Jati, Bilangan 2, Disember 1996

ENVIRONMENTAL MANAGEMENT AND COORPERATION IN SOUTHEAST ASIA: MYTH OR REALITY?

Khairulmaini Bin Osman Salleh

Introduction

The economies of Southeast Asia (with the exception of Singapore) depend, and will continue to depend for some time to come, on natural resource exploitation and agricultural development (Barrows 1990). However, in the last decade, there have been major changes in production, diffusion of knowledge and information, the convergence of market forces and transfer of technologies which are beginning to reshape the region's economy. The year 1994 provides a turning point in regional economic cooperation as the Asia-Pacific Economic Co-operation (APEC) forum, at its second summit meeting in Bogor, Indonesia, issued a declaration committing members to free trade by the year 2020. The willingness of members of the Association of Southeast Asian Nations (ASEAN) to enter into such an arrangement reflect recognition of global economic forces and ASEAN's dependence on the larger economies of the greater Asia-Pacific region. In response to global forces, especially the agreements reached in the recently concluded ASEAN heads of states meeting in Indonesia, November 1996, have decided to accelerate the implementation of the ASEAN Free Trade Area (AFTA). Lurking in its shadows is the projected alternative structure to the more inclusive APEC, the East Asian Economic Caucus (EAEC) provides another platform for economic and trade related agreements pertaining to economic growth in the region.

Globalization and regionalization have affected the relationships between the nation states in Southeast Asia through increasing interdependence and merging of people, values and ideas that cut across national boundaries. The outcome of these processes, as far as regional economies are concerned have added new and much needed momentum to the development process of each nation state. The year 1993, witnessed healthy rates of economic growth in many parts of Southeast Asia (Table 1). Malaysia, for example, experienced a steady growth rate of more than 8% since the last five years. However, there are marked disparities of Gross Domestic Product (GDP) between countries in the region. This characteristic would change by the year 2000. Indeed, as commented by an issue of the London-based *Economist*, by the end of the second decade of the 21st century, the main economies of Southeast Asia will together represent an important bloc within the world economy. How realistic such an assumption will depend on the continued momentum and growth of exports, which will in turn depend on their agility in moving out of export industries where they no longer have a competitive edge and into sectors where

they rapidly penetrate international markets (Booth 1995). This scenario could already be observed for Malaysia and Singapore with the other countries in the region lagging not far behind. For example, the remarkably high GDP of about 8% observed for the last three years in Malaysia has been attributed to the manufacturing sector.

Table 1: Per Capita GDP (1991) and GDP Growth, 1993-95

Country	Per Capita GDP	Rate of GDP Growth		
	(PPP$)	1993	1994	1995
Singapore	14,734	9.9	7.0	6.0
Brunei	14,000	n.a.	n.a.	n.a.
Malaysia	7,400	8.0	8.6	8.4
Thailand	5,270	7.8	8.2	8.5
Indonesia	2,730	6.5	6.7	7.0
Philippines	2,440	1.7	4.0	5.5
Lao PDR	1,760	4.0	n.a.	n.a.
Vietnam	1,250	8.0	9.0	10.0
Cambodia	1,250	5.7	n.a.	n.a.
Myanmar	650	5.8	n.a.	n.a.

SOURCES: UNDP, *Human Development Report 1994* (New York: Oxford University Press, 1994), pp.129-31; ADB, *Asian Development Outlook* (Hong Kong: Oxford University Press, 1994), Table A1.

Economic Growth and Environmental Problems

Increased globalization and regionalization can also give rise to challenges stemming from the negative consequences of economic growth. These includes problems related to migration, regional fragmentation and environmental degradation. Analysts of global patterns of environmental problems and their solution are increasingly turning to patterns of world trade to further structure and reinforce those produced by the development sequence. Both the Commissions headed by Willy Brandt in 1980 and 1986 indentified the connection between production and consumption of resources, hazards of

resources depletion and damage from waste dispposal. Figure 1 illustrates a further component of global spatial differentiation brought about by resource location and world trade. The heavy dependence of development upon energy resources such as oil becomes manifested in the polluted quality of major sea lanes such as the Straits of Malacca. Another dimension to this basic resource drive is the relative lack of development which raises the status and urgency of protection of biological resources fringing the Straits.

