5 INSTITUTIONAL AND LEGAL FRAMEWORK

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5.1 INTRODUCTION

Drainage and pollution control of stormwater are two important elements that come under a broad topic of water planning. Uncontrolled stormwater can disrupt all planning. It can pollute receiving waters, a source of water that is truly the heart of a society's economy. Stormwater management must, therefore, be carefully planned and implemented; and how this can be done depends on the society's institutional and legal framework. In short, stormwater management means putting into perspective and function, such elements as rights, restrictions and enabling legislation.

This chapter describes the existing institutional and legal framework pertaining to stormwater management in the country. It is hoped to provide a brief background of the presently complex, overlapping and fragmented enabling environment surrounding this stormwater management so that users of this manual can understand some of the imposing difficulties and challenges in the right perspective.

5.2 ROLES AND RESPONSIBILITIES

Malaysia practices Federal Monarchy with governments at State levels, co-ordinated centrally by the Federal Government. It comprises thirteen States and two Federal Territories. The Prime Minister is Head of the Federal Government, assisted by Cabinet Ministers. Chief Minister heads individual State Government, assisted by elected Executive Councillors (EXCO). For Sabah and Sarawak, the State Government comprises State Ministers. All state governments are represented at a lower level by Local Governments.

The responsibility for urban stormwater management is shared between Federal and State agencies (institutions) as depicted in Figure 5.1.

5.2.1 Federal Government

The Federal Government constitutionally has a responsibility for the protection of the environment. Flood mitigation is related to urban stormwater management in that a river, which may be flood prone, may pass through an urban area with a network of land drainage facilities. In a flood situation, the river swells and overflows its bank, thereby transferring its river water onto the drainage basin.

At present flood mitigation is being administered by the DID, while the DOE is responsible for the regulatory control of point source pollution.

The roles and responsibilities of the Federal Government and their agencies in stormwater management are described below.

(a) National Policy, Planning and Strategy Formulation

The Federal Government by constitution plays an important role in the formulation and co-ordination of water resource policy, of which the management of urban stormwater is an important element. The Government plays the role as adviser to the State Authority on the need to introduce institutional policies or reforms into stormwater management. One platform where this can be implemented is the National Water Resources Council (NWRC) at the Federal level. Policies thus formulated can serve as guide to uniformity in stormwater regulatory framework and practices in the State. Before NWRC was active, all stormwater planning including coordination was handled by the Federal Economic Planning Unit (EPU) of the Prime Minister's Department.

Urban stormwater planning is best carried out as a sub-set of water resources. This can be integrated into the framework of planning processes at the national level. Concrete strategies are being programmed in the Vision 2020 Plan towards sustainable living, of which ecological sustainability is an integral part. Working towards this reality, Malaysia has moved forward by becoming one of the signatory countries participating in the Sustainable Development Program in pursuance of the Agenda 21 of the Rio Earth Summit.

(b) Technical Assistance

State Governments have continuously received technical assistance from the Federal Government through their agencies. Various assistance schemes are available: secondment of staff, training program, studies and implementation of projects, not excluding preparation of guidelines, standards and manuals. External assistance is also available from foreign governments through Federal EPU. Using these bilateral governmental linkages, the States have been able to gain expertise in new technologies.

(c) Data Collection and Documentation

Stormwater data collection and documentation is widespread among Federal agencies. The DID, for example, is responsible for rainfall/streamflow data, while the Meteorological Department is responsible for climatic data. The Department of Environment (DOE) collects and monitors water quality data.

Secondary data can be found scattered in various Federal Government agencies as follows:

- Mapping - Survey & Mapping Department
- Population census - Statistic Department
- Socio Economic data - Economic Planning Unit
- Land use - Town & Country Planning Department

(d) Research and Development

Stormwater management invariably deals with natural systems and processes. Man's engineering intervention has created an impact on these systems, and how it can affect the eco-system, or the human lives for instance, is not fully understood. An understanding of this, especially under the Malaysian conditions, will certainly help improve the performance of engineered storm drainage facilities. This is possible through the conduct of integrated research and development programs; and in this respect, the National Hydraulic Research Institute of Malaysia (NAHRIM), a Federal agent, can take the initiative to collaborate with local universities.

