

GOVERNMENT OF MALAYSIA

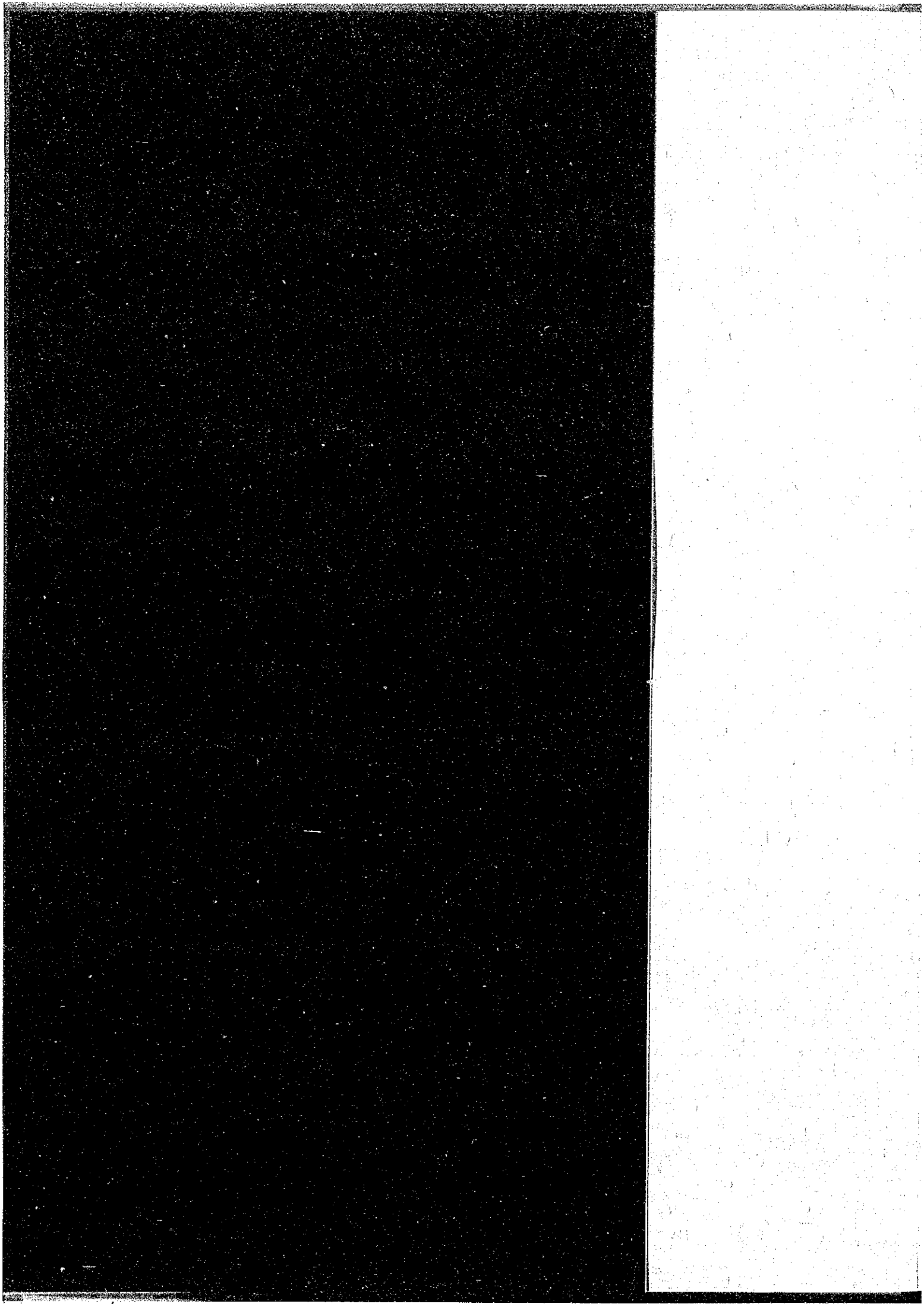
NATIONAL WATER RESOURCES
STUDY, MALAYSIA

