THE EFFORTS TO CONTROL LAND-BASED SOURCES OF MARINE POLLUTION IN SOUTHEAST ASIAN WATERS(*)

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1. INTRODUCTION

Even though land-based sources of marine pollution understandably constitute the most serious threat to the environmental health of the oceans, they received less public and diplomatic attentions than pollution from tankers, for example. This also happens in Southeast Asia. There are a number of efforts to control marine pollution, but mainly they are concerned with the problem of oil pollution. This paper will deal with this marine pollution from land-based sources in this region, and will seek to examine the efforts which have been made so far by the littoral countries (mainly ASEAN countries) and by the regional institutions such as ASEAN, ESCAP, and UNEP.

A. Geographical Situation

Southeast Asia is the generally accepted designation for the area of the Eastern Himalayan ranges, stretching from the Bay of Bengal and the Indian Ocean in the west and in the South to the Pacific Ocean in the East and South-East. The lands and seas of the region occupy some 18 million square kilometres (km²) of the earth's surface, an area broadly comparable to that of South America. Extending from approximately 28-degrees 30-minutes north to 11-degrees 00-minute south, and 92-degrees 20-minutes east to 134-degrees 50-minutes east, the region is a rectangle approximately 5,800 km east to west and 4,500 km north to south. Seas in this region occupy around two-thirds of the area, and represent about 2.5% of the surface of all oceans.¹

The Southeast Asian waters include the Andaman Sea, the Straits of Malacca and Singapore, the South China Sea (including the Gulf of Thailand), the Java Sea, the Flores Sea, the Banda Sea, the Arafura Sea, the Timor Sea, the Sulawesi (Celebes) Sea, the Sulu Sea, and the Philippines Seas. Except for the Andaman Sea and the Malacca Straits, oceanographically, they may be considered as part of the Pacific Ocean.

The Andaman Sea is the first door to the South Asian waters from the south. It is bounded by the Andaman and Nicobar islands (India) to the west, by Burma to the north and northeast, by Thailand to the east, and by Sumatra (Indonesia) to the south.

The Straits of Malacca and Singapore lie between the Andaman Sea in the northwest and South China Sea in the southeast, and between Sumatra in the southwest and Malaysia and Singapore in the northeast. Their overall length is about 500 nautical miles (mi), and their width is more than 200 mi at their northwest end, between Phuket, Thailand, and Sabang on the northeast coast of Sumatra. The Strait of Malacca is narrow to 8 mi where it joins the Singapore Strait, which becomes less than 2 mi wide at the middle Singapore Strait.

The South China Sea is 3,5 million km². It is a deep basin with a maximum depth of about 5,020 m and a mean depth of 4,300 m. Almost all of Southeast Asia's important waters are peripheries of the South China Sea or the Gulfs of Thailand and Tonkin. The coastal states have already claimed their 200-nmi-wide EEZ, and the relatively narrow east-west extent of the sea makes for a multiplicity of jurisdictional controversies as nations claim overlapping areas of EEZ and continental shelf. When the overlap areas are rich in fish or have good hydrocarbon resources, the prospects for conflict are greater. The South China Sea is bounded on the north by the gulf of Tonkin and the Luson Strait, on the west by the mainland shelf, on the south by the Sunda shelf, and on the east by the Philippine archipelagoes and Kalimantan island (Malaysia & Brunei).

The Java Sea is 162,662 square nmi. It is bounded by Sumatra on the west, Kalimantan (Indonesia) on the north, and Java on the south. It is completely within Indonesian archipelagic waters. This sea has an important place for Indonesian economic activities. There are important oil fields and fishing grounds off its shores. Three of Indonesia's important ports, Tanjung Priok, Semarang and Tanjung Perak, are on the southern coast of this sea.

However, the Southeast Asia region is politically divided into ten developing countries including Brunei, Burma, Indonesia, Kampuchea (Kheimer), Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam. All capital cities of these countries are by the sea, except Kuala Lumpur (Malaysia) and Vientiane (Laos).


Experts on the Scientific Aspect of Marine Pollution (GESAMP). Their definition of "marine pollution" is:

"Introduction by man, directly or indirectly, of substances into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for the use of sea-water and reduction of amenity."