(e) Capacity Building

Implementation of storm drainage management program requires adequate manpower and expert training. Innovative approaches are the key to professional and managerial staff training in order to cope with changing needs and challenges. The Federal Government is in the best position to implement and co-ordinate an integrated national capacity-building program that will cover aspects of stormwater management

(f) Financing

Effective urban stormwater management relies on adequate financing to cover cost of infrastructure development, O & M and implementation of non-structural measures. Financial support can be given to the states through direct loans, or grants. Federal assistance may also be channelled to the state through their agents. For instance, the DID, through such assistance scheme, can undertake responsibility for the development of drainage infrastructure facilities including their operation and maintenance. The Federal Government, on the other hand, can assist the State Government in securing loan facilities for stormwater management projects by undertaking guarantee to lending agencies. Development budget can also be arranged and disbursed for use in state projects thorough the five-yearly Malaysia Plan co-ordinated by the Ministry of Finance.

5.2.2 State Government

Full authority on urban drainage can be placed under the State jurisdiction. The State EPU can carry out the overall planning co-ordination at the state level, while the rest of responsibilities can be delegated to Local Authorities. This may cover planning, construction, O & M of the drainage facilities within their respective administrative areas. The Local Authorities, in addition, will undertake the regulatory responsibility on works carried out by other agencies.

The Local Authorities by law may however impose land developers to construct connecting drains to the nearest point of discharge. It makes the final decision approving, or disapproving development planning proposals submitted by the developers. Layout plans submitted will normally include layout and drain reserves for stormwater drainage.

Most Local Authorities are inadequately staffed, and so are in no position to discharge their responsibilities fully. For storm drainage and other technical matter, the Local Authorities relies on the DID for advice. The DID often goes beyond advice, but oftentimes, in the true spirit of inter-departmental corporation, prepares drainage master plans for the Local Authorities, who at times, run short of budget. There have been extreme cases in which the DID has even undertaken to build some of the trunk drainage network in the locality, including their operation and maintenance. Institutionally, there is no clear-cut power delegation on who is to be responsible for storm drainage. Thus, a developer has no choice but to refer to, or clarify with both the DID and Local Authority on who is actually responsible for his works on the ground.

Arguably, the DID is responsible for flood mitigation and river conservancy. Oftentimes, this responsibility overlaps with the Local Authorities, in particular, over works involving river improvement and landscaping of river reserves. Roadside drain is the responsibility of JKR for roads that are under their jurisdiction. Highway drainage falls under the responsibility of the Malaysian Highway Authority, while railway drainage comes under the Railway Department. The Town and Country Planning Department (TCPD) is generally responsible for preparing Structural Plans (landuse zoning) in consultation with the Local Authorities and other agencies including the public.

Local Authorities are responsible for preparing Local Plans, although in the past, this has often been handled by TCPD due to shortage of staff on the part of the Local Authority.

The State Government has its role to play and this is summarised below.

(a) State Level Policy, Planning and Strategy Formulation

State Government normally evolves their own policies in consonance with Federal policies. The state UPEN carries out overall policy co-ordination, but the task for developing urban stormwater management policy has always been shared among the DID, Local Authorities, and TCPD as responsible agents on the ground. Tasks include development planning, and formulation of integrated river basin management plans, implementation strategies and institutional reforms.

(b) Infrastructural Development and Management

(i) Infrastructure Development

The Local Authority is generally responsible for the design and construction of urban storm drainage facilities. Registered engineering consultants and contractors from

the private sector normally provide such services. Construction works are normally tendered out, or negotiated, or given out to private developers on turnkey basis. Project development concepts such as Design-and-Built (DB), Build-Operate-Transfer (BOT), or BOOT are common.

