

Issues on Environmental Management Through Legislative Measures in Malaysia

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ABSTRACT

The management of the environment through legislative measures is not new in Malaysia. The first attempt to address the problems of land degradation and silting in water courses due to mining activities through legislative measures was made at the close of last century. Since then a number of other environment-related legislation was made covering various aspects of the environment. To date, there are at least 43 pieces of environment-related legislation which are still in effect. This paper examines the management of the environment through legislative measures in Malaysia. It evaluates the strengths and weaknesses of environmental management through legislative measures in Malaysia in relation to specific environmental issues such as water quality, air quality, solid waste management and noise pollution. The enforcement of legislation especially for the control of water pollution discharges from prescribed premises has been quite successful. However, for the control of air and noise pollution, the enforcement effort has been quite slow and not very effective and may be on the other hand which is more acute; the relevant legislation is simply not enforced. It is suggested that all the available environment-related legislation together with the institutional arrangement to be given a thorough review to ensure a more effective enforcement.

ABSTRAK

Pengurusan alam sekitar melalui tindakan undang-undang bukanlah sesuatu yang baru di Malaysia. Percubaan pertama secara undang-undang bagi mengatasi masalah kemerosotan kualiti tanah dan kelodakan air yang disebabkan oleh kegiatan melombong telah dilakukan di akhir kurun yang sudah. Sejak itu beberapa undang-undang lain yang berkaitan dengan alam sekitar telah diwujudkan. Kini terdapat sekurang-kurangnya 43 undang-undang yang berkaitan dengan alam sekitar yang masih dikuatkuasakan. Kertas ini membincangkan pengurusan alam sekitar melalui langkah undang-undang di Malaysia. Kekuatan dan kelemahan langkah-langkah ini dinilai dengan rujukan kepada isu-isu tertentu alam sekitar seperti kualiti air dan udara, pengurusan pembuangan sisa pepejal dan pencemaran bunyi. Penguatkuasaan undang-undang terutama dari segi pencemaran air dari

tempat-tempat yang telah ditetapkan agak berjaya. Tetapi bagi pengawalan pencemaran udara dan bunyi bising, langkah penguatkuasaannya kurang berkesan dan pada sebahagiannya yang mungkin lebih mendesak undang-undang yang berkaitan tidak langsung dikuatkuasakan. Adalah dicadangkan supaya semua peraturan yang berkaitan dengan alam sekitar dikaji semula bagi memastikan keberkesanannya.

INTRODUCTION

The management of the environment through legislative measures is not a new or recent phenomenon in Malaysia. In fact the first attempt at using legislations in managing the environment was made at the close of last century. Since then a number of other environment-related legislations were enacted. However, despite the availability of numerous environment-related legislations, parts of the environment are still experiencing degradation while new areas are constantly being added to the list of those areas needing proper environmental management strategies.

This paper examines the management of the environment through legislative measures in Malaysia. The paper will first look into the environmental related policies and the legal instruments in trying to meet the policy objectives. The state of the environment will then be assessed in terms of the effectiveness of environmental management efforts through legislative measures. The paper focusses on a number of issues related to the management such as the provisions in the Constitution, inadequacies of the legislations, institutional arrangements, and enforcement which render the management efforts in Malaysia still not very effective.

ENVIRONMENTAL POLICIES AND STRATEGIES

The setting up of the Division of Environment (presently known as the Department of Environment) three years after the Stockholm Conference in 1972, marks the beginning of an organized and committed effort of the government as regards the environment in general. The inclusion of the National Environmental Policy for the first time in the Third Malaysia's five-year development plan (Malaysia 1976a), shows the government's concern for the environment alongside the efforts to develop the nation's economy. Malaysia's overall environmental policy takes account of the following factors:

1. The impact that population growth and man's activities in resource development, industrialization and urbanization have on the environment.

2. The critical importance of maintaining the quality of the environment relative to the needs of the population, particularly in regard to the productive capacity of the country's land resources in agriculture, forestry, fisheries and water.
3. The need to maintain a healthy environment for human habitation.
4. The need to preserve the country's unique and diverse natural heritage, all of which contribute to the quality of life.
5. The interdependence of social, cultural, economics, biological and physical factors in determining the ecology of man.

The policy of sound environmental management continues to be the thrust in the Fifth Malaysia Plan, 1986-1990 (Malaysia 1986), and further reinforced in the Sixth Malaysia Plan, 1991-1995 (Malaysia 1991), whereby the following environmental policy objectives are outlined:

1. "...to maintain a clean and healthy environment...".
2. "...to maintain the quality of the environment relative to the needs of the growing population...".
3. to minimise "(the) impact of the growing population and human activities relating to mineral exploration, deforestation, agriculture, urbanization, tourism, and the development of other resources on the environment...".
4. to balance "...the goals for socio-economic development and the need to bring the benefits of development in a wide spectrum of the population...against (the) maintenance of sound environmental conditions...".
5. "...to place more emphasis on prevention through conservation rather than curative measure ..."inter alia by preserving the country's unique and diverse cultural and natural heritage.
6. "...to incorporate an environmental dimension in project planning and implementation..." inter alia by determining "...the implication of the proposed projects... and the costs of the required environmental mitigation measures through the conduct of Environmental Impact Assessment" studies.
7. to promote "(greater) co-operation and increased coordination among relevant federal and state authorities..." as well as "... (among) the ASEAN Governments...".

In the light of implementing the sustainable development concept, the Sixth Malaysia Plan 1991-1995, outlines a more purposeful and comprehensive policy on environment and development. During the five-year plan the government will develop better techniques for integrating environmental considerations in the formulation of programmes and projects. Consistent with the spirit of the Langkawi Declaration on the Environment (CHOGM 1989) the policy of promoting sustainable development will be given priority. Focus will be given to conservation, environment and

ecological balance within the context of sustainable development (Malaysia 1991).

In order to achieve the goals of the environmental objectives outlined above the Department of Environment adopted a three-pronged strategy based on pollution control and prevention, the integration of environmental factors in project planning and implementation, and environmental inputs into resource and regional development planning. The three-pronged strategy is supported by other on-going environmental programmes that include environmental monitoring; environmental education, information and training; environmental research and development; inter-agency and Federal-State co-operation and programmes coordination through the State Environmental Action Committees as well as through bilateral, regional and international legal and institutional arrangements. The following section will look at the environmental related legislations available which forms an integral part of realizing the environmental policy objectives outlined above.