Urbanization which is generally associated with industrialization and manufacturing activities also adds another dimension to the environmental problems associated with a booming economy. Most of the future economic growth in Southeast Asia will occur in extended urban areas. By the year 2020, 70-90% of the capital plants in the region will be found in extended urban areas (Webster 1995). Urban environmental analysts have identified an environmental risk transition period associated with water pollution, hazardous waste disposal and severe air pollution in these urban areas. Though these are geographically immediate environmental problems rather than regional/global issues, the close proximity of nation states could be a high priority in the future where the effects of environmental pollutants would be most felt. For example, the immediate environment bordering the Straits of Johore by the year 2020 will be an urban and industrialized one and it would not be surprising that the state of the urban environment here becomes a priority issue.

A Borderless Spatial Problem

Environmental problems are *spatially diffused* and could not be contained to a particular location. They usually transgress political boundaries through various agents of movements including air and water. They operate as dispersing point, *linear* or *suface* systems and thus able to affect targets located at a distance. Contaminants have sources from which they are dispersed (ie. radiation fallout, acid rain and atmospheric haze). Holgate (1979) cited from Newson et al. 1992 defines environmental problems as having *sources*, *pathways* and *targets*. Targets may be immediate or at a distance. They can be 'man, or animal or plant life or an inanimate structure'. Clearly, if a potential pollutant becomes transformed into a harmless substance or becomes diluted along the pathway(s) no problem (eg.pollution) occurs, though contamination has occurred. What this means is the effects of the environmental pollution decreases with distance along the direction of movement. Figure 2, is a

Figure 1: Oil contamination of the seas and oceans; note the major tanker routes, OECD. 1985. The State of the Environment, Paris.