(ii) Infrastructure Ownership

Infrastructure facilities developed by State Government agencies on State land, belong to the State Government. This includes infrastructures that are built by private developers and handed over to the State Government. There is no policy currently available on the question of ownership for projects developed by Federal agencies on State land.

(iii) Infrastructure Management

The O&M responsibility for the completed storm drainage facilities is shared between the Local Authority and DID, and where permissible, is handled by their departmental staff. However, the Local Authority is often short of manpower, and so in no position to manage all the facilities in their locality. Under such stress, the Local Authority has no choice but to contract out the management services to service providers.

(c) Regulatory Responsibilities

(i) Establishment of Legislative Support

Effective regulation of storm drainage management relies on the establishment of a comprehensive legislative framework. Current situation calls for revising and repealing outdated laws and introducing additional regulations and procedures in line with contemporary practices. The State Government has the power, to act upon it. All Draft Bills will be tabled to the State Assembly for approval before being finally gazetted for enactment.

(ii) Co-ordination and Conflict Resolution

In stormwater management, one is always confronted with land-water issues that will result in conflicting views. An institutional platform is essentially required to discuss and sort out these differences, so that consensus of opinion can be reached. At the District level, this is achieved through the meetings of the Majlis Tindakan Daerah, chaired by the District Officer (DO). This is further discussed, when necessary, on a more regional basis at the State level, where the meetings of the Majlis Tindakan Negeri, chaired by the Chief Minister (CM), are regularly held. The print media play their role in airing the views to the public.

(iii) Approvals and Licensing (refer to Chapter 6)

(iv) Public Awareness and Education

The public must realize that they have a part to play in ensuring success of stormwater management planning. It must have first and foremost, the awareness, understanding of, and the right attitudes towards stormwater issues at hand. The State must disseminate information to the public and implement campaigns to educate the public by way of increasing their understanding of the issues. At present, these activities are being carried out by the DID and Local Authorities on limited scale.

(v) Enforcement

Enforcement of legislation for storm drainage is essential. The responsibility for this presently rests mainly on the Land Administrator, Local Authority and the DOE (Table 5.1).

Table 5.1 Enforcement Authority Related to Stormwater

Offences	Enforcement Authority
Land-use violation	Land Administrator/Local Authority
Littering and unauthorised solid waste disposal	Local Authority
Unlicensed blockages and diversions	Land Administrator/Local Authority
Effluent discharge Violations	Department of Environment / Local Authority
Unauthorised discharge and abstraction	Land administration

(d) Financing

Adequate funding is a binding constraint for effective stormwater management. The State Government and the Local Authorities need to expand expenditure annually for the development of land drainage facilities, including operation and maintenance. This often puts the authorities in a difficult financial situation, and support from public funding is needed to ease out the financial burden. Funds may be available from a variety of sources - financial institutions, Federal grants, Federal loans, State consolidated fund, or quit rent (including drainage tax depending on locality); but these sources may be limited in their financial capacity.

The Local Authority also has other sources of income - Assessment Rates, Drainage Fee, Licensing Fee and revenue from car parks and other activities. Some states have imposed drainage contributions to developers. This

contribution is used to partly cover the expenditure for upgrading, and O&M of the main drainage system.

(e) Emergency Management

Developments in the past have been inadequately planned. These have resulted in negative impacts to the environment - flash flooding, erosion problems, slope failures and stormwater pollution – and have caused damage to properties, hardship to the population, and even deaths. Such mishaps can be avoided by having mitigating plans as well as emergency and hazard management plans. At present, emergency response is principally under the care of the District Officer (DO). This includes activities such as advance warning, rescue operation, temporary relocation and general assistance. Operations of these activities are administered in the DO's Disaster Operation Room. Regional emergency response involving disasters in multiple districts, however, is carried out in the Disaster Operations Centre at the State level. Supporting input and logistics in emergency situations are also obtained from other government agencies such as the Army, Police, Fire Department, DID, JKR, TNB, Telekom, Hospitals, RELA, KEMAS, DOE etc.