SECTORAL REPORT

VOL. 19

WATER LAWS AND INSTITUTIONS

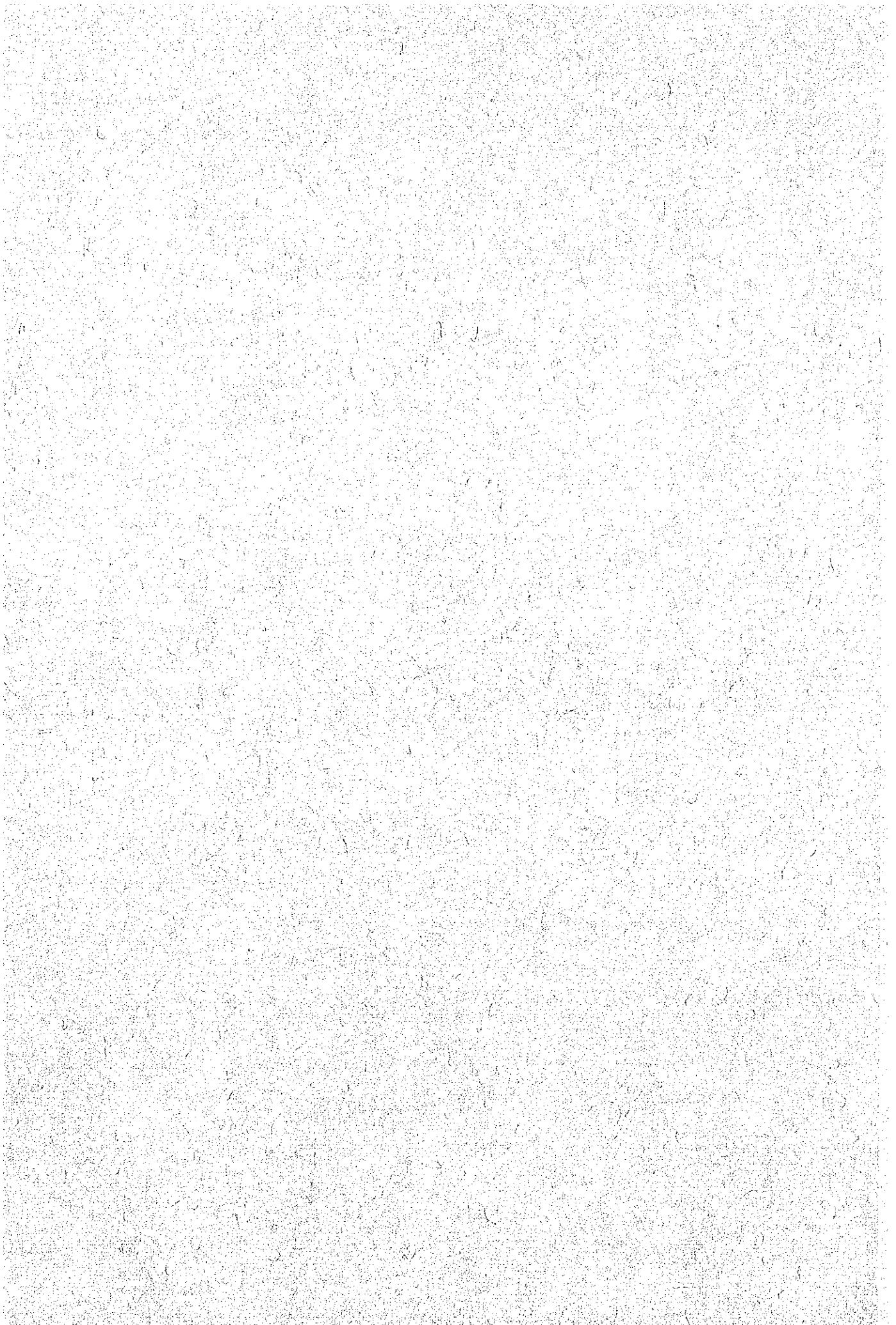
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GOVERNMENT OF MALAYSIA

**NATIONAL WATER RESOURCES
STUDY, MALAYSIA**

SECTORAL REPORT

VOL. 19

WATER LAWS AND INSTITUTIONS

OCTOBER 1982

JAPAN INTERNATIONAL COOPERATION AGENCY

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- Vol. 2. WATER RESOURCES DEVELOPMENT AND USE PLAN

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- Vol. 18. WATER RESOURCES MANAGEMENT
- Vol. 19. WATER LAWS AND INSTITUTIONS

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COMPOSITION OF THIS VOLUME

This Volume consists of three parts: Part 1 deals with the subject matters of Peninsular Malaysia, Part 2 is devoted to the States of Sabah and Sarawak, and Annex provides legal and institutional considerations to support the recommendations presented in Vol. 1 Master Action Plan.

ABBREVIATIONS

(1) Plan

FMP	:	First Malaysia Plan
SMP	:	Second Malaysia Plan
TMP	:	Third Malaysia Plan
4MP	:	Fourth Malaysia Plan
5MP	:	Fifth Malaysia Plan
6MP	:	Sixth Malaysia Plan
7MP	:	Seventh Malaysia Plan
NEP	:	New Economic Policy
OPP	:	Outline Perspective Plan
RESP	:	Rural Environmental Sanitation Program

(2) Domestic Organization

DID (JPT)	:	Drainage and Irrigation Department
DOA	:	Department of Agriculture
DOE	:	Division of Environment
DOF	:	Department of Forestry
DOFS	:	Department of Fishery
DOM	:	Department of Mines
DOS	:	Department of Statistics
EPU	:	Economic Planning Unit
FAMA	:	Federal Agricultural Marketing Authority
FELCRA	:	Federal Land Consolidation and Rehabilitation Authority
FELDA	:	Federal Land Development Authority
ICU	:	Implementation and Coordination Unit
MARDI	:	Malaysian Agricultural Research and Development Institute
MIDA	:	Malaysian Industrial Development Authority
MLRD	:	Ministry of Land and Regional Development
MMS	:	Malaysian Meteorological Service
MOA	:	Ministry of Agriculture
MOF	:	Ministry of Finance