In the development of marine pollution management, this definition was adopted, with a few changes in some parts, by other conferences such as the 1972 United Nations Conference on the Human Environment, the 1974 Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, the 1974 Paris Convention for the Prevention of Marine Pollution from Land-Based Sources, the 1976 Barcelona Convention for the Protection of the Mediterranean Sea against Pollution, the 1978 Kuwait Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution, and the 1982 United Nations Convention on the Law of the Sea.

The United Nations Conference on the Human Environment, which was created by Intergovernmental Working Group on Marine
Pollution, was held in Stockholm in June 1972. It defines "marine poli-
tection" as follows:

"The introduction by man, directly or indi-
crectly, of substances or energy into the
marine environment (including oceans),
resulting in such deleterious effects as
harm to living resources, hazards to
human health, hindrance to marine ac-
tivities, including fishing, degradation of
quality for the use of sea-water, and
reduction of amenity."  

The 1982 United Nations Conven-
tion on the Law of the Sea, in its
article I (1), states that:

"Pollution of the marine environment
means the introduction by man, directly
or indirectly, of substances or energy in-
to the marine environment, including
reserves, which results or is likely to result
in such deleterious effects as harm to liv-
ing resources and marine life, hazards to
human health, hindrance to marine ac-
tivities, including fishing and other legi-
imate uses of the sea, impairment of
quality for use of sea water and reduc-
tion of amenity."  

This definition is slightly different from the first two definitions. The
first two definitions are mainly based on cause-effect relationship,
while the core of the 1982 UN Conven-
tion on the Law of the Sea's de-

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5. UNEP, "Protection of the Marine En-
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6. Niki Meith and Richard Helmer,

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9. Abu Bakar Jafar & Mark J. Valen-
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10. Ibid.

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11. Ibid.

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12. Ibid.

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Law of the Sea, article I (1).

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Law of the Sea, article I (1).

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15. United Nations Convention on the
Law of the Sea, article I (1).

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Malacca), the BOD load on both an overall and per-coastal length basis are very high. Moreover, the annual BOD load from Jakarta is about 43,200 tons. Metropolitan Manila produces a liquid load of about 130,000 tons BOD per year, most of it from domestic sources. In the Bangkok region, the liquid pollutant load is estimated to be about 83,000 tons per year, most of it also mainly from domestic sewage. But, in the Inner Gulf, especially on the eastern Thailand Gulf coast, the liquid pollution is somewhat larger and most of it is from industrial sources.

Other sources which are considered as the most serious form of pollutants in Southeast Asia are sedimentation and heavy metals in suspension. Sedimentation (accumulation) is caused by agriculture, logging, terrestrial mining, construction and offshore mining activities. Heavy metals, including lead, mercury, cadmium, and silver, are reaching the sea from natural sources such as the weathering of rocks and volcanic eruptions, as well as from anthropogenic sources such as mining, industry, the burning of fossil fuels, and the dumping of wastes.

3) The Impact of Land-Based Sources Pollutants to the Marine Environment

The impact of pollutants on marine ecosystems is to the same in every place. It depends on the characteristics of the environments and the nature of the community the pollutants encounter. Then impact on the tropical waters may be quite different from their impact on the cold or temperate waters. There is relatively little research which has been done in Southeast Asian waters.

The general nature of the impact of land-based pollutants on the marine environment includes eutrophication, hypoxia, and contamination. Some pollutants can contribute to excess nutrient levels and low oxygen levels especially in estuaries and some coastal waters. Pathogenic organisms (e.g., certain bacteria, viruses, and parasites) contained in sewage or runoff can contaminate water and fish, resulting in direct risks to human health including outbreaks of hepatitis and parasitism. And, of course, land-based pollutants can also cause direct economic and recreational losses.

Some pollutants, such as heavy metals and organic chemicals, can only cause severe, short-term acute impacts on marine organisms, but also accumulate in the fatty tissue of these organisms. Then, when the latter are consumed by predators, some of these pollutants increase in concentration (biomagnification). So that they can cause long-term, chronic impacts on organisms, including humans.