The Local Authority generally has the responsibility for the post-incidence remedial and cleaning activities made possible through the support of other agencies.

5.2.3 Reforms in Water Resources Management Strategies

Uncontrolled developments have resulted in increased water stress, pollution and impacts from floods etc. These issues have reached levels that can force stakeholders to look into new approaches to water resources management. For instance, the State of Selangor has recently taken reformatory steps by establishing the first water authority, SWMA, in the country.

5.3 LAWS ON STORMWATER MANAGEMENT

Stormwater management essentially deals with how storm runoff from urban areas can be effectively reduced and drained, and its quality improved with minimum impact on life and property. Traditionally speaking, many regard this as some localised problem that can be solved by merely conveying the water as quickly as possible away from the affected area. This approach, it is now realised, is obsolete, because this is merely transferring the problem to another locality downstream. The new approach to stormwater management is to look at drainage and pollution abatement within the context of integrated management of water resources.

5.3.1 Objective and Scope of the Review

The section reviews the present stormwater management laws that are being practised in the country. The purpose of the review is to determine the potential areas of stormwater management on which appropriate legislative control may be imposed.

5.3.2 Review of Laws

In addressing stormwater management issues, one has to keep in mind laws such as associated with the following:

- water which includes rivers, groundwater, lakes, wetlands, estuaries, coastal waters and other water bodies (collectively referred to as "water sources") as all drains ultimately flow into such water sources;
- land and the development/exploitation of such land;
- drainage;
- municipal administration, which is under the authority of the State Authority/Local Government; and
- environmental management

Other issues such as State/Federal/Local Authority relationships, administrative practices on the ground and constitutional jurisdictions are also important.

The position of the Federal and State governments with regard to the following public issues by constitution is reviewed.

(a) Water

It is generally accepted that "water" is constitutionally a State matter, and that water by definition includes rivers, lakes, streams, and water beneath the surface of the land. However, this is not necessarily and exclusively so, because the Federal Government has free hands and exclusive power on their water-based projects in the State such as water supplies, river and canal works, or also resource utilisation works such as hydropower generation, navigation within ports, marine fisheries and mining. However, there are exceptions to the rule for works that are wholly and strictly located within the State, or those that are regulated by an agreement between the States concerned.

The Parliament has power to make laws with respect to any matter in the "State List" for the purpose of promoting uniformity in the laws of two or more States. The federal power however has its limitations. Article 78 of the Constitution stipulates that any law passed in the Parliament, which restricts the right of a State to the use of any river wholly within that State, shall not have effect unless it is approved by the State Legislature. Water rates are a source of revenue to the States. Further, the Federal Government cannot exercise executive authority over matters in the "Concurrent List" unless Federal or State

laws specifically provide for it. Thus, whilst the Federal Government may legislate for uniformity in water laws in the country, it must take into consideration the restrictions mentioned above. The Federal Government has enacted legislation on matters that may be considered in the State List. These laws include the Waters Act, Land Conservation Act, Fisheries Act, Street, Drainage and Building Act, Town and Country Planning Act, Local Government Act and National Land Code.

The State Authorities, by virtue that water and matters relating thereto, and in particular land, are within their jurisdiction, are in a better position to control and regulate the water resources on their ground. The State of Selangor in particular, has enacted the Selangor Waters Management Enactment (SWMAE), followed in line of action by the establishment of SWMA, and SWMA is committed to regulating and managing the state's water resources on sustainable basis.