MOH : Ministry of Health
 MOPI : Ministry of Primary Industries
 MRRDB : Malaysia Rubber Research and Development Board
 NDPC : National Development Planning Committee
 NEB (LLN) : National Electricity Board
 PORIM : Palm Oil Research Institute of Malaysia
 PWD (JKR) : Public Works Department
 RDA : Regional Development Authority
 RISDA : Rubber Industry Small-holders Development Authority
 RRIM : Rubber Research Institute of Malaysia
 SEB : Sabah Electricity Board
 SEBC : State Economic Development Corporation
 S(E)PU : State (Economic) Planning Unit
 SESCO : Sarawak Electricity Supply Corporation
 UDA : Urban Development Authority

(3) International or Foreign Organization

ADAA : Australian Development Assistance Agency
 ADB : Asian Development Bank
 ASCE : American Society of Civil Engineers
 FAO : Food and Agriculture Organization of the United Nations
 IBRD : International Bank for Reconstruction and Development
 ILO : International Labour Organization
 IMF : International Monetary Fund
 IRRI : International Rice Research Institute
 JICA : Japan International Cooperation Agency
 JSCE : Japan Society of Civil Engineers
 MOC : Ministry of Construction, Japan
 OECD : Organization for Economic Cooperation and Development
 OECF : Overseas Economic Cooperation Fund, Japan
 UK : United Kingdom
 UNDP : United Nations Development Program

UNSF : United Nations Special Fund
US or USA: United States of America
US/AID : United States Agency for International
Development
USBR : United States Bureau of Reclamation
WHO : World Health Organization
WMO : World Meteorological Organization

(4) Others

B : Benefit
BOD : Biochemical Oxygen Demand
C : Cost
CIF : Cost, Insurance and Freight
COD : Chemical Oxygen Demand
D&I : Domestic and Industrial
dia : Diameter
EIRR : Economic Internal Rate of Return
El. : Elevation above mean sea level
Eq. : Equation
Fig. : Figure
FOB : Free on Board
FSL : Full Supply Level
GDP : Gross Domestic Product
GNP : Gross National Product
H : Height, or Water Head
HWL : Reservoir High Water Level
LWL : Reservoir Low Water Level
O&M : Operation and Maintenance
Q : Discharge
Ref. : Reference
SITC : Standard International Trade Classification
SS : Suspended Solid
V : Volume
W : Width

ABBREVIATIONS OF MEASUREMENT

Length

mm = millimeter
cm = centimeter
m = meter
km = kilometer
ft = foot
yd = yard

Area

cm² = square centimeter
m² = square meter
ha = hectare
km² = square kilometer

Volume

cm³ = cubic centimeter
l = lit = liter
kl = kiloliter
m³ = cubic meter
gal. = gallon

Weight

mg = milligram
g = gram
kg = kilogram
ton = metric ton
lb = pound

Time

s = second
min = minute
h = hour
d = day
y = year

Electrical Measures

V = Volt
A = Ampere
Hz = Hertz (cycle)
W = Watt
kW = Kilowatt
MW = Megawatt
GW = Gigawatt

Other Measures

% = percent
PS = horsepower
° = degree
' = minute
" = second
°C = degree in centigrade
10³ = thousand
10⁶ = million
10⁹ = billion (milliard)

Derived Measures

m³/s = cubic meter per second
cusec = cubic feet per second
mgd = million gallon per day
kWh = kilowatt hour
MWh = Megawatt hour
GWh = Gigawatt hour
kWh/y = kilowatt hour per year
kVA = kilovolt ampere
BTU = British thermal unit
psi = pound per square inch