ENVIRONMENTAL LEGISLATIONS

Legislative measures have long been used in Malaysia in managing the environment. Presently there are at least 43 environmental related legislations in Malaysia (Table 1). However, most of the legislations were not actually formulated to deal with the environment in general. A larger proportion of the legislations seeks to regulate human activities that may directly or indirectly affect the quality of the environment, while some are preventive in nature for the purpose of controlling the recurrence of fresh sources of pollution and retarding any possible environmental deterioration. When the legislations were made they were naturally sufficient to tackle whatever related problems at that time. However, especially after Independence when the progress of development was very rapid, these legislations were rendered inadequate to tackle the problems of environmental deterioration, especially from a number of new sources.

Most of the legislations as listed in Table 1 are largely sectoral in character focusing on specific activity areas and do not encourage an integrated approach to environmental policy implementation. Furthermore, most of them are under the jurisdiction of a number of other government agencies. Even for matters related to certain pollution aspects such as water, air, noise, and solid waste are put under the charge of a number of government departments.

The Environmental Quality Act, 1974 (Malaysia 1974a), was made as a comprehensive piece of legislation that provides an equal basis for the coordination of all activities related to the control of the environment. This act forms the basis for the development of environmental legislation in this

TABLE 1. Environment related legislations in Malaysia

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1. Waters Enactment, Chapter 146, 1920
 2. Mining Enactment, Chapter 147, 1929
 3. Mining Rules, GN. 2426, 1934.
 4. Forest Enactment, Chapter 153, 1935
 5. Natural Resources Ordinance, 1949
 6. Poisons Ordinance, 1952
 7. Merchant Shipping Ordinance, 1952
 8. Sale of Food and Drugs Ordinance, No. 28 dan LN 537, 1952
 9. Dangerous Drugs Ordinance, No. 30, 1952
 10. Federation Port Rules, 1953
 11. Irrigation Areas Ordinance, No. 31, 1953
 12. Drainage Works Ordinance, No. 1, 1954
 13. Medicine (Sales and Advertisement) Ordinance, No. 10, 1956
 14. Explosives Ordinance, 1957
 15. The Road Traffic Ordinance, 1958
 16. Land Conservation Act, Act 3, 1960
 17. National Land Code, Act 56 & P.P. 474, 1965
 18. Housing Development Act (Licensing and Control), 1965
 19. Radioactive Substances Act, Act 17, 1968
 20. Civil Aviation Act, Act 3, 1969
 21. Malaria Eradication Act, Act 52, 1971
 22. Continental Shelf Act, 1966, Act 83 (Revised), 1972
 23. Petroleum Mining Act, Act 95, 1972
 24. City of Kuala Lumpur (Planning) Act, Act 107, 1973
 25. Environmental Quality Act, Act 127, 1974
 26. Geological Survey Act, Act 129, 1974
 27. Street, Drainage and Building Act, Act 133, 1974
 28. Aboriginal Peoples Act, 1954, Act 134 (Revised), 1974
 29. Factories and Machinery Act, 1967, Act 139 (Revised), 1974
 30. Pesticides Act, Act 149, 1974
 31. Destruction of Disease-Bearing Insects Act, Act 154, 1975
 32. Municipal and Town Boards (Amendment) Act, Act A289, 1975
 33. The Protection of Wildlife Act, Act 76, 1972; (Revised), 1976
 34. Antiquities Act, Act 168, 1976
 35. Local Government Act, Act 171, 1976
 36. Town and Country Planning Act, Act 172, 1976
 37. National Parks Act, Act 226, 1980
 38. Malaysian Highway Authority Act, Act 231, 1980
 39. Pig Rearing Enactment, 1980
 40. Atomic Energy Licensing Act, Act 304, 1984
 41. Exclusive Economic Zone Act, Act 311, 1984
 42. National Forestry Act, Act 313, 1984
 43. Fisheries Act, 1963, Act 317, 1985
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country. Section 3 (1) of the Act allows the appointment of a Director General of Environmental Quality to administer this Act and whose powers, duties and functions, among others, shall be to co-ordinate all activities relating to the discharge of wastes into the environment and for preventing or controlling pollution and protecting and enhancing the quality of the environment.

Actually the Environmental Quality Act is not only enacted for the purpose of preventing environmental deterioration but also to enhance the quality of the environment. For these purposes the Act contains clear provisions as regards a number of environmental related aspects, such as air pollution (Section 22); noise pollution (Section 23); pollution on land (Section 24); pollution of inland waters (Section 25); oil pollution or mixture containing oil into Malaysian waters (Section 27); and discharge of wastes into Malaysian waters (Section 29). All prohibitions contained under the various sections mentioned above are to be specified by the Minister after consultation with the Environmental Quality Council (Section 21). In addition, Section 34 (A) Environmental Quality Act (Revised), 1985 as enforced on 9 January 1986, requires a report on impact on the environment resulting from prescribed activities to be submitted to the Director General, who shall after examining and inquiries decide whether to approve or not to approve the report.

Section 51 (1) of the Environmental Quality Act, allows the Minister after consultation with the Council to make various regulations for the protection of the environment. The regulations can prescribe standards or criteria, prohibit discharge, emission, or use of any equipment and requiring the exercise of safety precautions for operations. To further enhance the strategy of the Department of Environment in controlling pollution and remedying adverse environmental conditions several regulations were gazetted for enforcement under the Environmental Quality Act, 1974 (Table 2).

PRESENT STATE OF THE ENVIRONMENT

Malaysia's economic development strategy since the introduction of the New Economic Policy (NEP) in 1970 not only involved basic changes in the quest for achieving the goal of eradicating poverty, but also had hastened the development process in the following years especially during the 1970 - 80 decade. The rapid development process sometimes was carried out without taking real consideration on the possible impact on the environment. As such a number of environmental related problems surfaced parallel to the development efforts. Actually, environmental quality degradation is not a new problem in Malaysia since the same problem which was of lesser magnitude existed even during the colonial period. At that time the environment could absorb part of the pollutants generated by various sources. However, recently pollution has reached a stage where its adverse