(b) Land

Pursuant to item 2, List II of the Ninth Schedule, all matters relating to land are placed under the State jurisdiction. The Parliament has enacted NLC for the purpose of addressing uniformity in the administration of land throughout the Federation. The definition of "land" includes land under water. Together with land, related matters such as forestry, agriculture and mining are under the State jurisdiction. Article 91 also establishes the formation of the National Land Council (which comprises Federal and State representatives chaired by the Minister) which formulates national policies "for the promotion and control of the utilisation of land… for mining, agriculture, forestry or any other purpose…". The Federal Government, or any State Government, may consult the Council with respect to any matter relating to the utilisation of land, or in respect of any purported legislation, dealing with land or the administration of any such law. The Federal and State Governments shall implement the policy so formulated.

The management of river basins including their catchments has a deciding impact on drainage issues. The Constitution contains no direct reference to the management or control of such catchment areas. Compared to the "Federal List", however, the State List includes matters pertaining to land including colonisation, land improvement and soil conservation, agriculture and forestry and water, including rivers, canals, riparian rights, turtles and river fishing. The Concurrent List includes the protection of wild animals, birds, national parks, drainage and irrigation and rehabilitation of land, which has suffered soil erosion. It would appear that the State has more power over catchment management than the Federal Government.

(c) Drainage

Drainage and irrigation is enumerated as a specific item in the Concurrent List. This implies both the Federal and State Government have legislative power over this particular function. However, as explained above, the State List includes water related items such as water supplies, rivers and canals, control of silt and riparian rights, and also administration of land, which is prescribed exclusively in the State List. Forest, control of silt, land improvement and soil conservation are also enumerated in the State List. Thus, the State Government has extensive power over drainage and matters related thereto, taken as a whole.

(d) Municipal Administration

Pursuant to item 4, List II of the Ninth Schedule, Local Government including its services, local administration, obnoxious trades and public nuisances in Local Authority areas, is under the jurisdiction of the State Government. Article 95A also establishes the formation of the National Council for Local Government (which comprises Federal and State representatives chaired by the Minister) which formulates national policies "for the promotion, development and control of local government throughout the Federation and for the administration of any laws relating thereto…". The Federal and State Governments shall implement the policy so formulated. It is also the duty of the Federal and State Governments to consult the Council in respect of any proposed legislation dealing with Local Government.

(e) Environmental Management

There is no direct reference to the control and regulation of environmental pollution in the Constitution as concern for the environment and pollution control is relatively a new issue. It is necessary therefore to infer the source of authority for environmental matters by examining particular issues.

It has been decided by the Malaysian Court of Appeal that (in the event of conflict between State law and the Federal EQA), the application of any environmental legislation will depend on the specific subject matter to which it is to be applied and whether the State or Federal Government has power over the matter under the constitution. Environmental matters related to land, water and municipal services for example, will be under the State Government.

5.4 REVIEW OF EXISTING LEGISLATION

Consistent with the constitutional position whereby both the Federal and State Governments appear to have jurisdiction over water, water resources management in Malaysia is covered by numerous Federal and State laws. Legislation in Malaysia, directly or indirectly related to

water, land, municipal government and the environment, is itemised in Appendix 5.A

5.4.1 Ownership of Water

Various aspects of legislation relating to water vest ownership of water in the State Government, particularly in terms of water that occurs in rivers and water bodies within the State. Pursuant to this, the Waters Act 1920 provides that "the entire property and control of all rivers in any State is and shall be vested solely in the Ruler of such State". It defines a "river" to include:

(a) a tributary of a river and any other stream or natural water course; and

(b) any canal declared by the State Authority of the State . . . by notification in the Gazette.

The Waters Act applies to Negeri Sembilan, Pahang, Perak, Malacca, Penang and the Federal Territory. Kedah has a similar state enactment. The District Office is the licensing authority under the Waters Act. In Selangor, the Act has been repealed and replaced with the SWMAE. The SWMAE is a much more comprehensive legislation and vests far greater power of control over all waters including wetlands, ground water, lakes and other water bodies and coastal waters. Similar legislation has been enacted in Sabah and Sarawak.