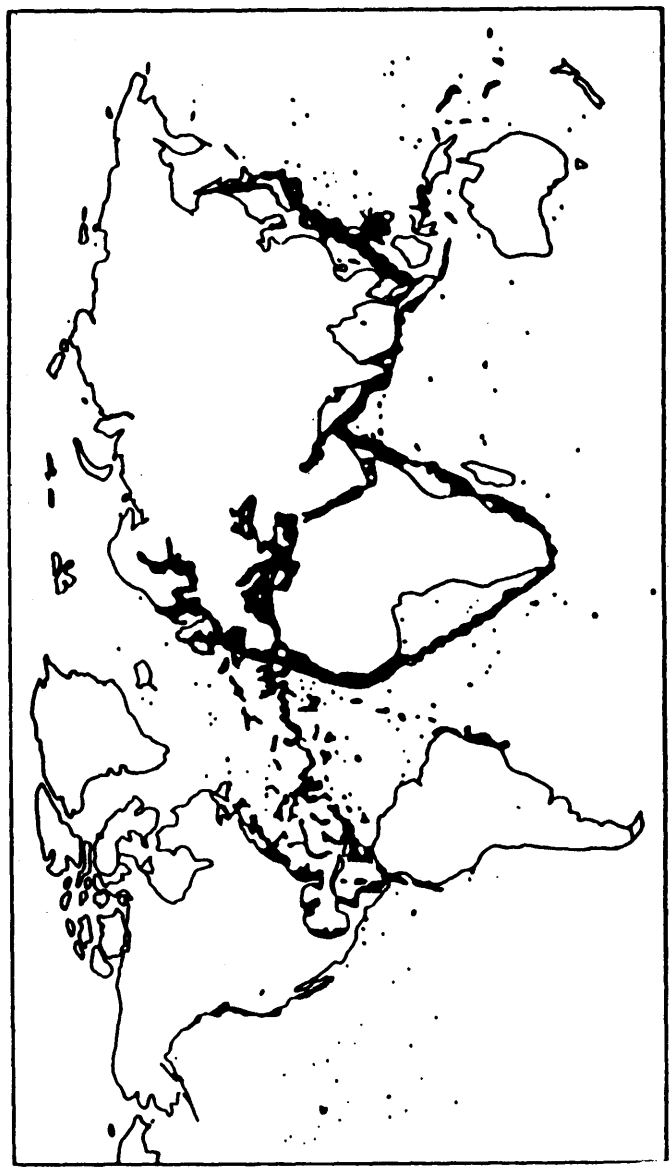
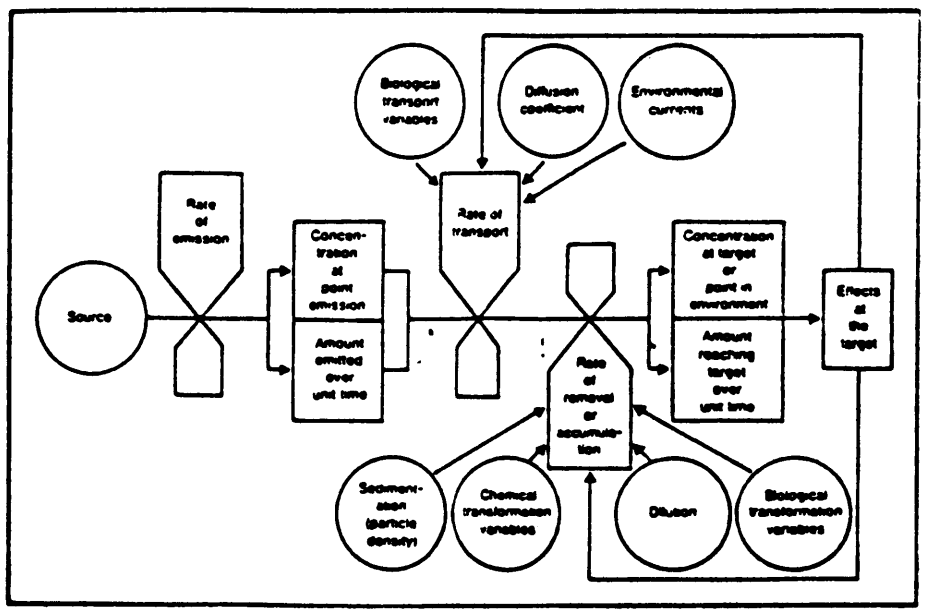


Figure 2: A systems diagram of pollution processes, stressing source-pathway-target linkage. (Holgate, 1979)



modification of Holgate's system diagram stylizing all environmental problems. Pathways through the environment involve not only the transporting media of air and water but the storage media of sediments and soils. Clearly Man can intervene at any point between source and target to control or reduce the threat. There is, therefore, a geographical background to environmental problem management which may become explicit via the planning of source activity, the setting of standards for pathway media or the study of damage done to targets.

The source-pathway-target chain is of principal value in terms of environmental management in a borderless world (no matter what the scale of occurrence is ie. hillslope, river systems, atmospheric movements or nearshore currents as these systems transgress, in many cases, national boundaries). It offers, for example, a simple agenda for decisions about monitoring: How many sources? What pathways - direction of movements ? Where are the tagets? More important it raises the question, what do we control - the source, the pathway or the target. Even though such questions open up greater regards for monitoring it remains difficult to raise funds or who should raise the funds for monitoring environmental protection (eg. conservation of biodiversity and forest management) and environmental control (eg. pollution control) demand effective monitoring systems.