TABLE 2. Regulations and orders enforced by
the Department of Environment

Regulations/Order	Effective date of Enforcement
• Environmental Quality (Licensing) Regulations 1977, P.U.(A) 198	01 Oct. 1977
• Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977 Amendment (1982), P.U.(A) 342	04 Nov. 1977
• Motor Vehicle (Control of Smoke and Gas Emissions) Rules 1977 (made under the Road Traffic Ordinance 1958), P.U.(A) 414	22 Dec. 1977
• Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977, P.U.(A) 199	01 July 1978
• Environmental Quality (Clean Air) Regulations 1978, P.U.(A) 280	01 Oct. 1978
• Environmental Quality (Compounding of Offences) Regulations 1978, P.U.(A) 281	01 Oct. 1978
• Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 Amendment (1980), P.U.(A) 338	01 Dec. 1978
• Environmental Quality (Sewage and Industrial Effluents) Regulations 1979, P.U.(A) 12	01 Jan. 1979
• Environmental Quality (Prescribed Premises) (Raw Natural Rubber) (Amendment) Order 1978 P.U.(A) 337	01 Apr. 1979
• Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985, P.U.(A) 296	11 July 1987
• Environmental Quality (Motor Vehicle Noise) Regulations 1987, P.U.(A) 244	16 July 1987
• Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, P.U.(A) 362	01 Apr. 1988
• Environmental Quality (Scheduled Wastes) Regulations 1989, P.U.(A) 139	01 May 1989
• Environmental Quality (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989, P.U.(A) 140	01 May 1989
• Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989, P.U.(A) 141	01 May 1989

Source: Department of Environment 1992

effects are beginning to be felt, especially in urban areas where there is concentration of population and activities. Although in general the pollution level in Malaysia is still lower compared to the level of pollution in some developed countries, there is a cause for concern as the situation can get worse, especially with increasing number of development projects approved annually. This section looks at the problems of water pollution, air quality, noise pollution and solid and hazardous waste pollutions.

WATER POLLUTION

The seriousness of water pollution problem in some areas during the early 1970's was confirmed by studies conducted by the Division of Environment whereby in 1976 there were a total of 42 rivers in Peninsular Malaysia alone which were polluted, another 16 were beginning to be polluted and seven more were having the potentials to be polluted (Bahagian Alam Sekitar 1982 : 7). However, the condition has improved in the earlier years of the 1980 decade (Department of Environment 1986 : 10) and in 1987, out of 35 main rivers monitored by the Department of Environment, only four rivers were still grossly polluted (Jamaluddin 1990). However, the overall situation has not changed very much for the five-year period between 1987 and 1991 (Table 3). In fact a number of the previously clean rivers has become slightly polluted (Department of Environment 1992).

TABLE 3. Malaysia: status of river water quality, 1987 - 1991
(in terms of Water Quality Index)

Status	1987	1988	1989	1990	1991
Clean	43	48	45	48	37
Slightly polluted	45	40	43	35	44
Very polluted	3	3	3	7	6

Source: Department of Environment 1992: 53

Insofar as the sources of water pollution is concerned, the Department of Environment identified sewage and animal waste as the major contributors to river pollution in 1991, with silt ranking a close second (Department of Environment 1992: 33). The index of $\text{NH}_3\text{-N}$ showed that 47 percent of the 53 rivers in Peninsular Malaysia were found to be very polluted. In comparison, 1990 revealed 41 percent of the rivers were very polluted.

The Department of Environment identified silting due to land erosion as a very serious problem of river pollution in the mid-1980s (Department of

Environment 1986), and in fact in 1987 there were 11 rivers in Peninsular Malaysia which were seriously polluted by suspended sediment (Jamaluddin 1990). The situation has worsened due to intensive land clearing, uncontrolled development, mining and logging activities which resulted in 29 rivers (54 percent) were classified as very polluted and 20 percent slightly polluted in 1991 (Department of Environment 1992). Silting not only lead to the shallowing of rivers, but also flooding, especially flash floods in urban areas, such as in Kuala Lumpur, which tend to be more frequent and more serious (Jamaluddin 1986, 1988; Jamaluddin & Sham 1987).

Previously, the major sources of water pollution were the agro-based industries especially from rubber factories, palm oil mills, pineapple factories, tapioca factories and sugar factories which discharged high amount of organic effluents especially into rivers and other water courses. However, with more stringent control measures adopted by the Department of Environment since 1977, the BOD load has been greatly reduced. In 1991 only five rivers were seriously polluted in terms of BOD.

Another type of water pollution in rivers passing through an urban area is suspended solid waste. The problem of suspended solid waste in the river which is caused by squatters who treat the river as their backyard for disposing their domestic waste is given a clear account by Hairi, Sulong & Jamaluddin (1987); Jamaluddin (1987a; 1987b) in their studies along Sungai Klang and its tributaries.

Monitoring of heavy metals in rivers revealed that in 1991 three rivers in Penang were badly affected by mercury pollution and a number of rivers in Peninsular Malaysia were having lead levels exceeding 0.02 mg l^{-1} (Department of Environment 1992). Most of the affected rivers are situated in the west coast of Peninsular Malaysia where there is more rapid land use development and industrialization.

Insofar as marine pollution is concerned, in terms of oil pollution the coastal waters of South China Sea are relatively less polluted compared to the Straits of Malacca. However, with the increase in oil exploration and production from oil rigs off the coasts of Peninsular Malaysia and of Sabah and Sarawak, it can be reasonably expected that there could have been a concomitant increase in coastal marine pollution. In any case, since these waters are major shipping lanes they are subject to pollution as a result of washing of tanks at sea and minor accidents or collisions of ships.

In 1987 through to 1991, the coastal waters of Malaysia on the whole was still polluted due to suspended solid, *Escherichia Coliform*, and oil and grease (Department of Environment 1989a; 1989b; 1990; 1991; 1992). The coastal waters was also polluted by toxic heavy metals such as cadmium, chromium, copper, lead, mercury and nickel especially in the northern states of the Peninsula.

AIR POLLUTION

In the past some researchers were of the opinion that air pollution was not going to be a serious problem for Malaysia because this country receives heavy rainfall in the order of 2200 mm annually which was thought to be able to wash away the air pollutants. Recently, however, as a result of rapid urban development and industrialization the opinion does not seem to work, especially in the urban centres (Sham & Jamaluddin 1987).

The industrial and vehicular traffic congested areas in the country continued to record high levels of particulates, whilst the levels of particulates remained relatively low in the commercial, residential and rural areas (Department of Environment 1990). In the heavy vehicular traffic areas, 83% of the stations monitored in 1989 recorded annual mean concentrations exceeding the Recommended Malaysian Annual Guideline of $90 \mu\text{g m}^{-3}$ (annual mean of 24-hour measurements). In the industrial areas, five out of nine stations monitored by the Department of Environment recorded mean values exceeding the Recommended Malaysian Annual Guideline. On the whole in 1989, there was a slight increase in the annual mean concentration of total suspended particulates (Department of Environment 1990: 42). The status and trend of total suspended particulates concentration by area type is given in Table 4.