Money

M\$ = Malaysian ringgit
US\$ = US dollar
¥ = Japanese Yen

CONVERSION FACTORS

	From Metric System	To Metric System
<u>Length</u>	1 cm = 0.394 inch 1 m = 3.28 ft = 1.094 yd 1 km = 0.621 mile	1 inch = 2.54 cm 1 ft = 30.48 cm 1 yd = 91.44 cm 1 mile = 1.609 km
<u>Area</u>	1 cm ² = 0.155 sq.in 1 m ² = 10.76 sq.ft 1 ha = 2.471 acres 1 km ² = 0.386 sq.mile	1 sq.ft = 0.0929 m ² 1 sq.yd = 0.835 m ² 1 acre = 0.4047 ha 1 sq.mile = 2.59 km ²
<u>Volume</u>	1 cm ³ = 0.0610 cu.in 1 lit = 0.220 gal.(imp.) 1 kl = 6.29 barrels 1 m ³ = 35.3 cu.ft 10 ⁶ m ³ = 811 acre-ft	1 cu.ft = 28.32 lit 1 cu.yd = 0.765 m ³ 1 gal.(imp.) = 4.55 lit 1 gal.(US) = 3.79 lit 1 acre-ft = 1,233.5 m ²
<u>Weight</u>	1 g = 0.0353 ounce 1 kg = 2.20 lb 1 ton = 0.984 long ton = 1.102 short ton	1 ounce = 28.35 g 1 lb = 0.4536 kg 1 long ton = 1.016 ton 1 short ton = 0.907 ton
<u>Energy</u>	1 kWh = 3,413 BTU	1 BTU = 0.293 Wh
<u>Temperature</u>	°C = (°F - 32) · 5/9	°F = 1.8°C + 32
<u>Derived Measures</u>	1 m ³ /s = 35.3 cusec 1 kg/cm ² = 14.2 psi 1 ton/ha = 891 lb/acre 10 ⁶ m ³ = 810.7 acre-ft 1 m ³ /s = 19.0 mgd	1 cusec = 0.0283 m ³ /s 1 psi = 0.703 kg/cm ² 1 lb/acre = 1.12 kg/ha 1 acre-ft = 1,233.5 m ³ 1 mgd = 0.0526 m ³ /s
<u>Local Measures</u>	1 lit = 0.220 gantang 1 kg = 1.65 kati 1 ton = 16.5 pikul	1 gantang = 4.55 lit 1 kati = 0.606 kg 1 pikul = 60.6 kg

Exchange Rate
(as average between July and December 1980)

\$1 = M\$2.22
¥100 = M\$1.03

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PENINSULAR
MALAYSIA

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SPECIAL ABBREVIATIONS

(1) Government Agency

DARA	:	Pahang Tenggara Development Authority
DID	:	Drainage and Irrigation Department
DOE	:	Division of Environment
EPU	:	Economic Planning Unit
FELDA	:	Federal Land Development Authority
FOA	:	Farmers' Organization Authority
GSD	:	Geological Survey Department
ICU	:	Implementation Coordination Unit
MAMPU	:	Malaysian Administrative Modernization and Manpower Planning Unit
MOH	:	Ministry of Health
MOHLG	:	Ministry of Housing and Local Government
NEB	:	National Electricity Board
PWD	:	Public Works Department
SDID	:	State Drainage and Irrigation Department
SEPU	:	State Economic Planning Unit
SERGPU	:	Socio-economic Research and General Planning Unit
SPWD	:	State Public Works Department
Treasury	:	Ministry of Finance

(2) Council/Committee

NAC	:	National Action Council
NDPC	:	National Development Planning Committee
NEC	:	National Economic Council
SAC	:	State Action Committee

(3) Others

Cap. : Chapter
FM : Federation of Malaya
FMS : Federated Malay States
SS : Strait Settlements
TMP : Third Malaysia Plan
UMS : Unfederated Malay States

1. INTRODUCTION

The sectoral study on water laws and institutions aims mainly at clarifying the present legal and institutional systems relating to water resources development and management in order to provide with the bases for further identifications and recommendations. The Master Action Plan is to include the recommendations on a suitable arrangement of laws and institutions for orderly and integrated approach in development and management of water resources. The objective area of Part I is limited only to Peninsular Malaysia.

The Part I Report is composed of thirteen chapters. Succeeding to the description of the constitutional framework in Chapter 2, Chapters 3 and 4 outline legal and institutional systems respectively. Planning, coordination and financing systems are presented in Chapters 5, 6 and 7. Managerial activities for water resources are clarified in Chapter 8, then procedures or financial features of development projects are discussed by individual purpose in Chapters 9 to 13.

2. FRAMEWORK UNDER THE FEDERAL CONSTITUTION

2.1 Background

In Malaysia, the Federal Constitution is supreme all over the nation. Malaysia is a nation of Federation which is composed of thirteen States. The basic relationships between the Federation and the States are stipulated in the Federal Constitution. Of these, jurisdictionary relationship regulates the contents of laws and functions of governmental agencies.

The water-related laws and the agencies concerned are not exceptional and they function within the constitutional framework. Under the existing Federal Constitution, given are the distribution of legislative powers and that of executive powers between the Federation and the States, as well as financial provisions.

2.2 Distribution of Legislative Powers

Principles of the distribution of legislative powers are that Parliament may make laws for the whole or any part of the Federation and laws having effect outside as well as within the Federation and that the Legislature of a State may make laws for the whole or any part of that State. These extents of Federal and State laws are stipulated in Article 73 of the Federal Constitution.

In next, Article 74, provided are the more detailed subject matters of Federal and State laws as follows:-

- (1) "Parliament may make laws with respect to any of the matters enumerated in the Federal List or the Concurrent List (that is to say, the First or Third List set out in the Ninth Schedule)."
- (2) "The Legislature of a State may make laws with respect to any of the matters enumerated in the State List (that is to say, the Second List set out in the Ninth Schedule) or the Concurrent List."