The major ecological and economic effects of land-based sources pollution come from sedimentation, which reduces the penetration of sunlight and thereby inhibits photosynthesis in marine organisms. Sedimentation loads above the ambient average also cause respiratory disturbances in marine organisms, especially in such filter-feeders as cockles, mussels, oysters, shrimps, and crabs. Moreover, sedimentation, which is caused by dredging and offshore mining may release toxic gases such as hydrogen sulfide and result in local, short-lived fish kills.

II. The Responses to Land-Based Sources Pollution in Southeast Asia

A. International Responses

Until the early 1970s there was no substantial efforts by national governments to recognize the need to deal directly at the international level with the problem of land-based sources of marine pollution. The reason the international community hesitated to grapple with this problem is that the effects of these pollutants are likely to be felt in the coastal waters of the country where the pollution happens. In addition, and more significantly, any international agreement would infringe upon states rights to control domestic pollution, which many country do not want.

But since 1972, several international efforts to control this kind of pollution have been attempted. At least three of these important global international efforts relate, or closely relate to the problems of land-based sources of marine pollution. These include the 1972 UN Conference on the Human Environment (known as "Stockholm Declaration"), the 1982 UN Convention on the Law of the Sea, and the 1985 UNEP Guidelines on Protection of the Marine Environment Against Pollution from Land-Based Sources (known as "Montreal Guidelines").
From the 1972 Stockholm Declaration emerged the United Nations Environment Programme (UNEP) which concentrates on the problems of the marine and coastal environment of 10 regional seas.

The regime of marine pollution of the 1982 UN Convention on the Law of the Sea imposes an overall obligation on countries to prevent, reduce, and control transboundary pollution. It supports regional actions which not only combat pollution, but which also protect and preserve the marine environment as a whole. Article 194 on "Measures to prevent, reduce and control pollution of the marine environment", paragraph 2, specifically provides that:

"States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention." 20

For pollution from land-based sources, this Convention attempts, in article 207, to regulate as follows:

1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.
2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
3. States shall endeavour to harmonize their policies in this connection at the appropriate regional level.
4. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.
5. Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraph 1, 2 and 4 shall include those designed to minimize to the fullest extent possible, the release of toxic, harmful or otherwise objectionable substances, especially those which arepersistent, into the marine environment. 21

Furthermore, article 213 concerning "Enforcement with respect to pollution from land-based sources" mentions that:

"States shall enforce their laws and regulations adopted in accordance with article 207 and shall adopt appropriate measures to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.

These articles state that the polluting country has the responsibility to control land-based pollution. And enforcement involving land-based pollution is vested in individual countries, which are required to "adopt laws and regulations to prevent, reduce and control pollution". But, it is clear that these articles are too general. They also ask "to establish other global and regional rules, standards and recommended practices and procedures to enforce them."

The latest global effort on land-based sources of marine pollution is the Montreal Guidelines, which were produced by the Ad Hoc Working Group of Experts in Montreal on 11-19 April 1985, and approved by UNEP in Nairobi, Kenya, in the same year. This set of guidelines consists of an introduction, 19 guidelines and 3 annexes. These are aimed at assisting governments in the process of developing appropriate bilateral, regional and multilateral agreements, and national legislations for the protection of the marine environment against pollution from land-based sources. The nature of these guidelines is a recommendation model which provides a checklist of basic principles from which governments may select, adopt or elaborate, as appropriate, to meet the needs of specific regions. 22

These guidelines, as mentioned in their introduction, refer to the existing conventions or agreements such as the 1982 UN Convention on the Law of the Sea (especially Part XI), the Paris Convention for the Prevention of Marine Pollution from Land-Based Sources, the Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, and the Athens Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources. They offer sophisticated principles including a state's duty to prevent, reduce and control land-based sources pollution of the marine environment, a state's duty to cooperate on a global, regional or bilateral basis to establish rules, criteria, standards and recommended practices and procedures to prevent, reduce and control those kind of pollutants, a state's obligation to establish programs for monitoring and data management, specially protected areas, and to develop control and prevention strategies, and so forth. The three annexes provide detailed descriptions on (i) strategies for protecting, preserving and enhancing the ecological potential of the marine environment, (ii) the nature and characteristics of land-based sources, and (iii) the means and methods that can and should be taken to洋洋洒洒地改进海洋环境的状况。
quality of the marine environment, (ii) classification of substances; and (iii) monitoring and data management.