TABLE 4. Annual mean concentration of total suspended particulates by area type, 1985 - 1989 (mg/m³)

Area	1985	1986	1987	1988	1989
Traffic	154	128	99	107	132
Industrial	80	96	115	92	97
Commercial	190	-	152	76	90
Residential	90	78	41	62	70
Rural	-	-	-	49	76

Source: Department of Environment 1990

In 1991 the levels of total suspended particulates has increased up to three times above the normal levels due to the haze episode reportedly caused by the forest fire in Indonesia. However, the annual mean of total suspended particulates in the traffic and industrial areas were higher compared to commercial or residential areas (Department of Environment 1992). During the haze in October 1991, the PM-10 readings were as high as $190 \mu\text{g m}^{-3}$

in some places, otherwise the readings were low or marginal compared to the recommended limit of the Guidelines for Malaysia ($150 \mu\text{g m}^{-3}$ for 24 hours observation or $50 \mu\text{g m}^{-3}$ for one year observation).

Lead level in the air was high in 1981-1984 period, especially in commercial areas of major towns of Kuala Lumpur and Georgetown (Department of Environment 1986). However, the situation has improved especially in the traffic and industrial areas. The level of lead in the traffic areas was $0.43 \mu\text{g m}^{-3}$ in 1991 compared to $1.45 \mu\text{g m}^{-3}$ in 1989 and $0.48 \mu\text{g m}^{-3}$ in 1990. In the industrial areas the level of lead was $0.09 \mu\text{g m}^{-3}$ in 1991, whereas in 1989 and 1990 the levels recorded were $0.23 \mu\text{g m}^{-3}$ and $0.89 \mu\text{g m}^{-3}$, respectively (Department of Environment 1992).

According to Sham (1986), the problem in relation to carbon monoxide, oxides of nitrogen and ozone is still not widespread in this country and only concentrated in major urban centres. However, the problem is now quite serious in certain places such as along some major roads in the commercial districts of Kuala Lumpur.

Records of monitoring for dust fallout by the Department of Environment in 1989 show high concentration in the industrial as well as commercial areas. Both these areas recorded levels exceeding $133 \text{mg m}^{-2}\text{day}^{-1}$ (Recommended Malaysian Guideline for dust fallout). Although the levels in residential areas did not exceed the recommended figure, the values were very close to it (Department of Environment 1990).

Figure 1 shows the trend of emission of pollutants to the atmosphere by various sources between 1987 and 1991. It can be observed that the major contributor is the motor vehicles, while other sources combined generate less than 30 percent of pollutants emitted in 1991.

NOISE POLLUTION

Noise pollution is presently assuming importance as one of our environmental problems especially in residential areas, in the vicinity of schools and educational institutions, and in urban commercial areas (Jamaluddin & Anuar 1992). The Department of Environment reported an increase in noise levels in 1984 in most of their sampling stations compared to 1981 - 1982 period (Department of Environment 1986: 12). Based on the 1984/85 sampling data of traffic noise in major urban areas and their surroundings in Peninsular Malaysia, only Kuantan and its surroundings recorded traffic noise level below 65 dBA (Figure 2). For other urban areas the levels exceeded 70 dBA, with the highest levels recorded in Kuala Lumpur and followed by Prai and Ipoh. None of the urban centres recorded noise levels below 65 dBA (recommended noise level standard for commercial areas).

According to the Department of Environment, in terms of community noise, Penang and Kuala Lumpur recorded the highest levels where 10 percent of the samples for Penang and Kuala Lumpur recorded noise levels

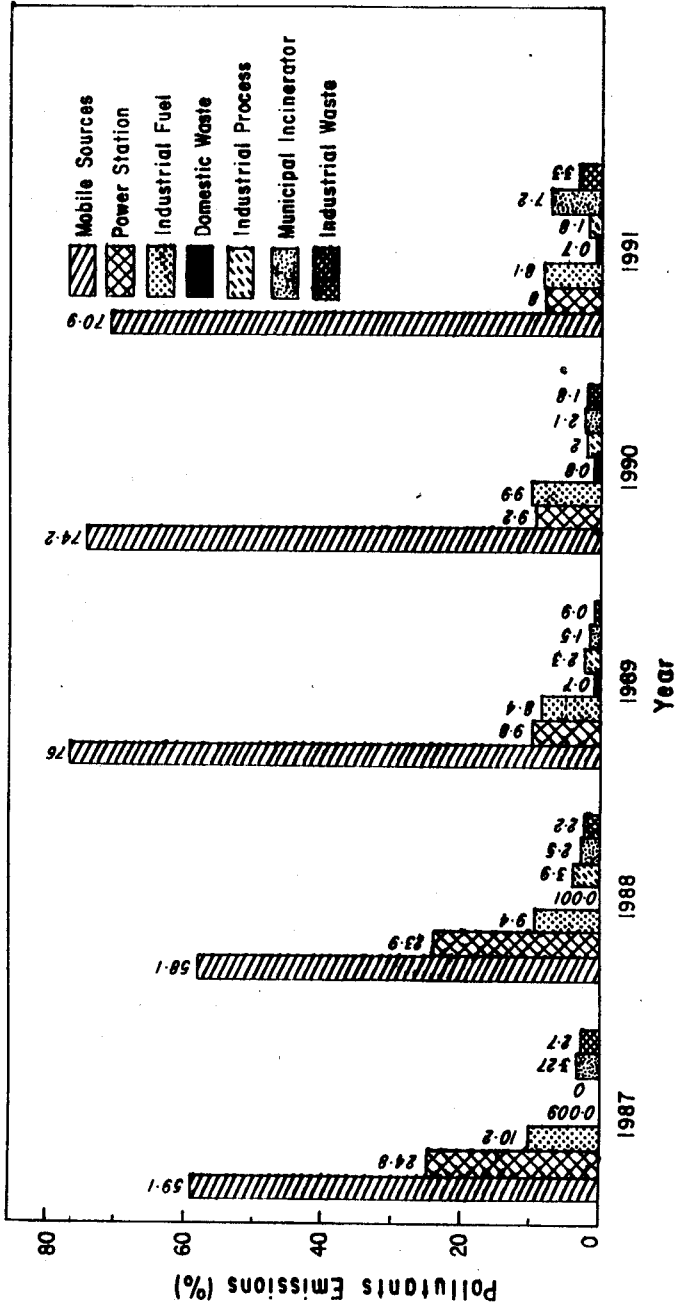


FIGURE 1. Malaysia: trend of emission of pollutants to the atmosphere by various sources, 1987-1991 (Source: Department of Environment 1991)