With reference to Federal and State laws, these provisions give a general rule. If any State law is inconsistent with a Federal law, the Federal law shall prevail and the State law, to the extent of the inconsistency, be void. The Legislature of a State shall have power to make laws with respect to any matter not enumerated in any of the Lists set out in the Ninth Schedule, not being a matter in respect of which Parliament has power to make laws.

Tables 1 to 4 sum up major matter-related matters enumerated in the Federal, State and Concurrent Lists of the Ninth Schedule to the Federal Constitution. The enumerated items and considerations are briefly characterized hereunder.

(1) Enumeration in the water-related legislative lists

"State works and water, that is to say, water (including water supplies, rivers and canals); control of silt; riparian rights" are included in the State List. On the other hand, the Federal List involves "Federal works and power, including water supplies, rivers and canals, except those wholly within one State or regulated by an agreement between all the States concerned".

"Drainage and irrigation" is enumerated in the Concurrent List.

With reference to hydropower generation, "Federal works and power, including production, distribution and supply of water power" and "electricity" are found in the Federal List.

As for water pollution control, several items could be referred to from the three Lists. "Trade, commerce and industry, including industries; regulation of industrial undertakings; factories; boilers and machinery; dangerous trade; and dangerous and inflammable substances" and "medicine and health including sanitation in the federal capital" are included in the Federal List, while enumerated in the Concurrent List are "public health" and "sanitation (excluding sanitation in the federal capital)". On the other hand, the State List provides for "obnoxious trade and public nuisances in local authority areas" as well as "water (including rivers and canals)".

So far as watershed management is concerned, several items are enumerated in both the Concurrent and the State Lists. The Concurrent List includes "rehabilitation of mining land and land which has suffered soil erosion" and "National Parks". "Forests", "control of silt" and "land improvement and soil conservation (except with respect to the Federal Territory)" are enumerated in the State List.

With reference to fisheries, "maritime and estuarine fishing and fisheries excluding turtles" is listed in the Federal List and "turtles and riverine fishing" is enumerated in the State List.

Distribution of legislative powers with regard to mining extends over the Federal and State Lists. "Trade, commerce and industry, including development of mineral resources; mines, mining, minerals and mineral ores" is included in the Federal List, while the State List provides for "land, including permits and licences for prospecting for mines; mining lease and certificate".

Land administration is prescribed exclusively in the State List. "Except with respect to the Federal Territory, land" is enumerated in the State List.

As regards navigation, the Federal List involves "shipping", "navigation" and "communications and transport". However, "ferries other than those in the Federal List" is enumerated in the State List.

(2) Considerations on the distribution of legislative powers

It has been generally assumed that 'water' is a State matter, which arises mainly from the fact that "water (including water supplies, rivers and canals)" is enumerated in the State List. If the word 'water' is defined in a rather narrow sense, it is correct to say that 'water' is enumerated in the State List. In this case, 'water' means only rivers, canals and water supplies. On the other hand, if 'water' indicates water resources development and management including not only water supplies and rivers but also drainage, irrigation, hydropower generation, water pollution control, watershed management, navigation, fisheries and mining, the expression that 'water' is a State matter is rather ambiguous or controversial. It will sometimes lead to an inappropriate approach and understanding. Instead, it may be adequate to say that some items with regard to water resources development and management are enumerated in the State List and others are in the Federal or the Concurrent List. Moreover, if 'water' indicates water supplies and rivers, it is enumerated in the State List setting aside inter-state aspects.

"Federal works and power, including water supplies, rivers and canals" are enumerated in the Federal List except for "those wholly within one State or regulated by an agreement between all the States concerned". In other words, inter-state water supplies, rivers and canals are included in the Federal List so far as there is no agreement between the States concerned.

Flood mitigation works fall under the State List if interpreted as 'river works'. However, if interpreted as an extension of 'drainage', it is included in the Concurrent List. Of late, flood mitigation works involve not only drainage works conjunctive with irrigation but also the protection works in urban and rural areas against floods. It is necessary to clarify to which List flood mitigation works are attached. The same applies to urban drainage. It comes under the Concurrent List if interpreted as 'drainage', while it falls in the State List if regarded as 'local government services'.

2.3 Distribution of Executive Powers

As a rule, the executive authority of the Federation extends to all matters with respect to which Parliament may make laws and the executive authority of a State extends to all matters with respect to which the Legislature of that State may make laws. Distribution of executive powers between the Federation and the States is thus coincide with that of legislative powers, under the Federal Constitution. Subject matters are provided also by the Federal, State and Concurrent Lists of the Ninth Schedule.