Even though only a recommended model, this set of guidelines marks the first global effort to deal specifically with land-based sources of pollution. Indeed, if the international community wanted to, it could consider this effort as the embryo of a global convention on the subject.

B. Regional Responses

Recently, the trend of marine pollution management is that marine pollution caused by oil spills from tankers is most appropriately handled by a global approach, while marine pollution from land-based sources is suitably coped with by a regional approach. As Dominique Alberthiere says: "...solution from land-based sources - call for regional action; while other forms, such as pollution from dumping by ships, could be conveniently tackled at the global level." The regional approach to making pollution control has proved to be extremely attractive and, to a certain extent, successful since the late 1960's. It can be noted that the 1969 Bonn Convention on the Prevention of Pollution of the North Sea was the beginning of legally organized regional efforts to deal with marine pollution control.25

Actually, there are two kinds of regional approach which can deal with marine pollution management, within the United Nations system and outside the United Nations system. But it is difficult to draw a line between these two kinds of arrangements. The basic difference between the two systems is that the regional approach within the UN system aims at universality, with regional arrangements a step towards global cooperation, while the regional approach outside UN system does not necessarily have this global perspective.

Regional approaches within the UN system are coordinated by UNEP. The UNEP's role in environmental management has accelerated in recent years with the development of its Regional Seas Programmes, which now includes 10 marine regions.26 These regional


anti-pollution programmes are co-ordinated by UNEP with four component standards: (i) Assessment of sources of pollution and of their effects, (ii) Management of natural resources on a sustainable basis and according to environmentally sound principles, (iii) Formulation and adoption of the legal components in the form of regional conventions and protocols, and (iv) Institutional and financial arrangements to implement the programme.27

Since the middle of 1970's, there are some regional institutions involved in marine pollution control in Southeast Asia including ESCAP, ASEAN, UNEP, IMO, AALCC, UNESCO/IOC, and so forth. Fifteen countries belong to the Economic and Social Commission for Asia and the Pacific (ESCAP), and including Bangladesh, China, Hongkong, Indonesia, Japan, Malaysia, Pakistan, Papua New Guinea, the Philippines, the Republic of Korea, Singapore, Sri Lanka, the Soviet Union, Thailand, and Vietnam. At its thirty-fifth session, held at Manila in March 1979, ESCAP recommended that protection of the marine environment and related ecosystems should constitute a priority area on which ESCAP should concentrate its efforts. This recommendation is likely too broad. ESCAP has had difficulties in developing marine regional action agreements. This has been caused by several factors, such as the enormous size of the macroregion, the number, diversity and political diversity of the countries participating, and the great disparities among them in managerial capacities.28

In the management of marine pollution, the principal concern of the ASEAN countries is oil pollution. Other sources, such as land-based sources pollution, seem to get little attention from ASEAN or from other existing international institutions in Southeast Asia. There were several efforts, of course, done among ASEAN countries or ASEAN with other international institutions to try to deal regionally and comprehensively with marine pollution problems, but oil pollution still dominates and has become the major issue. At the "International Workshop on Marine Pollution in East Asia Waters", organized jointly by UNEP, FAO and UNESCO/IOC on 7-13 April 1976 at University Sains Malaysia, Penang, ASEAN singled out three special priorities: (i) assessment of oil pollution and its impact on living resources; (ii) effects of oil-in-
Industrial wastes on the coastal ecosystem: and (ill) impact of pollution in the mangrove ecosystem and its productivity. Then, on June 17-21, 1980, a meeting of ASEAN-UNEP. Experts was convened at Baguio, the Philippines, and reviewed the Draft Action Plan for the East Asian Seas (one of the UNEP's Regional Seas Programs). The Second Meeting for the next review of that draft was held at Bangkok on 8-12 December, 1980. Finally, an Action Plan was adopted by the five ASEAN States at intergovernmental meeting at Manila in April 1981.