The source-pathway-target lingkage describes the spatial relations of environmental problems, their origins, direction of movements and immediate impact (along the direction of movement) and the final impact. When applied to the physical world, the sources or origins could be from within a country, for example the origins of peat fire in Kalimantan or Sumatra, and the direction of movement of pollutants as a result of the fire would have an impact on the immediate vicinity, such as the coasts of Eastern Peninsular Malaysia, whilst the final impact would be at Singapore (depending on the directional shift of the winds transporting the pollutants). The flow of links between the source-pathway-target provides an appraisal of not only the location of the environmental problem at a moment in time and space but more important it provides a mechanism by which the problem could be managed and controlled.

Geographical patterns, if understood and accepted, provide a powerful guide to monitoring network of relationships in space. These patterns can be used to rationalize a network of sampling sites on the basis of critical groups or targets. Once some basic knowledge of a source-pathway-target chain is available it is possible to allocate monitoring to locations in the chain. Impact monitoring chooses the target end but compliance monitoring favours the source end.

The monitoring of environmental pollutant pathways involves the following problems: i) pathways are often multiple and not every route can be identified or covered; ii) movement along pathways may be episodic where for much of the time monitoring may be redundant; and iii) synergistic or storage effects may negate or invalidate the results of simple pathway monitoring. Given the

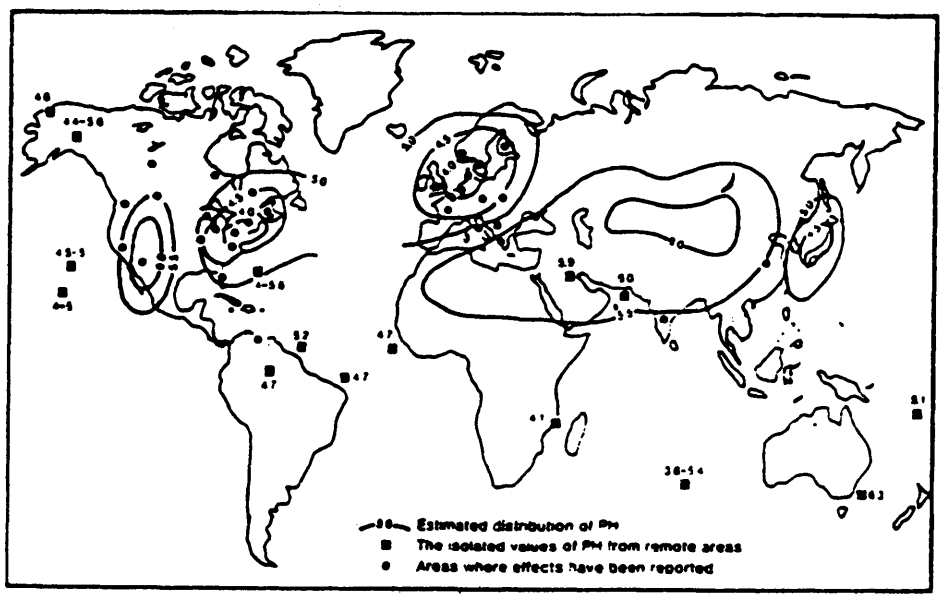
purposeful nature of monitoring one must be careful in allocating the plethora of recent global measuring systems such as satellite imaging. Much of the expansion in high-technology 'monitoring' is in fact surveillance. The general shortage and insecurity of international environmental legislation results in a relatively slim body of true global monitoring. Much of the true monitoring remains organized on the nation-state scale. Nevertheless, this spatial technique of data acquisition provides the necessary tool to an effective global surveillance and monitoring network.

Regional/Global Effects of Environmental Problems

Borderless environmental issues affecting the region's fragile air-water-land ecosystems have begun to move into the forefront of political discussions. These include global environmental issues such as ozone depletion, global warming and sea level rise, the recent emergence of transboundary regional environmental problems affecting the depletion of marine resources, deforestation and their impact on urban climate and marine pollution. Increasing worries are now being raised about the indiscriminate dumping of sewage effluent, heavy metals and power station fly ash in the Straits of Malacca (Stevenson 1992). The biological effects of the disposal, however, are poorly understood but it is increasingly obvious that major problems are now occurring with many aspects of the coastal and marine ecosystems. These include decrease diversity of species, high level of pollutants in marine life and the promotion of enormous blooms of diatoms, algae and dinoflagellates. The death of these organisms would lead to rapid oxygen depletion of the water body and very large kills of marine life. Moreover, a large amount of money have to be spent on cleaning up the huge quantities of mucilage produced by algal blooms which could spoiled vast areas of local coastline and reducing the recreational values of the affected areas.