The Federal Constitution otherwise gives the following arrangements:-

- (1) "The executive authority of the Federation does not extend to any matter enumerated in the State List, except in so far as is provided in Articles 93 to 95." Article 93 relates to inquiries, surveys and statistics. Article 95 stipulates the inspection of State activities. Article 94 provides that "the executive authority of the Federation extends the conduct of research, the provision and maintenance of experimental and demonstration stations, the giving of advice and technical assistance to the Government of any State, and the provision of education, publicity, and demonstration for the inhabitants of any State, in respect of any of the matters with respect to which the Legislature of a State may make laws."
- (2) "The executive authority of the Federation does not extend to any matters in the Concurrent List, except in so far as may be provided by Federal or State Law."
- (3) "So far as Federal or State law confers executive authority on the Federation with respect to any matter enumerated in the Concurrent List it may do so to the exclusion of the executive authority of the State."
- (4) "Federal law may provide that the executive authority of a State shall extend to the administration of any specified provisions of Federal law and may for that purpose confer powers and impose duties on any authority of the State."
- (5) "Subject to any provisions of Federal or State law, arrangements may be made between the Federation and a State for the performance of any functions by the authorities of the one on behalf of the authorities of the other."
- (6) "The executive authority of every State shall be so exercised:-
 - (a) as to ensure compliance with any Federal law applying to that State; and
 - (b) as not to impede or prejudice the exercise of the executive authority of the Federation."

2.4 Special Arrangements to Promote National Uniformity

(1) Power of Parliament to legislate for the States in certain cases

Article 76 of the Federal Constitution stipulates the special arrangements with regard to distribution of legislative powers. Clause (1) of the Article 76 states:-

"Parliament may make laws with respect to any matter enumerated in the State List, but only as follows, that is to say:

- (a) for the purpose of implementing any treaty, agreement or convention between the Federation and any other country, or any decision of an international organisation of which the Federation is a member; or
- (b) for the purpose of promoting uniformity of the laws of two or more States; or
- (c) if so requested by the Legislative Assembly of any State."

A law made in pursuance of paragraph (b) or (c) above shall not come into operation in any State until it has been adopted by a law made by the Legislature of that State. Once adopted, it shall be deemed to be a State law and not a Federal law, and may accordingly be amended or repealed by a law made by that Legislature.

Clause (4) of the same Article provides for the other arrangements in case of the legislations for land and local governments, as follows:-

"Parliament may, for the purpose only of ensuring uniformity of law and policy, make laws with respect to land tenure, the relations of landlord and tenant, registration of titles and deeds relating to land, transfer of land, mortgages, leases and changes in respect of land, easements and other rights and interests in land, compulsory acquisition of land, rating and valuation of land, and local government."

A law made under this Clause does not need the adoption of the States concerned and functions as a Federal law. However, so far as it makes provision for conferring executive authority on the Federation, the law shall not operate in any State unless approved by resolution of the Legislature of that State.

(2) Provisions for land

The legislative and executive powers pertaining to land are vested in the State Governments, according to the normal distribution provided by the Legislative Lists. For this reason, the Federal Constitution stipulates the arrangements of land utilization for Federal purposes. From Article 83 to Article 90 provided are the acquisition of land, reversion to the States of land held, release of land reserved, dispositions of land held, determination of disputes as to land values, and special provisions relating to Malay reservations and customary land.

Article 91 stipulates the establishment of the National Land Council consisting of representatives from the Federal Government and the State Governments. The responsibility or functions of the Council are as follows:-

"It shall be the duty of the National Land Council to formulate from time to time in consultation with the Federal Government, the State Governments and the National Finance Council a national policy for the promotion and control of the utilisation of land throughout the Federation for mining, agriculture, forestry or any other purpose, and for the administration of any laws relating thereto; and the Federal and State Governments shall follow the policy so formulated."

"The Federal Government or the Government of any State may consult the National Land Council in respect of any other matter relating to the utilization of land or in respect of any proposed legislation dealing with land or of administration of any such law, and it shall be the duty of the National Land Council to advise that Government on any such matters."

(3) National development

In accordance with Article 92 of the Federal Constitution, "development plan means a plan for the development, improvement, or conservation of natural resources of a development area, the exploitation of such resources, or the increase of means of employment in the area". The Yang di-Pertuan Agong may, after publishing the development plan, proclaim any area or areas as a development area. This process requires firstly the recommendation from an expert committee and then consultations with the National Finance Council, National Land Council and the Government of any State concerned. Parliament has power to give effect to the development plan, notwithstanding that any of the matters to which the plan relates are those with respect to which only States would have power to make laws.

(4) Federal surveys, advice to the States and inspection of State activities

The Federal Government is empowered by the Constitution with conducts of inquiries, research and so forth. As mentioned earlier in 2.3, Articles 93 to 95 provide for these special executive powers to the Federation.

(5) National Council for Local Government

The establishment of the National Council for Local Government, consisting of the representatives from the Federal Government and the State Governments, is stipulated in the Constitution in the same line as that of the National Land Council. Policy formulation for the promotion, development and control of local government throughout the Federation and for the administration of any related law are the duties of the National Council for Local Government. The Federal Government or the State Government shall and may consult the Council in respect of the matters pertaining to local government.