C. Coastal States Responses

1. Indonesia: A long time before the Ministry of State for Development, Supervision and Environment (now Ministry of Population and Environment) was established in 1977, or even before independence in 1945, Indonesia had already had regulations to control wastes from land-based sources. Those were the Peraturan Peraturan Umum -1936 (Aligene Water Regulation - Public Water Law), Sbl. 1936 No. 489 jo. Sib. 1949 No. 98, concerning the use of water resources, including the disposal of industrial wastes in public stream, and the Nuisance Ordinance, 1926, which was amended in 1940, regulating disposal of harmful wastes and establishing standards for the elimination of harmful wastes and from established industries.

Then, since the early 1970's, efforts to control marine pollution have broadened. Many study groups aimed to waste problems were established at several departments. In 1971, the Department of Health formed a Working Group on Environmental Pollution Control. In the same year, the Department of Mines and Energy established a Study Group on Pollution, one of the functions of which was inter-agency coordination. The latter group also consisted of representatives of research institute and Universities, and included the National Oceanographic Institute and the Marine Fisheries Research Institute. It was also charged with studying, evaluating, and formulating regulations concerning industrial pollution, particularly that of the petroleum industry.

Another group composed of the Directorate of Sanitary Engineering of the Department of Public Works and local authorities was formed to study the characteristics of water pollution caused by industrial effluents in Jakarta. There were also guidelines used by the Department of Health in evaluating alternative waste disposal systems for industrial wastes.

Earlier, in 1970, Indonesia launched Act No. 1 on Safety Law. It contains provisions which regulate waste disposal and smoke abatement in the industrial environment. But up to now these provisions were not effective because they needed other regulations to be enforced. In the field of pesticides, the efforts were relatively comprehensible. There are a number of regulations which have been in place since 1973, such as Presidential Decree No. 7, 1973, concerning regulation of distribution, storage and use of pesticides. This Presidential Decree is implemented by five Ministerial Directives, namely; Directive (Ministry of Agriculture) No. 201/Kpts/MP/5/1973 concerning offices regulating distribution, storage, and use of pesticides.

For the purpose of providing an umbrella to regulate a whole area of the environment, Indonesia promulgated Act No. 4 of 1982 concerning Basic Provisions for the Management of the Living Environment. This Act is simple and yet includes the possibility of development in the future, in accordance with circumstances, time and place; it contains basic provisions for further regulations concerning its implementation; and it encompasses all aspects of the living environment in order to form the basis for further regulations. One implementing regulation of this Act was announced on June 5, 1986 Government Regulation No. 29/1986 pertaining to Analysis of Impacts Upon the Environment.

2. Malaysia: The Malaysian national policy on environmental management is based on the 1974

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34 Ibid.
Environmental Quality Act. It gives power to the Minister in Charge of the Environment to regulate releases of wastes from all sources except those of mining, offshore exploration and exploitation, agriculture, logging, and earthworks. The Minister assigned the Director-General of Environment to initiate and coordinate studies and surveys for the purpose of making recommenda-
tions and of establishing standard and criteria of environmental quality protection.

To implement that Act, Malaysia introduced three sets of regulations relating to the disposal of sewage and industrial wastes, palm oil factories, and natural rubber processing factories. Those regulations are Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977 - P.U. (A) 342; Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978 - P.U. (A) 338; and Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979 - P.U. (A) 12. The disposal of waste from mining operations falls under Mining Enactment Federated Malay States (FMS) cap. 147 (1929) and its counterpart legislation. Sedimentation due to soil erosion is regulated by three separate laws: the Land Conservation Act (No. 3 of 1960); the Land 

cali Government Act, 1976 (L.M., Act 171), especially in sections 69 and 70; and the Street, Drainage and Building Act, 1974. Furthermore, there is the Pesticides Act, 1974 (L.M., Act 136) which is administered by the Pesticides Board in the Ministry of Agriculture. This Board is an inter-departmental co-

ordination board, with representatives from other ministries, namely, the Ministry of Health and the Ministry of Science, Technology, and Environment.