State ownership of water is further entrenched by the NLC which identifies "water" as an integral element of "land," whose disposition is subject principally to State control. Several States such as Pahang, have gazetted river reserves under the NLC. The Mining Enactment, 1929 also treats "water" as a property which vests with the Ruler of the State. The abstraction, diversion, or use of water, whether it is surface or underground, is subject to the control of the State Authority. There is no private ownership rights to water. In practice, the owner or occupier of land, may use water for domestic purposes, and in this respect, may not require a licence to enjoy such usage. The Waters Act (and the SWMAE) specifically prohibits, except for subsistence agriculture, the diversion of water from any river, or the taking of any water except in accordance with the terms of a licence. Licences to divert water from rivers for private, domestic, or industrial purposes, or for agriculture, may be granted under these Acts.

5.4.2 Drainage, Building and Earhtworks

The carrying out of any earthworks and buildings is controlled under the SDBA. The SDBA provides sufficient power to Local Authorities to effect control on all buildings and earthworks within their jurisdiction. Earthworks includes earthworks undertaken on any land which includes land under water. Most Local Authorities have prescribed Earthworks By-Laws to control all earthworks. These By-laws, in general, do allow for control of all earthworks including those related to drainage. The present By-laws do not, however, provide adequate controls in respect of prevention of siltation and water quality.

Development is often initiated with the conversion and subdivision of land under the NLC. Generally, any proposal for conversion and subdivision is accompanied by a plan which shows river and drain reserves. It must also conform to any Draft Structure Plan and/or Local Plan for the area.

Drainage in municipal areas is the responsibility of the Local Authorities under the LGA and SDBA. Every Local Authority is empowered to make by-laws to provide drains in the interest of public health. None of the authorities have, however, made any drainage by-laws. Local authorities, in general, refer all major drainage works to the local office of the DID for their views. This gives an opportunity for the latter to offer comments keeping in mind the various Guidelines mentioned in Appendix 5.A. These views/comments may then be incorporated by the Local Authority in the conditions for approval imposed on the developer. The Authority is also empowered to impose a drainage rate or fee to defray the construction and maintenance cost of such drainage systems. The SDBA imposes an obligation on the Local Authority to construct and maintain drains. The cost for construction and maintenance of such drains may be recovered from persons who are "frontagers" to such works. Usually the developer of a housing scheme is required to pay a deposit to enable the Authority to construct drains. Alternatively, the developer is required to construct the drains to standards determined by the Local Authority. The Local Authority has power under this Act to levy fees or charges to enable it to defray expenses in executing its functions. It also has power to determine the location, design, flow and other detailed characteristics of drainage in any area within its jurisdiction. Buildings must be erected with adequate surface and storm water drains.

The Drainage Works Ordinance is generally applied to agricultural areas. Drainage areas have to be declared by the State Authority prior to the enforcement of the provisions of the Act. Drainage rates may then be imposed to defray the cost of the provision of such drainage facilities. The Ordinance is implemented by the DID.

Whilst the SDBA provides adequate power for the design and layout of drainage, it does not however provide for controls over the quality of discharge of such drains. The quality of discharge may be controlled under other legislation such as the SWMAE and the EQA. Local Authorities have some limited power (under the LGA) in terms of controlling discharge of effluents and noxious substances into any drain. Local Authorities, DOE and other relevant agencies such as the SWMA and DID will

have to work together to determine the quality of discharges into any water source.

5.4.3 Flood Mitigation

Under the Ministerial Functions Act, 1969, the Minister of Agriculture is entrusted with the responsibility for flood mitigation and river conservancy works. Federal allocations are a major source of funds for flood mitigation projects and the DID is responsible for the implementation of the projects. Local Authorities generally refer all major drainage projects to the DID. Because it has a macro view of drainage which often cuts across municipal and State boundaries, the DID is well positioned to advise the Local Authorities. From a strictly legal position however, drainage within the Local Authority areas is the sole responsibility of the Local Authority. This includes such measures as maintenance of river reserves, wetlands and flood plains, and prevention of siltation through control of soil erosion; and control of peak flow, and on-site retention of runoff requires implementation largely by the Local Authorities.