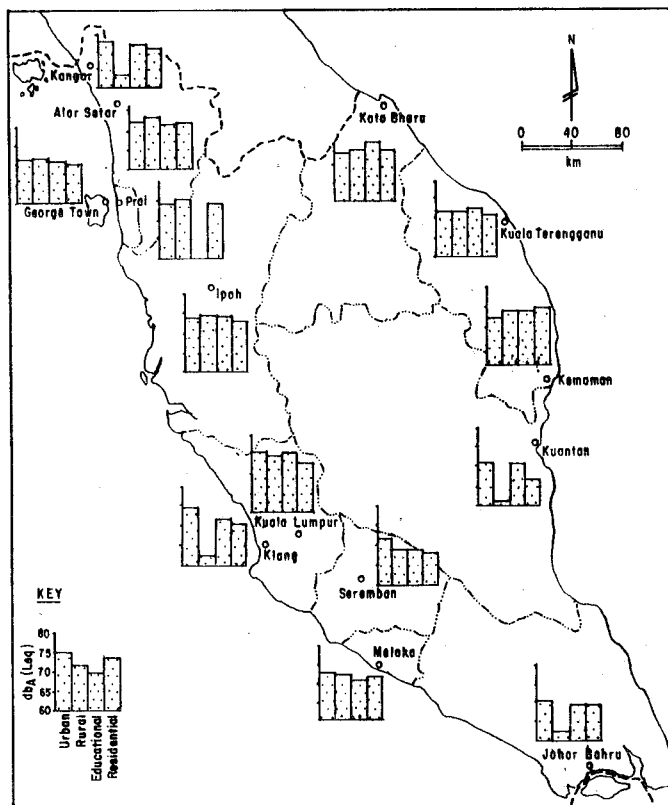


FIGURE 2. Traffic Noise Levels of Selected Areas in Major Urban Areas of Peninsular Malaysia
 Source: Jamaluddin 1990

exceeding 76.0 dBA and 74.5 dBA, respectively. The levels are very high compared to the 55 dBA recommended by the World Health Organization (WHO) for urban community.

Recent studies carried out in the vicinity of Seremban (Jamaluddin & Sham 1989a), Johore Bahru (Jamaluddin & Sham 1989b) and Bandar Baru Bangi (Sham & Jamaluddin 1990) showed that on the average the noise level values for residential areas are still below 55 dBA. However, the level was exceeded during daytime in the flats in all the three areas studied, and the level was exceeded even at night at the flats in Johore Bahru. The studies also show that the flats residential areas experience higher community noise levels compared to other types of residential

areas. Aircraft noise is another source of noise pollution. In actual fact aircraft noise should not pose any problem if there is no residential areas nearby, but most of the airports in Malaysia are built or found very close to residential areas. The same situation exists for industrial noise pollution.

SOLID AND HAZARDOUS WASTE POLLUTION

Solid waste pollution is only a problem in areas where there are concentration of population because these are the places where a lot of solid waste is generated. In short, solid waste is generally an urban problem. However, it only becomes a problem when it is related to the collection and disposal of the wastes because these works are still unsatisfactory in the urban areas. According to the Department of Environment (1986: 13), more than 76% of the municipal councils in Peninsular Malaysia still practise their unsystematic traditional ways of disposing the solid wastes and burning them openly. The standard of work has improved slightly in recent years when proper disposal procedures are carried out through sanitary landfill. However, sanitary landfills are only carried out by about 25% of the local authorities (Department of Environment 1988: 22).

One of the more pressing problems faced by the local authorities as regards the disposal of solid wastes is the disposal sites. To be economical disposal sites must be sited not too far away from the areas served at the same time the sites should not be too near residential areas. A suitable area is hard to come by, especially in a municipal council area where the land value is high and more beneficial for other uses. Presently most of the disposal sites are nearing the end of their life span or have already exceeded it, and thus fresh sites must be found.

As regards toxic and hazardous wastes, the situation is more pressing as until now there is not even a single disposal site available, while the increasing number of factories keep churning up more and more toxic and hazardous wastes. Negotiation is still under way with various state governments as to the choice of suitable sites (Department of Environment 1989b).

ISSUES ON ENVIRONMENTAL MANAGEMENT THROUGH LEGISLATIVE MEASURES

There are a number of issues that can be identified in relation to the management of the environment through legislative measures in Malaysia. Some of the issues are structural in nature, while others are related to either the institutional arrangements, the legislations themselves as well as the manpower handling the legislations or enforcement. This section deals with the major issues related to the management of the environment through legislative measures in Malaysia.

PROVISIONS IN THE CONSTITUTION

The Department of Environment, being a federal agency in a federal system of government, actually do not have full control of the environment. In the Federal Constitution, there are quite a number of things which come under the purview of the state and local authorities. Matters relating to land, forest, water resources, local authority areas, fishery and agriculture are under the jurisdiction of the state. As such there is an apparent conflict between the State and Federal authorities regarding environmental matters (Sham 1991).

In the case of environmental conservation, the Environmental Quality Act, 1974 and the Environmental Quality (Amendment) Act, 1985, were enacted by the federal government, but the management of the basic resources as mentioned above still remains within the powers of the state. As such successful implementation of the Environmental Quality Act is very dependent on close cooperation between the federal and state authorities. Sometimes such cooperation is very difficult to achieve especially when there is a conflict of interest between the two parties (Betterson 1982). In implementing the Environmental Impact Assessment requirements, there have been cases where the state approved certain projects even when the mandatory EIA reports by the project proponents have been rejected by the Department of Environment. Another recent example is regarding the attempt by the federal government to coordinate water supply management which at present is under the control of the individual states. Hitherto, no agreement has been reached.

INADEQUACIES IN THE LEGISLATIONS

Most of the environment related legislations are actually natural resources laws that are "use-oriented", or designed for the maximum exploitation and development of natural resources as compared to environmental legislation that is "resource-oriented", or designed for the rational management and conservation of natural resources in order to prevent their depletion and degradation (Tolentino 1986). Thus, most of the legislations formulated before the Environmental Quality Act, 1974 (Malaysia 1974a) did not contain criteria and standards. Even those that contain standards such as the Mining Rules (Federated Malay States, 1934), the standard was not up to expectation for enforcement purposes as the miners could still pollute even more.

The lack of or absence of criteria and standards regarding certain type of pollution means that the enforcement officers do not have a reference to rely on. This is very clear e.g. in the Local Government Act, 1976 (Malaysia 1976b) and Street, Drainage and Buildings Act, 1974 (Malaysia 1974b), whereby only qualitative references are made as regards anything

considered as a "nuisance". From one angle, the enforcement of legislations containing such provisions is deemed fitting in the sense that the enforcement officers are well guarded by the ambiguity of the provisions, but qualitative reference such as mentioned cannot give a true picture as to whether the problem is serious and exceeding a certain allowable level or not. In cases like this the enforcement officers are actually exercising their own interpretation of the regulations (a matter of concern since a large number of enforcement officers of the local authorities are insufficiently equipped to handle such problems).