Operationally, Malaysia applies a combination approach between long-term planning and rapidly implemented anti-pollution measures which can be revised with changing circumstances. To control water pollution, for example, this approach has begun by identifying the more important of the nation's forty-nine river basins, based on their beneficial use, and by establishing a sequence of priorities aimed at maintaining water quality. Particular river basins were identified by the Department of Environment as "water pollution prevention areas" in which immediate control was required. In these areas, "point" discharge of serious pollutants has been identified and is subject to effluent controls.

1. The Philippines: In June 1964, the Philippines launched Act, R.A. No. 3931 concerning pollution control law. This Act created the National Water and Air Pollution Control Commission, under the office of the President, and including representatives of several government departments. But this commission didn't give power to prevent a polluter from continuing to damage the environment. Then, in 1967 the Philippines, with Act R.A. No. 5173, established the Philippines Coast Guard (PCG). The Function of PCG were reinforced by Presidential Decree No. 600, No. 602 and No. 979. The first decree, as amended by P.D. No. 979, empowered PCG to prescribe, promulgate, and enforce rules and regulations for the prevention and control of marine pollution. P.D. No. 602 established the National Operation Center for Oil Pollution (NOCOP) in the PCG headquarter.

Another important Presidential Decreer relating to the control and prevention of pollution in the marine environment is P.D. No. 984. This decree created the National Pollution Control Commission (NPCC). In consonance with the

39 NOCOP also function as the Philippines institutional link with similar agencies in other countries of the Association of Southeast Asian Nations to render assistance in case of a major oil spill in the region. See Kenneth Rudder, Op.Cit., p. 169.

40 Other Institutional Programmes and Projects to Control Marine Pollution are the Philippine Atomic Energy Commission (PASCO), the National Irrigation Administration (OIAA), the Philippine Council for Agricultural and Resources Research (PCARR), and the Bureau of Fisheries and Aquatic Resources (BFAR). In recent years the PCG has issued detailed Rules and Regulations for Prevention, Containment, Abatement and Control of Marine Pollution. These measures regulate to the discharge of oil, oily mixtures, toxic substances, and "refuse matter" into the sea, bays and other water areas, rivers, and lakes. See Douglas M. Johnstone, Op.Cit., p. 63. Also see Kenneth Rudder, Ibid., p. 171.

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Ibid. 

tion and disposal systems, septic tanks discharged directly into the street canals and storm drains and ultimately into river systems. Because of the costs of implementation, there is no specific measures and standards for the control of mining discharges. Also, there are no local standards for pesticides and chemical fertilizers. The Fertilizer and Pesticide Authority (FPA) adopts the recommended international standards on pesticides by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO), as well as the standards set by the Food and Drug Administration of the United States. Furthermore, the Philippine Environment Code instructs the National Environmental Protection Council (NEPC), which was established in 1977 by P.D. 1121, to organize and coordinate an interagency task force to study and evaluate pollution problems.42

Singapore: Among ASEAN countries, Singapore is perhaps the most effective country in maintaining the environment. Her effort began in 1972 when the Anti-Pollution Unit was approved formally as an ad hoc body in the Prime Minister's Department. Afterward several government bodies such as the Ministry of the Environment, the Port of Singapore Authority, the Primary Production Department, the University of Singapore, and the Regional Marine Biological Centre for Southeast Asia become involved in data collection on both marine and freshwater pollution. This work is undertaken both to monitor environmental conditions and to provide a scientific basis for the revision and formulation of pollution control measures.43

The main regulation dealing with land-based sources of pollution is the Water Pollution Control and Drainage Act of 1973. It is administered and enforced by the Ministry of the Environment. Almost 60% of the population is served with sewage system, and the sewage is treated at the Sewerage Department's treatment works before discharge into the sea. Singapore has also developed an upgraded waste system so that sewage effluent which has been treated can be provided to supply industries or factories.43