5.4.4 Catchment Management

In order to minimise, prevent or mitigate potential problems of flooding, ensure adequate flow of waters and maintain water quality, catchment areas must be carefully managed, preserved and protected. The immediate land reserves surrounding rivers and other water sources, such as wetlands, should be similarly managed. There are various laws that govern all these matters. The Waters Act imposes a minimum river reserve of 50 feet or greater (which has to be declared by the Land Office). The Land Conservation Act, 1960 enables the State Authority (the Land Administrator) to declare any area to be "hill land" by notification in the Gazette. Thus, the land cannot be disturbed to prevent soil erosion and siltation. Guidelines issued by the DOE are also meant for controlling soil erosion and siltation. Under the Forest Enactment, State Authorities may declare forest area as reserved forest for the purpose of protecting catchment areas. Thus all activities within the area are prohibited. Generally, land administration is undertaken by the NLC, and this law can also be used to control development.

Detailed urban planning is sanctioned by the State Authorities under the TCPA. Within the Local Authority areas, the Structure Plan and Local Plan can play a critical role in controlling and determining appropriate development compatible with land use patterns within the catchment area. The Structure Plan is a policy statement, whilst the Local Plan is a more detailed urban design plan. Drainage issues are part and parcel of the Local Plan. Under the amended TCPA, planning permission has to be accompanied by a development proposal report, which will contain a description of the physical environment of the area including contours, drainage, catchments and other natural features. Drainage issues are to be resolved at the layout plan stage. The project proponents should use the various Guidelines as the basis for their project proposals.

5.4.5 Environmental Protection

The Environmental Quality Act (EQA), 1974, a Federal law, is the principal legislation that protects the environment. Section 25 of the EQA provides that "no person shall, unless licensed, emit, discharge or deposit any waste into any inland waters in contravention of acceptable conditions". The Minister of Science, Technology and Environment may specify acceptable conditions for emission or discharge of waste into any area of the environment. Pursuant to this Act, several regulations have been enacted. The Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977 regulate discharge from palm oil refineries. The Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 regulate discharge from rubber operations. The Environmental Quality (Sewerage and Industrial Effluents) Regulations 1979 regulate discharge from the industrial sector. The EQA has also prescribed catchment areas for water intake points and such areas are classified for the purpose of maintaining water quality. The application of any rules pertaining to water or rivers will, however, require prior approval of the State concerned.

The EQA applies to all States in the country. However, Sabah and Sarawak have enacted some of the provisions of the EQA, particularly the requirement for EIA, into state legislation. The DOE licences prescribed premises to monitor their discharges and to monitor water quality from these discharges to ensure the discharges are maintained within the stipulated limits. Section 34(A) of the EQA provides for environmental impact assessment (EIA). The Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 1987 has prescribed measures to prevent or mitigate the impact of large projects. The EIA requirement is a preventive measure to ensure that proposed projects take into consideration environmental matters in their implementation. The EIA regulations do not cover ongoing development projects or small sized projects, while the EQA does not cover non-point source pollution.

Besides the EQA, the SWMAE provides for control of pollution in water sources in Selangor. The Enactment prohibits the discharge of any poisonous, noxious or polluting matter that will render any water source harmful to public health, safety or welfare, or to animal or plant life or other beneficial uses of such water source. However, discharges may be made by licence approved by the SWMA in line with the SWMA's overall strategy of protection and sustainable management of a water source. Except for the Fisheries Act and the SWMAE, none of the other laws covers the requirement for minimum flow to protect in-stream resources.