Although acid rain (defined here as precipitation which contain acid compounds of sulphur and nitrogen) is a regional phenomenon affecting the industrialized countries of northern Europe, North America and Asia (Figure 3), the rapid urbanization and industrialization experienced in Southeast Asia and the heavy rainfall regimes suggest the emerging potential of this threat (Table 2). Various approaches have been developed to ameliorate the effects of acid deposition. The retrofitting of power stations with fuel-gas desulphurization plants (FGD), fuel switching policies such as burning of imported low-sulphur coal and the future development of combined gas turbine plants will all reduce sulphur emissions. Until sulphur reductions have occurred at the source, either through more efficient fuel burning or fuel substitution, control must occur at the pathway or target by liming.

Figure 3: Global patterns of acidity in precipitation. (Park, 1987)



Two other transboundary environmental concerns of global proportions but a regional problem that is worth mentioning here is the reduction in regional biodiversity and the increase of CO2 and the cumulative greenhouse effect. The high rate of deforestation and habitat fragmentation in Southeast Asia are the primary causes of these problems (Table 3). Natural forest fires also contribute to atmospheric pollution. Such problems could be greatly reduced if an efficient surveillance and monitoring system is made available.

Table 2: Range of Annual Average Concentration of Sulfur Dioxcide in Selected Southeast Asian Cities, 1980-84 (micrograms per cubic metre)

		Annual average range of individual site	
	Minimum	Maximum	Combined site
Manila	50	90	65
Kuala Lumpur	-	-	23
Bangkok	16	19	17

Note: WHO guideline is 40-60 micrograms per cubic metre
SOURCE: UNEP-WHO, *Environmental Data Report*, 2nd.Edition (UK: Blackwell, 1989)

Table 3: Annual Rates of Deforestration

Country	Forest and woodland (100,000ha)	Annual average deforestation	% of remaining forest area	% annual rate of deforestation
Indonesia	1,215	600	1.4	0.5
Laos	131	100	1.5	1.2
Malaysia	198	255	3.1	1.2
Myanmar	322	102	3.3	0.3
Philippines	112	91	5.4	0.3
Thailand	148	244	8.4	2.4
Vietnam	131	60	5.8	0.6

SOURCE: Norman Myers, "Tropical Deforestation and Climatic Change", Environmental Conservation 15, no.4 (1988): 293-98, World Resources 1990-91 (New York: Basic Books, 1990).

Regional Environmental Data Bases

The advent of Remote Sensing Technology (RST) and Geographical Information Systems (GIS) are useful tools to sound environmental management. RST and GIS provides the necessary tools for classification, mapping and storing information on the environment. These basic processes provide an important ingredient to an effective management system as far as natural resources exploitation are concerned. However, these tools are costly and requires the operation by skilled technical personnel. At present satellite receiving stations are available in Thailand and Singapore but data from these stations are available only at a cost. There is no colloborative effort among countries in the region to jointly utilized the volume of data made available especially in environmental monitoring. Training and research into RST and GIS should be encouraged at the national level.

International Attitude Towards the Problem

The serious repercussions that environmental problems impose on immediate and surrounding ecosystems are well understood (Newson et al. 1992). Nearly all concluding statements at international conferences on the subject of 'environment' in Southeast Asia has generally agreed that the region is part of a very fragile biosphere and the regional community has a common interest to a more concerted and committed action on maintaining the quality of the environment (Seda 1993).