Thailand: Thailand is contributing, relatively speaking, a huge amount of waste into the Southeast Asian waters, but its efforts to control and prevent water pollution is minimal. It has the National Conservation of National En-

vironmental Quality Act of 1975 and the Factory Act of 1966, which deal directly or indirectly with environmental protection. But, the enforcement of these laws is ineffective because they are not supported by a well-organized infra-structure, and also because the laws are weak. The Industrial Environment Division at the Ministry of Industry, which is charged with enforcement of environmental pollution laws, is understaffed and underpaid, and the penalty for violating, e.g., Section 20 of the Factory Act (which calls for the disposal and destruction of waste or surplus materials containing poisonous elements or flammable materials), is imprisonment for up to one month only or a fine of up to 10,000 baht (approximately US $500 only), or both. Furthermore, the process of enforcement is quite complicated. The suspected violator has to be served with a prior warning, and any injured party has to institute a tort case to collect compensation for alleged damages.44

Recently, there have been many efforts to develop marine pollution controls. Several institutions are involved in those efforts including the Asian Institute of Technology, the Applied Scientific Corporation of Thailand, and the Division of Sanitary Engineering of the Department of Health. The Department of Marine Science at Chulalongkorn University is also actively conducting research in the field of marine pollution. These efforts, if properly coordinated, could provide the essential baseline data for more adequate planning of pollution controls in Thai coastal water.45

**VI. CONCLUSION**

Marine pollution from land-based sources in Southeast Asian waters is becoming progressively more severe. They demand serious control and management. Research on the physical and chemical characteristics in that region is required so that the processes or the impact of pollutants can be better understood. The effective exchange of information among coastal states should be developed.

Some cities in the region have adequate sewage systems or treatment plants for sewage or industrial wastes, but most lack control of those pollutants. Even though some countries have national policies for management of their marine environment, they still need the supporting regulations to make those national laws effective.

The existing regional approach to promote control for the prevention of land-based sources of pollution in Southeast Asian waters.
are not satisfactory, so that coastal states must make efforts regionally to manage these kinds of pollutants. The first step in doing so is the identification of the overall elements of the problem. This work could be accomplished within the operational framework of the Action Plan. In doing so, coastal states should pursue a number of special and organizational initiatives within geographically limited (subregional) groups of neighboring littoral states whose land-based activities interact resulting in marine pollution; or between two or more littoral states with comparable problems, such as industrial waste disposal and sewage treatment in estuaries and other coastal areas adjacent to major rivers. A joint task force, between or among the interested states, could be established to undertake a number of coordinated research projects. It is to be hoped that a set of recommendations will be produced by such a joint task force, and finally that the participating governments would agree to adopt these recommendations in a bilateral or regional agreement or convention.

At the international level, the development of marine pollution management is hopeful. The UNEP's Regional Seas Programmes can be used as the link to build an international regime on the subject. It can be hoped that the 1982 UN Convention on the Law of the Sea will come into effect in the future, whether by ratification or by the nature of international law itself that provides the opportunity for the emergence of new customary law, based on state and multi-state practice and international acceptance, and in this context, the 1985 Montreal Guidelines is the seed for an international legal regime on land-based sources of marine pollution.

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BAB I
PENDAHULUAN

A. Latar Belakang

Lima tahun yang lalu Pemerintah merasa senang dengan Direktur Perekonomian Rakyat (DPR) telah berhasil menyelesaikan lima Rancangan Undang-Undang sebagai kerangka landasan pembangunan di bidang politik.


Dengan lima Undang-Undang bidang politik tersebut, kehidupan infrastruktur politik, khususnya organisasi kekuatan sosial politik dan organisasi kemasyarakatan diharapkan semakin dijamin gerakan mengarahinya dalam kehidupan bersama, kiri, berbangsa dan bernegara.

Undang-Undang Pemilihan dan Undang-Undang tentang Susunan dan Kedudukan MPR, DPR dan DPD masing-masing telah memastikan organisasi kekuatan sosial politik pada peran yang lebih efektif dan sekaligus mencerminkan terbujarnya sistem politik terhadap dinamika dan perkembangan yang ada dalam masyarakat. Sedangkan Undang-Undang tentang Partai Politik dan Golongan Karya memberikan dimensi pembaharuan dengan menggali kembali Pancasila sebagai asas bagi Partai Politik dan Golongan Karya, yang dogan sendirlunya memori aturan baru pola orientasi pada kompetisi politik programatis.