consumption and trade. In the 1950s, most international wood fibre trade was cross-border between Canada and the United States (US) and among the European countries, and only a few countries which produced and consumed large quantities of paper were dependent on raw materials from distant continents. Since then, world trade in pulp has increased around five times, while the global wood fibre market has tripled (Dudley, 1992; Hagler, 1993). Today, high-consuming countries (see Table 2.1) pull in raw materials for paper from all over the world. The wood fibres in a sheet of paper in Western

Table 2.1 Paper Consumption, 1993

Country	*Kilogrammes per capita*
USA	313
Japan	225
Hong Kong	220
Singapore	218
Finland	215
Taiwan	205
Germany	190
UK	170
Australia	152
Italy	132
South Korea	128
Malaysia	62
Thailand	30
Russia	30
China	17
Philippines	12
Indonesia	10
Burma	5
India	3
North Korea	3
Papua New Guinea	2
Vietnam	1
Lao PDR	0.2

Source: Pulp and Paper International, July 1994

Europe or East Asia may well come from trees grown as far away as Brazil, Canada, Chile, Congo, Indonesia, New Zealand and South Africa. Prices for marketed wood pulp, moreover, are everywhere strongly influenced by Southern exporters.

One country which has pioneered the unharnessing of national consumption from national supply is Japan, which began importing large amounts of wood chips in the 1960s in specially built ships. Between 1965 and 1975, the proportion of Japan's pulpwood supplies which were imported jumped from 3 to 40 per cent. By 1990 Japan led the world in wood fibre imports, with 37.5 per cent of world trade. Historically, most of the country's fibre imports have been western North American softwood chips. Three recent shocks, however, have accelerated the Japanese industry's long-standing efforts to diversify its overseas supplies. First, in 1980, interest rates increased in the US, reducing new housing construction, saw mill production, and mill residue surpluses available for export, and doubling export chip prices overnight. Unable to exploit its own forest resources economically, the Japanese industry turned to other countries such as Chile, taking advantage of falling oil prices in the mid-1980s for cheap transport. Then, during 1987–88, a projected mill in Tasmania threatened to

absorb Australian hardwood (eucalyptus) supplies which had been going to Japan, spurring the industry to turn to South-East Asia and the southern United States (in growing competition with other countries such as South Korea). A third shock in the early 1990s stemmed from decreased logging in western North American forests and an accompanying drastic reduction in waste chip supply, both due to the forest industry's depletion of old-growth forests without sufficient replanting and an accompanying rise of environmentalism affecting use of public lands. From 1988 onwards, the Japanese industry was working to assure itself of raw material flows not only from long-standing suppliers such as the Soviet Union, Indonesia, South Africa and New Zealand, but also from China, Vietnam, Argentina, Venezuela, the interior of northern Canada, Fiji, Papua New Guinea and other parts of Oceania (Schreuder and Anderson, 1988; Marchak, 1992; *Paper and Packaging Analyst,* 11.1993). As one industry figure commented, Japan had taken a 'new step to secure resources, that is, planting its own forests in other countries as long-term resource programs' as well as laying plans for the 'execution of pulp or paper production there' (*Japan Pulp and Paper,* n.d.). Competition among such a large number of countries for the Japanese market, of course, was seen to be reducing prices as well as providing guarantees of steady supplies.

As economically and politically available natural forests have been depleted and new hardwood pulp technologies developed, meanwhile, plantation fibre has grown in importance in relation to fibre from natural forests. This, too, has sharpened paper industrialists' interest in South-East Asia. Plantation species such as eucalyptus grow much more quickly in the tropics than in temperate zones, meaning both that their fibre is available earlier and that less land is required (*Know-How Wire,* 1.1989; Shell and WWF, 1993). Land is also cheaper in the South, particularly in big contiguous parcels—a Zdecided advantage for huge chemical pulp mills which are most economically sited in the centre of large raw-material catchment areas. Small wonder, then, that the cost of wood suitable for manufacturing bleached hardwood kraft pulp in Indonesia may be half what it is in, say, Finland (*Know-How Wire,* 1.1993; *Pulp and Paper International,* 8.1993). Inexpensive labour is a secondary attraction.

One of the most important incentives for global investment in South-East Asian mills and plantations, however, is the widespread expectation that Pacific Rim consumption growth will be the fastest in the world over the next decade. Stimulated by tighter integration of the whole region into the world economy and lavish subsidies from public to private sectors, this growth will be driven largely by increases in industrial paper demand. Industry consultant Roger Wright calculates that by 1997, total demand in Asia and Africa will have outstripped that in North America, with Japan, the Asian 'Tigers', and China playing big roles (Wright, 1993).

Such growth projections are a powerful reason for integrating South-East Asian plantations with pulp mills, and pulp mills with paper mills, as soon as possible. Pulp has more value-added and is more efficient to ship than wood

chips (which are half water) making it attractive to South-East Asian exporters, and if there is a huge local demand, paper produced in the region will have an advantage. Adding to pressures to build integrated projects are the blandishments of Northern machinery suppliers and mill engineering consultants seeking new export outlets, together with those of the 'aid' agencies with which they have a symbiotic relationship.

COMMON DANGERS

The course of pulp and paper development varies from country to country in South-East Asia. Several dangers created by the advance of the industry, however, are common to the region as a whole. One danger is associated with the industry's inordinate dependence on large, expensive machines. Except in China and a few other places, the industry has been locked into this dependence at least since the 1930s, when the prestige-obsessed North Atlantic newspaper companies of the day were vying over who could build the biggest mills. This competition resulted in each new machine being designed as a 'one-off'. Unit costs rose correspondingly: from 1930 to 1975 the cost per annual tonne of a newspaper machine increased at least forty-fold, while the price of newsprint increased less than twenty-fold. Yet once machine manufacturers had got into the rut of building big machines, it became difficult to fill orders for anything else, despite their high price, inferior cost-effectiveness and need for extraordinarily large supplies of fresh water and other resources. As paper expert A.W.Western wryly notes, building new paper machines

> became a luxury which could be afforded only by multinational giants or the governments of developing countries, advised by consultants that only scale to this degree could be economic! For the consultants it *was* economic; they were now essential for large mill design and co-ordination.
>
> (Western, 1979)

Combined with freely available technology, easy availability of debt finance, and little need for newcomers to buy into brand names, reliance on big machines has fed a chronic industry tendency to overbuild during boom times, resulting in slumping prices, the flattening and extending of supply/cost curves, inadequate returns on machinery investments, attempts to cut costs and stimulate demand, shakedown, closures and yet further concentration. In 1993, after the most recent bout of over-investment, pulp prices were half what they had been only four years previously in constant dollars, and 39 per cent of what they were in 1975, forcing producers such as Thailand's Phoenix Pulp and Paper to stop exporting and helping to drive Indonesian production down to 65 per cent of capacity (Wright, 1993; *Pulp and Paper International,* 2.1994). The increasingly international nature of the pulp and paper industry exaggerates uncertainty still further by giving exchange rate fluctuations the power to 'swamp all other factors