Global environmental debate should be of particular interest to Southeast Asian states as they may be drawn into international controversies about natural resource use and the priority of environmental concerns within their development programmes in light of the dynamic regional economic cooperation taking place. Concern over the destruction of tropical forests in Southeast Asia and the associated problems of decreasing biodiversity, soil erosion and air pollution have prompted environmental groups in Europe and the United States to attempt to organize consumer boycotts on tropical timber and restrictions on tropical timber imports (Table 4). These have important implications, however, for traditional assertions of sovereignty is concerned. Attempts to leverage changes in resource use or environmental reforms through foreign aid or trade restrictions, for example, effectively place limits on a state's assertion of an absolute right to regulate activities within national borders as it sees fit, or to determine the priority of environmental factors within its own national development programmes. In countering this move the region reportedly employed tactics reminiscent of those it used in the USA anti-palm oil campaign, namely a hard and soft sell approach which stressed that it has a right to extract timber, and that the deforestation campaign of the West was in

actual fact to secure markets for temperate timber. Counter accusations such as this are common cliches in international debates and generally do not address the problem of solving the potential threat of environmental degradation in the region, this being the reality of the problem.

Table 4: Imports of Tropical Hardwood by Country and Region as a Percentage Share of World Timber Imports, 1986

Country or region	Roundwood	Processed products
Japan	54	9
Other Asian Countries	30	23
Europe	12	26
USA	0	13
Other Countries	4	29

SOURCE: Food and Agriculture Organization of the United Nations (FAO), *FAO Yearbook, Forest Products* (1988).

Strategies - The Situation So Far

There is a need, therefore, in these countries for effective environmental planning and legislation so as to ensure environmental damage, especially reduction in biodiversity, soil erosion, air and water pollution is minimized, and renewable resources exploitation sustained. In practice economic growth still has priority over environmental concerns in Southeast Asia. Even countries like Malaysia have hesitated to implement environmental control or planning measures which might be seen to discourage investments or limit development activities. Nevertheless, there have been in the last few years promising trends towards better environmental management, especially in managing urban environmental problems in Malaysia and Singapore (Webster, 1995). For example the proposed link between the main hill resorts of Genting Highland, Cameron Highland and Fraser's Hill in Malaysia was advocated purely for economic reasons. This being part of the Government's strategy to generate and increase the momentum of the tourism industry.

National Strategies - The Malaysian Example

Perhaps the most effectively enforced and well publicized federal piece of

legislation on environment in Southeast Asia is the implementation of Malaysia's Environmental Quality Act (EQA) in 1974. The act which is enforced by the Deparment of Environment, Ministry of Science, Technology and Environment is aimed at improving the quality of life of the people of Malaysia. It has for its objectives the prevention, abatement and control of environmental problems, and the enhancement of the quality of the environment. A number of regulations and orders have been formulated under the EQA, each for a specific environmental problem. Apart from the EQA, there are a host of laws and regulations that deal with a variety of conservation issues. In 1981 the Fourth Malaysia Plan paved the way for the introduction of obligatory environmental impact assessment for all new developments deemed likely to significantly affect the environment. These procedures have been enforced under the Fifth and Sixth Malaysia Plan (1986-1990 and 1991-1995 respectively). Recognizing the urgent need to avoid and prevent further deterioration of the environment, individual state governments through the relevant Ministries, has also established a number of speacialized Committees and Task Forces to closely examine matters concerning the environment and co-ordinate and harmonize enforcement, monitoring and assessing activities among the various related agencies. It is also important to note the role played by non-governmental organizations (NGOs) which acts as government watchdogs. Oganizations such as the Malaysian Nature Society (MNS), Environmental Protection Society of Malaysia (EPSM) and Malaysian Nature Watch (MNW) are but a few examples that played important roles influencing the course of development process in the country. Important findings of researches pertaining to the environment are published by journals linking to these organizations.