As a measure of allowing certain activities to continue operating, environment related legislations do have provisions for the contravention of regulations. In a number of cases, legislations made always contain provision allowing certain minimum time period for full compliance and also provision whereby project proponent can get written permission for contravening certain stipulated regulations. This allowance is a good interim measure to a certain extent, for example at the start of a certain activity or at the beginning stage of the enforcement whereby the project proponents can take preparatory measures to meet the requirements of the legislations. However, if longer period is allowed for contravention of the regulations, the project proponents are bound to be more interested to contravene the regulations than to meet the requirements immediately. This is because the cost to obtain a permission to contravene certain regulations is cheaper than to set up pollution control equipments.

One interesting point to note as regards this particular problem is that it is quite ironical that on the one hand the authority concerned is supposed to carry out pollution prevention, but on the other hand permission is often granted to project proponents for contravention of regulations (see for example Section 25 (1), Environmental Quality Act, 1974). Almost the same provision is found in a number of other regulations. Actually one point as regard the provision of allowing for the contravention of regulations has a rather uneasy implication in that at the same time public interest and pollution victims can be waived aside (Chee 1981).

These inadequacies in the legislations are generally recognized by the government and in 1991 an ad hoc committee was established by the Ministry of Science, Technology and the Environment to look into all environment-related legislations that are currently in operation (especially the Environmental Quality Act) for the purpose of coordination and streamlining. The law review effort would have been more meaningful if the local authorities (with their governing legislations of the Local Government Act, 1976 and Street, Drainage and Building Act, 1974) were incorporated in the review process.

INSTITUTIONAL ARRANGEMENTS

Environmental legislations and environmental administration reinforce each other, and in the process become practically more effective. However, Malaysia still has to evolve an environmental jurisprudence. Very few lawyers in this country have been trained in modern legal mechanisms for regulating environmental quality with the result that the quality of environmental management continues to suffer (Jamaluddin 1991).

Successful enforcement of the Environmental Quality Act and other environment related legislations and the implementation of environmental policies can be realized only if there is full cooperation between the Federal and State governments. There are a number of institutions responsible for certain environmental related problems and there are also overlaps in the environmental related legislations.

In cases where there is overlap in government agencies in charge of a certain environment related problems there is always the issue of who is more responsible to overcome such problems. There are certain agencies given power under certain legislations to take actions but not doing so. Most of the times these institutions are of the opinion that the Department of Environment is solely responsible for managing all aspects of the environment. However, the fact is that there are also a number of areas where the Department of Environment can only act as advisers and coordinators. Attempts at overcoming the problem initiated by the Department of Environment by coordinating environment-related works under the jurisdiction of the state and local authorities have resulted in the formation of a "committee" consisting of ministers and state legislative members responsible for the environment. If the formation of such committee is to be taken as an indication of better things to come for the environment in general, it should be lauded and the Department of Environment should be praised for such effort for bridging the gap between the federal government and the state authorities in managing the environment. Furthermore, the establishment of ten regional offices currently practised by the Department of Environment is a good move as it provides a meaningful link between the federal and state agencies. However, there are also other types of inadequacies that have to be corrected before a full-fledged efficient environmental management activities is to be realized.

ENFORCEMENT

Since most of the environmental related legislations made are meant to be under the charge of certain institution, there exist too many institutions or government agencies which are directly or indirectly involved in the management of the environment. This in turn touches on the ability of the government agencies in carrying out the provisions relevant to the environment as contained in the legislations. Obviously only the Department

of Environment and the local authorities and district offices are equipped with enforcement officers. If it is observed further, only the Department of Environment is really concerned with enforcing the laws on environment, while the local authorities and the district offices, where there is a lot of power made available by their ruling legislations, are too involved in other jobs and only capable of handling a small part of the environment related problems, albeit indirectly.

The Department of Environment, although having a number of regional offices, is still lacking in enforcement officers. The lack of personnel and manpower is faced not only by the Department of Environment, but also other government agencies and local authorities that are charged with the management and enhancement of the environment. This matter is perhaps related to insufficient funding made by the federal government and the administrator's inability to appreciate the importance of having a clean environment to live in. However, there is actually a provision in the Environmental Quality Act, 1974, which allows the Director-General of the Environment to appoint certain other government officers to help enforce the laws, this has not been done. In fact, the power is not even given to all Department of Environment's officers.

The problem of the lack of manpower in the enforcement section and the gruelling conditions that have to be followed such as the preparation of a report before any action could be taken on polluters, render enforcement not very effective. Such inefficiency could certainly wear down public support and trust in government agencies, something which any environmental related agencies should take very seriously. Furthermore, surveillance work is mostly carried out during office hours, but the discharge of effluents into rivers by some industries is done at night. Again, there should be some flexibility in the agency's enforcement machinery to allow the officers to work even at night, maybe on shifts basis - something which is very dependant on approval of the treasury and the public services department.

At the local authorities and district office level the situation is more serious because what with the limited number of enforcement officers, most of them are not trained for environmental enforcement jobs. At least in the Hulu Langat District Council (Jamaluddin 1991), there is not even one enforcement officer who is trained in the field of environment, and most of them do not even know the provisions in the relevant legislations. Therefore, any enforcement work carried out by these enforcement officers as regard problems related to the environment is mostly coincidental, perhaps a justification for their very existence as enforcement officers! If such a situation persists there is certainly no guarantee that the quality of the environment will improve.

Figure 3 shows the enforcement efforts by the Department of Environment and the Road Transport Department working together with the police in