2.5 Financial Provisions

(1) General financial systems

There are several provisions for finance from Article 96 to Article 107 in the Federal Constitution. All taxes or rates levied by or for the purposes of the Federation shall be authorized by or under the Federal laws. All revenues and moneys raised or received by the Federation shall be paid into and form one fund, to be known as the Federal Consolidated Fund. On the other hand, all revenues and moneys raised or received by a State shall be paid into and form one fund, to be known as the Consolidated Fund of that State.

The expenditure to be met from the Consolidated Fund, not charged thereon, shall be included in a Supply Bill. Charged expenditure, supplementary expenditure and excess expenditure are stipulated within the constitutional framework. Annual financial statement of the estimated receipts and expenditure of the Federation shall be prepared in respect of every financial year, and laid before Parliament. Parliament shall have power to authorize by law expenditure in respect of any financial year. The account of the Federation and of the States shall be audited and reported on by the Auditor-General, who is appointed by the Yang di-Pertuan Agong on the advice of the Prime Minister and after consultation with the Conference of Rulers.

(2) National Finance Council

There shall be the National Finance Council, consisting of the Prime Minister, the Ministers designated and one representative from each of the States. The Federal Government may consult the Council in respect of the financial matters, and the Government of a State may consult in respect of any matter which affects the financial position of that State.

The financial matters about which the Federal Government shall consult the Council are the followings:-

- "(a) the making of grants by the Federation to the States;
- (b) the assignment to the States of the whole or any portion of the proceeds of any federal tax or fee;
- (c) the annual loan requirements of the Federation and the States and the exercise by the Federation and the States of their borrowing powers;
- (d) the making of loans to any of the States;
- (e) the making of development plans in accordance with Article 92;"

and other matters in respect of which the Constitution or the Federal law makes provision for consultation with the Council.

(3) Grants to the States

According to the Constitution, the Federal Government shall make to each State two kinds of grants; namely, Capitation Grant and State Road Grant as shown in Table 5. The Capitation Grant is payable annually according to the formula based on population, while the State Road Grant is derived from the milage of the State roads multiplied by the average maintenance cost.

Parliament may by law make grants for specific purposes to any of the States on such terms and conditions as may be provided by any such law. The Revenue Growth Grants Act, 1977 was promulgated under this provision. Based on this Act, Revenue Growth Grant is payable to each State annually in accordance with the growth of Federal revenue.

In addition to the above-mentioned three basic Federal Grants, the Federal Government may, from time to time, make grants to any State for the purpose of development or to supplement the revenues. These grants come from the State Reserve Fund into which the Federal Government shall pay such sum as it may determine to be necessary after consultation with the National Finance Council.

(4) Assignment of revenues to the States

In general, each of the States shall receive all proceeds from the taxes, fees and other sources of revenue as specified in Table 6. Major items of revenue sources are those relating to lands, mines and forests, corresponding with the distribution of legislative and executive powers. With regard to the substitution or amendment of these fixed items, Parliament has the power to provide by law.

(5) Restriction on borrowing

The Federation shall not borrow except under the authority of Federal law, while a State shall not borrow except under the authority of State law. Any State law shall not authorize a State to borrow, for a period not exceeding five years, from a bank or other financial sources approved for that purpose by the Federal Government. The borrowing from the Federation is only exceptional case. Furthermore, a State shall not give any guarantee except under the authority of State law and without the approval of the Federal Government.

(6) Financing of expenditure relating to matters in the Concurrent List

With reference to matters enumerated in the Concurrent List, the burden of that expenditure is, unless otherwise agreed, borne in the following way:-

- "(a) by the Federation, if the expenditure results either from federal commitments or from State commitments undertaken in accordance with federal policy and with the specific approval of the Federal Government;
- (b) by the State or States concerned, if the expenditure results from State commitments undertaken by the State or States on its or their own authority."

3. WATER LAWS

3.1 Correspondence between Distribution of Legislative Powers and Existing Laws

With regard to water resources development and management, Malaysia is equipped with numerous laws which comprise not only State laws but also Federal laws. Water-related laws in existence have been framed within the constitutional framework. The distribution of legislative powers between the Federation and the States, which has already mentioned in 2.2, gives a fundamental rule of demarcation between Federal laws and State laws. Tables 7 and 8 show the correspondence of water-related laws in force with the items enumerated in the Legislative Lists. The characteristics of water-related legislations in Peninsular Malaysia are cited hereunder by each List.

(1) The matters enumerated in the Federal List

As far as 'inter-state river and water supplies' are concerned, neither the Federal law nor the State law has been promulgated up to now. Except for 'mining, the Electricity Act, Environmental Quality Act, Fisheries Act, Merchant Shipping Ordinance and the Geological Survey Act take effects in Peninsular Malaysia, coinciding with the enumeration in the Federal List.