Other Southeast Asian countries are following or will probably follow Malaysia's lead. In Singapore, the Anti-Pollution Unit was formed in the early 1970s under the Prime Minister's Office and the Ministry of Environment to better co-ordinate and regulate environmental issues pertaining to air, water and solid waste management. Indonesia established a Co-ordinating Ministry of Development and Environment in 1978, and the Philippines Government (influenced by American environmental legislation developments - notably the USA's National Environmental Policy Act of 1970) established a National Pollution Control in 1976.

Regional Strategies

More encouraging is the role played by the various United Nation Agencies in promoting environmental management in Southeast Asia. The UN Environment Programme (UNEP) has established a Regional Office in Bangkok Thailand. The UN Economic and Social Commission for Asia and the Pacific (ESCAP) established a Regional Centre for Technology Transfer (also in Bangkok) which

seeks to promote environmentally sound alternatives to development. A UN Asian and Pacific Development Centre has been established in Kuala Lumpur and has been active in promoting environmental assessment of Southeast Asian development projects (UNAPDC) and a UN Asian and Pacific Development Institute, established in Bangkok, has promoted the incorporation of environmental dimensions into Southeast Asian development planning. However, these institutions are more concerned about immediate environmental problems affecting the national level rather from the regional perspective.

Although there has been much despoilation of the Southeast Asian region's environment, there now seems to be growing awareness of the problems, sufficient to give one hope that the future is not one of total ruination and hopelessness. The question of enforcement and penalties thus becomes an important issue in tackling regional environmental problems.

International Environmental Law - A Case of the Law Abiding States?

Despite the multiplicity of rules and guidelines dealing with environmental problems, the environmental record of an individual state have not been too encouraging as far as incidents are concerned. Two main reasons could account for this, firstly, there is a need for a close assessment of the effectiveness of the enforcement system in light of rapid development taking place within the country and secondly, as the incident sources occur outside national boundaries, the need for collective agreement of nation states to fight the problem provides the long term solution. Coastal pollution and atmospheric haze are recurrent problems associated with the latter.

Some environmental issues are purely national in scope and thus becomes a national concern. Many others, however, have an international dimension. Thus, to the extent that law has a role to play in dealing with environmental issues, international law as well as national law is required. The main vehicle for the development of international law is the general multilateral treaty between three or more states, either on a regional or world-wide basis. In examining the role of any particular state in the development and implementation of an international environmental treaty, Churhill (1991) outlines four stages in a particular state roles: i) Its role in the preparation and negotiation of the treaty concerned. Such an examination is not always easy, because not all treaties have publicly available records for negotiations; ii) Signature and ratification by that state of the treaty concerned. Signing a treaty does not bind a state but indicates that it is considering ratifying the treaty. It is only the later act of ratification that leads to a state being legally bound by the treaty. Normally multilateral treaties require a specific number of ratifications

before they enter into force. Once in force, they are only binding on those states that have ratified; iii) Formal implementation, whether by legislation or otherwise, of the treaty concerned once it has been ratified; and iv) The way the formal methods of implementation actually operate in practice.

International law differs from the law of individual nation states in that it depends on the voluntary submission of governments. To a large extent international rules on matters such as pollution control only applies to states which have formally accepted treaties in which the rules were agreed. An example is the case of the outlawing of chloroflourocarbons by the council of the European Communities on the 26 March 1980. Amongst the decision adopted:

Member states shall take all approriate measures to ensure that industry situated in their territories does not increase their chlorofluorocarbon production capacity...

The decision statement quoted above is typical of those taken collectively by international treaties involving the setting up of international law on other forms of environmental problems. However, two immediate obstacles could be seen with regards to the implementation of the law. Firstly, how committed are the nation states, and secondly, the law do not effect adjacent countries not bounded by the treaty.