Part VIII of the LGA also provides for the control of activities or nuisance that may pollute "any stream, channel, public drain or other water course within the Local Authority area". Local Authorities may:

1. prevent littering or depositing of any wastes or filth;
2. prevent any waste being allowed to flow into such drainage channel or the discharge of any liquid or solid;
3. regulate bathing or washing by persons or of animals;
4. prohibit, abate, remove or prevent the occurrence of any nuisance;
5. control the method of cultivation, irrigation and the use of manure or fertilisers;
6. control the keeping of fish; and
7. generally do all things necessary for or conducive to the safety, health and convenience of the public.

Nearly all Local Authorities have enacted various rules related to the above including anti-litter, vandalism and public cleansing (See Appendix 5.A, Municipal Laws for the full list). The existing by-laws do not, however, provide controls over issues related to pollution in general, or non-point source pollution as in (5) above, which is an important source of non point pollution.

5.4.6 Mining

The Mining Enactment, 1929 allows the taking, diversion and discharge of water, subject to the approval of the State Authorities, for the purposes of mining. The NLC enables the Land Administrator to license the extraction of rock material, including sand, from rivers. The impact of such mining activities on river regimes can be severe and will cause a disruption to the waterflow including an adverse impact on the river in-stream resources. Proposals for drainage into the rivers must give due consideration to such impacts. In Selangor, the SWMAE has now imposed a requirement for consultation and approval by the SWMA prior to the approval of these activities.

5.4.7 Stakeholder Participation

Participation by the affected parties including consumers, water users, land owners and non-government organisations in the decision making and implementation process has generally resulted in better compliance with the laws. Implementation has also generally been more effective and less costly. No law, except the SWMAE, provides for the participation and encouragement of formation of stakeholder groups. The absence of such law should not hinder efforts by the statutory agencies to encourage stakeholder participation through administrative means and public education.

APPENDIX 5.A LIST OF LEGISLATION, RULES AND GUIDELINES

LEGISLATION

1. Waters Act, 1920
2. Geological Survey Act, 1974
3. Irrigation Areas Act, 1953
4. Street, Drainage and Building Act, 1974
5. The Forest Act, 1984
6. The National Land Code, 1965
7. The Drainage Works Act, 1954
8. The Fisheries Act, 1985
9. Environmental Quality Act, 1974
10. Land Conservation Act, 1960
11. Town and Country Planning Act, 1976
12. Local Government Act, 1976
13. Selangor Waters Management Authority Enactment, 1999
14. Mining Enactment, 1929
15. Sewerage Services Act, 1993
16. Sarawak Given Ordinance, 1993
17. Sabah Water Resources Enactment, 1998
18. Sabah Conservation of the Environment Enactment
19. Sabah Land Ordinance, 1930
20. Sabah Forest Enactment, 1965
21. Sarawak Water Ordinance, 1994
22. Sarawak Land Code, 1958
23. National Resources and Environment Ordinance, 1958, Sarawak
24. Local Authority Ordinance, Sarawak, Cap. 117
25. Local Government Enactment, Sabah Ordinance 11/1961
26. Town & Country Planning Enactment, Sabah, Cap. 141
27. Town & Country Planning Ordinance, Sarawak, Cap. 87
28. Forest Ordinance, Sarawak, Cap. 126
29. Drainage & Irrigation, Sabah Ordinance 15/1956
30. Drainage Works Ordinance, 1966, Sarawak
31. Mining Enactment, 1960, Sabah
32. Mining Ordinance, 1949, Sarawak

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33. Uniform Building By-laws
34. Earthworks By-Laws
35. Stray Animal By-laws
36. Licensing of Trades, Businesses and Industries By-laws
37. Refuse Collection, Removal and Disposal By-Laws
38. The Public Cleansing By-Laws
39. Anti-Litter By-laws
40. Parks By-laws

GUIDELINES

41. Urban Drainage Design Standards and Procedures in Malaysia, 1975, Federal DID.
42. Guidelines on River Front Development, Federal DID
43. Guidelines on the Prevention and Control of Soil Erosion and Siltation in Malaysia, 1996, DOE
44. Use of Flood Detention Ponds as Part of Open Space, JPBD 1997.