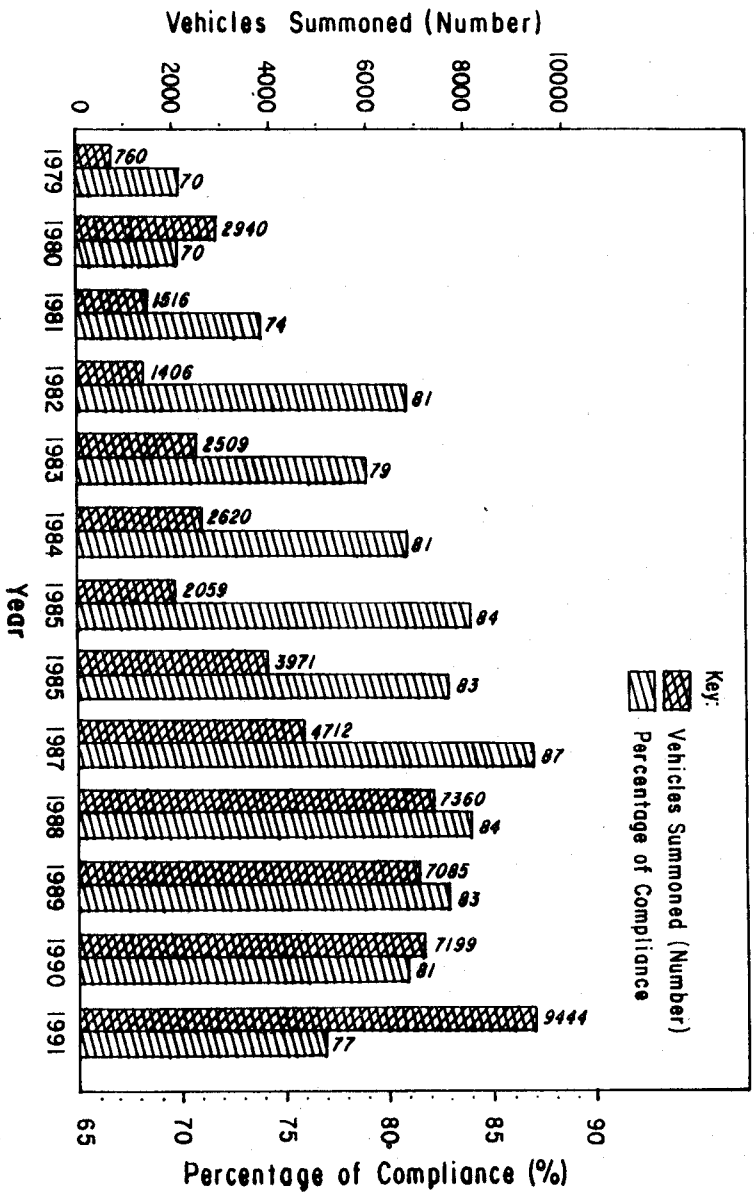


FIGURE 3. Malaysia: enforcement of motor vehicles (control of smoke and gas emission) rules 1977. Vehicles summoned and percentage of compliance, 1979-1991
 Source: Department of Environment 1992

apprehending offenders under the Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977 for 1979 to 1991. It is clear that the number of summons issued had been on the increase, especially in 1991 as a result of more enforcement efforts. Perhaps the increasing number of summons issued is not a very good indicator of the success of enforcement efforts, but the percentage of compliance could give a better picture of the overall situation. It is clearly shown in the diagram that in general the percentage of compliance is on the decline. The situation is probably worse if more inspection is carried out.

The total amount collected through the summons issued between 1985 to 1988 is shown in Table 5. Although the total number of summons issued has increased, the average amount collected has decreased, especially between 1985 and 1986. If this is compared to the provisions in the Ordinance it is very clear that the average for 1988 is very small and not even one percent of the amount allowed (\$500 for the first offence or \$1000 for a second offence). Certainly the situation should not be allowed to happen because compounds can be settled within a specified time at any police station and the small amount of compounds is certainly not a deterrent to the offenders to create further damages to the environment. The operation, if continued according to the same format will certainly render enforcement efforts worthless as the authorities stand to lose from the view point of time, cost and energy, and most important of all is the air quality that they want to protect. Based on what was mentioned above it can be said that the enforcement of legislation as far as air pollution from mobile sources is concerned is still not effective.

In terms of air pollution from stationary sources, enforcement work has been carried out by the Department of Environment under the Environmental Quality (Clean Air) Regulations, 1978. Although there was an increase in cases of violation of regulations and the amount collected as compounds or fines, the average amount collected either through fines or

TABLE 5. Total amount collected for offences under Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977, 1985 - 1988

Subject	1985	1986	1987	1988
Number of summons issued	2 059	3 971	4 712	7 360
Compound collected (\$M)	46 760	23 615	25 580	30 265
Average amount collected (\$M)	22.70	5.94	5.43	4.11

Source: Department of Environment 1989

Note: 1985 and 1986 only for Peninsular Malaysia

through compounds was far too small compared to the maximum penalty mentioned in the Regulations. Again, if the fines is to be considered as a deterrent, it certainly is not working as the number of offences keep increasing as reported by the Department of Environment (1992).

Another source of air pollution from stationary sources is the open burning of solid wastes. Even though there is a provision against open burning under the Environmental Quality (Clean Air) Regulations, 1978, open burning is very rampant especially at the solid waste (garbage) disposal sites belonging to local authorities or district offices. This incident should be considered very serious because the local authorities is one of the government agencies empowered to deal with environmental problems, especially in relation to solid waste.

As mentioned earlier, the local authorities and the district office are the institutions dealing with or handling the problem of solid waste. However, there have been little work on enforcement done by the local authorities on this aspect.

Problems on noise pollution were only tackled after 1987 and as such enforcement activities have been very minimal. Furthermore, due to some technical problems in relation to enforcement of the regulations, only motorcycles were stopped and tested for compliance. The enforcement carried out in 1990 to 1992 (only until August) shows a big increase in the number of motorcycles fined for non-compliance from 246 in 1990 to 285 in 1991 and 1032 in 1992. However, the percentage of compliance has dropped from 64.3 percent in 1990 to 58.1 percent in 1991 and dropped further to 47.1 percent in 1992. The figures are certainly not very promising insofar as enforcement efforts are concerned. Other than that regulations should be made for controlling noise from other sources such as industries and community.

CONCLUSION

This paper has highlighted a number of issues related to environmental management through legislative measures in Malaysia. It is observed that some of the issues are closely related to the Constitution and the legislations, while others are related to funding which governs the enforcement efforts.

Generally, the issues related to the Constitution is not easy to overcome as they involve the federal/state relation. However, it is observed that if coordination and cooperation between federal and state governments are stepped up, a lot of the environmental problems could be solved.

The issues on the inadequacies of the legislations and the institutional arrangements need a thorough review especially in streamlining and reenforcing the legislations. The recently completed law review should be continued

to cover all the environment-related legislations. If necessary, there should be a law reform so that the concept of sustainable development be incorporated and criteria and standards spelled out and proper and effective institutional arrangements drawn up so that enforcement efforts could be carried out properly.

Enforcement efforts should be beefed up and carried out by properly trained enforcement officers. For the success of the enforcement efforts enough funds should be made available to the relevant agencies, not only for enforcing the legislations, but also to carry out research and monitoring works to support enforcement. However, the federal agencies, state and local authorities cannot be fully responsible for the management of the environment, lacking as they do the means (technical, legal, and fiscal) to remedy most situation significantly. There must also be political will and a change in attitude of all Malaysian so that the environment will be as nice and as clean a place to live in, not only for the present but also for the future.