Although the general multilateral treaty is the main vehicle for the development of international law, there are two other subsidiary ways in which such law is being developed. The first of these is decisions of international organizations. Some international organizations have legislative or quasi-legislative powers because they can make decisions which bind their member states. The International Tropical Timber Organization (ITTO), for example, have established a set of criteria and indicators for sustainable forest management (SFM) at regional level as a basis for international certification rule. The final way in which international environmental law is being developed is through decisions of *ad hoc* international conferences, such as the series of conferences on global warming. Although the decisions of such conferences are primarily political in character, they are not without some legal significance. First, undertakings given by states at such conferences, even though essentially political in nature, may in some circumstances become legally binding, either because they are regarded as unilateral declarations intended to be binding or through the doctrine of *estoppel*. Secondly, even if such undertakings are not legally binding, they may in time be translated into treaties or decisions of international organizations and so become legally binding. Decisions of international conferences of this character are often known as 'soft law'.

For Southeast Asia international laws confronting key problems affecting the environment will have to be formulated, agreed upon and enforced by respective nation states. These should include amongst others laws that invloves

i) control of logging, collection of forest products, forest clearance, burning and destruction of wildlife; ii) creation of adequate sized, well-protected, forest reserves which hold representative selections of flora and fauna and which are viable in the long term; iii) reforestation and the establishment of tree plantations,especially on degraded land; iv) provision of alternative energy supplies or sustainable suppplies of fuelwood; v) development of strategies which helps the exploitation of highlands and steep terrains; vi) control of agro-industrial use of pesticide, sewage and industrial pollution; vii) transfer and disposal of hazardous chemicals and sewage; viii) the requirement that major development projects should be geared towards sustainability; and ix) accountability of transnational companies that involves directly or indirectly with the environment.

Although international laws on the environment have been conceptualized and enforced, transparent problems still exist. There is no immediate solution here though trade restrictions/ regulations (for example, trade restrictions involving imports of tropical hardwood, Table 5) and the reformation of loans from multilateral development banks have been introduced. Since the early 1980s, multilateral banks led by the World Bank and in Southeast Asia - the Asian Development Bank have shown themselves more willing to reform the development loan process to make it more sensitive to environmental considerations and less prone to environmental disasters. These banks in some cases could suspend loans until environmental consequences of the project were thorughly evaluated. Severe penalties should be impose on the huge transnational and multinational companies which pollutes the environment. The case of Eveready in Bhopal, India and the incident involving Exxon Valdez, Canada present good examples.

Conclusion

Man induced environmental hazards can never be divorced from an economy that depends on natural resource exploitation nor to one that evolves into a manufacturing-industrialization based economy. The rapid growth experienced by nation states of Southeast Asia into the 21st century requires the formulation and enforcement of national and international laws on the environment. National environmental policies are easily implemented, as the repercussions of the lack of effort on managing the environment would be fall back on the integrity of ruling political party, the social well being of the people and national security. But not much could be said of regional cooperation in arresting the problem. Although there are existing laws with reference to the exploitation of the air, seas and land of the region, the main problem here is surveillance and accountability of individual states towards environmental problems. National interests takes priority over international interests here.

References

1. Barrow, C., 1990. Environmental Resources. In: *South East Asian Development: Geographical Perspectives* (Denis Dwer eds.). Longman: New York.

2. Booth,A., 1995. South East Asian Economic Growth: Can The Momentum Be Maintained? *South East Asian Affairs* 1995, 28-47 pp. ISEAS.

3. Churchill, R.,1991. *International Environmental Law.* Basil Blackwell:U.K., 155-173 pp.

4. Holdgate,M.W. 1979. *A Perspective of Environmental Pollution.* Cambridge University Press. Cambridge.

5. Newson,M. et al. 1992. *Managing The Human Impact On The Natural Environment.* John Wiley: London.

6. Seda, M., 1993. *Global Environmental Concerns And Priorities:Implications For ASEAN. Perspectives On Critical Environmental Issues.* ISEAS 1993, 1-54 pp.

7. Webster, D., 1995. The Urban Environment In South East Asia : Challenges And Opportunities. *South East Asian Studies* 1995, 28-47 pp. ISEAS.