REFERENCES

- Bahagian Alam Sekitar. 1982. *Laporan Kualiti Alam Sekeliling Tahun 1979*. Kuala Lumpur: Kementerian Sains, Teknologi dan Alam Sekitar.
- Betterton, C. 1982. Endau-Rompin: a case for conservation. In *Development and Environmental Crisis : A Malaysian Case*. Pulau Pinang: CAP.
- Chee, Y.L. 1981. The Environmental Quality Act, 1974 - a critique. *Jurnal Undang-undang*, 171 - 201.
- Commonwealth Heads of Government Meeting. 1989. *The Langkawi Declaration on the Environment*. Kuala Lumpur, 18 - 24 October.
- Department of Environment. 1986. *Environmental Quality Report 1981-1984*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1988. *Environmental Quality Report 1985-1986*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1989a. *Environmental Quality Report 1987*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1989b. *Environmental Quality Report 1988*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1990. *Environmental Quality Report 1989*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1991. *Environmental Quality Report 1990*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Department of Environment. 1992. *Environmental Quality Report 1991*. Kuala Lumpur: Ministry of Science, Technology and the Environment.
- Federated Malay States, 1934. Mining Rules (GN 2426).
- Hairi, A., M. Sulong & M.J. Jamaluddin. 1987. Squatter settlements and pollution along the Klang River. In Sham S. (ed.), *Tropical Urban Ecosystem Studies*, Vol. 2, The Sungai Klang: Problems and Prospects. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 61 - 73.

- Jamaluddin, M.J. 1986. Human perception and responses to the flash flood hazards in parts of Kuala Lumpur, Malaysia. In Sham S. (ed.), *A Study of the Urban Ecosystem of the Kelang Valley Urban Region, Malaysia*, Vol. 1: The Kelang Valley Region: Some Selected Issues. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 84 - 105.
- Jamaluddin, M.J. 1987a. Pollution sources along the Sungai Klang and its tributaries. In Sham S. (ed.), *Tropical Urban Ecosystem Studies*, Vol. 2: The Sungai Klang: Problems and Prospects. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 88 - 104.
- Jamaluddin, M.J. 1987b. Suspended solid waste pollution in Sungai Klang and its dispersion by tidal flood-and-ebb currents at the Sungai Klang estuary. In Sham S. (ed.), *Tropical Urban Ecosystem Studies*, Vol. 2: The Sungai Klang: Problems and Prospects. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 136 - 151.
- Jamaluddin, M.J. 1988. Flash flood in parts of Kuala Lumpur area, Malaysia. In Abdul Samad, H., O. Mazlan & H. Khatijah (eds.), *Tropical Urban Ecosystem Studies*, Vol. 5: Contemporary Urban Issues in Malaysia. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 84 - 94.
- Jamaluddin, M.J. 1990. Status Alam Sekitar Masakini dengan Tumpuan Khas kepada Semenanjung Malaysia. Paper presented at "Kursus Pendidikan Alam Sekitar Untuk Guru-guru Kanan Sains, Penyelia Sains Negeri dan Pensyarah Maktab Perguruan", organized by Teacher's Training Division, Ministry of Education Malaysia & UNESCO, Kuala Lumpur 7 - 17 March.
- Jamaluddin, M.J. 1991. Environmental Policies, Institution, Legal Instruments and Enforcement in Malaysia. Report prepared for the Institute of Strategic and International Studies (ISIS), Kuala Lumpur.
- Jamaluddin, M.J. & S. Sham. 1987. Development process, soil erosion and flash floods in the Kelang Valley Region, Peninsular Malaysia: a general consideration. *Arch. Hydrobiol. Beih* 28: 399 - 405.
- Jamaluddin M.J. & S. Sham. 1989a. Kebisingan Komuniti di Beberapa Kawasan Perumahan di Sekitar Bandar Seremban, Negeri Sembilan. Report prepared for IRPA, Department of Environment, Ministry of Science, Technology and the Environment, Bangi.
- Jamaluddin M.J. & S. Sham. 1989b. Kebisingan Komuniti di Beberapa Kawasan Perumahan Majlis Perbandaran Johor Bahru, Johor. Report prepared for IRPA, Department of Environment, Ministry of Science, Technology and the Environment, Bangi.
- Jamaluddin M.J. & R. Anuar. 1992. Transport, air quality and noise pollution in the Kuala Lumpur area, Peninsular Malaysia. Proceedings International Conference on *Environmental Protection and Control Technology*, Vol. 1, 195-209. Kuala Lumpur: ENSEARCH & DOE.
- Malaysia. 1974a. Environmental Quality Act (Act 127); Act 636 (Amendmend) 1985.
- Malaysia. 1974b. Street, Drainage and Building Act (Act 133).
- Malaysia. 1976a. *Third Malaysia Plan 1976-1980*. Kuala Lumpur: Government Printers.
- Malaysia. 1976b. Local Government Act (Act 171).

- Malaysia. 1986. *Fifth Malaysia Plan 1986-1990*. Kuala Lumpur: Government Printers.
- Malaysia. 1991. *Sixth Malaysia Plan 1991-1995*. Kuala Lumpur: Government Printers.
- Sham, S. 1986. The State of the Malaysian Environment: Issues and Prospects. National Workshop "Environmental Monitoring and Assessment: Tropical Urban Applications", organized by Universiti Kebangsaan Malaysia and MARC, King's College, University of London, UKM, Bangi, 24 - 29 November.
- Sham, S. 1991. *Environment and Development in Malaysia*. Athens, Ohio: Ohio University.
- Sham, S. & M.J. Jamaluddin. 1987. Post Merdeka Development and Air Quality Degradation in Malaysia. Carl Duisberg Gesellschaft e. V., Workshop "Mass Media and the Protection of the Environment", organized by Asian Mass Communication and Research Center and Department of Communication, Universiti Kebangsaan Malaysia, Kuala Lumpur, 29 September - 10 October.
- Sham, S. & M.J. Jamaluddin 1990. Community noise in the residential areas of Bandar Baru Bangi. In Hairi, A. & H. M. Zulkifly (eds.), *Tropical Urban Ecosystem Studies*, Vol. 7: Bandar Baru Bangi: Profile of a University Town in Malaysia. Technical Report, Working Group on Urban Ecosystems, Malaysian National MAB Committee-UNESCO, 75 - 91.
- Tolentino, A.S. 1986. Review of environmental legislation and administration and its application in selected DMCS. In *Environmental Planning and Management*, Asian Development Bank, Manila, 49 - 97.

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