(2) The matters enumerated in the Concurrent List

The Irrigation Areas Ordinance and the Drainage Works Ordinance was enacted as Federal laws, based on the item 'drainage and irrigation' in the Concurrent List. Other Federal laws corresponding with the Concurrent List are found in the Protection of Wild Life Act, National Parks Act and the Town and Country Planning Act. The Agricultural Drainage Ordinance of Johor and the Taman Negara Enactments of Pahang, Kelantan and Trengganu are the State laws related to the items in the Concurrent List.

(3) The matters enumerated in the State List

Major State laws corresponding with State matters are the Water Enactment, Rivers and Drainage Enactment of Kelantan, River Obstruction Enactment of Johor, Water Supply Enactment, Water Authority Enactments of Pulau Pinang and Melaka, Forest Enactment and the Mining Enactment. The Land Conservation Act and the Fisheries Act were legislated by Parliament as Federal laws for the purpose of promoting uniformity of the laws of two or more States, relating to 'land improvement and soil conservation' and 'turtles and riverine fishing'. Besides, for the purpose only of ensuring uniformity of law and policy, the Street, Drainage and Building Act, Local Government Act and the National Land Code are in force in Peninsular Malaysia. These laws are related to 'land' and 'local government' in the State List.

3.2 Historical Process of Legislations

From a historical viewpoint, the process of legislations of water-related laws may be divided into three periods; that is, (a) Federated Malay States (FMS) Period, (b) Federation of Malaya (FM) Period, and (c) Malaysia Period. Legislative process and changes of water-related laws in each period are summarized as in Table 9 and hereunder.

(1) FMS Period (1895 - 1947)

In 1895, the four States of Perak, Selangor, Negeri Sembilan and Pahang formed themselves into a federation called the Federated Malay States (FMS). During this period, first enacted were several important water-related laws. The Waters Enactment was legislated in 1920, and the Mining Enactment in 1929. Subsequently, two more laws were enacted in 1932 and in 1935. These are the Water Supply Enactment and the Forest Enactment, respectively.

(2) FM Period (1948 - 1963)

In 1948, the Federation of Malaya (FM) was established comprising the FMS, the unfederated Malay States (Perlis, Kedah, Johor, Trengganu and Kelantan) and the Strait Settlements (Pulau Pinang and Melaka). The formerly formed Water Enactment was extended to all the States. Laws relating to irrigation and drainage were promulgated as the Irrigation Areas Ordinance in 1953 and as the Drainage Works Ordinance in the following year. The Electricity Ordinance was enacted in 1949. After the promulgation of the Federal Constitution and independence on Merdeka Day, which is August 31, 1957, both the Land Conservation Act and the Land Acquisition Act more enacted as Federal laws. The existing laws on Merdeka Day would continue in force on and after Merdeka Day until repealed by the authority having power to do, with such modifications as may be made.

(3) Malaysia Period (1963 onwards)

As the development in the country progressed rapidly, the main stream of water-related laws seems to be directed at environmental protection. The Waters Enactment was amended in several States in 1971 to include clauses providing for the prohibition of water pollution. The Environmental Quality Act was framed in 1974, and the Protection of Wild Life Act and the Street, Drainage and Building Act respectively in 1972 and 1974.

Even before the formation of Malaysia, considerable efforts had been made to unify water-related laws on the ground of FMS or FM. Great efforts are being made after the formation of Malaysia in 1963 within the constitutional framework. With regard to land, the National Land Code was enacted and approved by the States in 1965. As far as local government is concerned, the Street, Drainage and Building Act in 1974, and the Local Government Act and the Town and Country Planning Act both in 1976 were enacted and approved by the several States. With reference to fisheries, the Fisheries Act was revised in 1978 and has been adopted by each State.

On the other hand, the 'national Acts' are not yet framed by Parliament for the State laws which have been established as FMS Enactments; namely, the Waters Enactment, Water Supply Enactment, Mining Enactment and the Forest Enactment. Among these, with reference to the latter two, new 'national Acts' seem to be under preparation.

3.3 Divergencies of Major Water-related Laws among the States

Water-related laws in Peninsular Malaysia, like other laws, have been formulated from time to time since FMS period and put into the present shape in legal structure. Some laws enacted earlier are still effective in most of the States. Major differences of water-related laws can be found in those framed as State laws, as shown in Table 10. Divergency of validities of principal water-related laws are mentioned hereunder.

(1) Waters Enactment

The States which had formed FMS rely on the Waters Enactment, FMS Cap. 146, while the unfederated Malay States (UMS) have their own Waters Enactments along the same line. Among UMS, only the State of Kelantan has a law by the name of the Rivers and Drainage Enactment, the content of which is almost similar to the Waters Enactments of the other States. Pulau Pinang and Melaka have also the laws extended from FMS Cap. 146. All the States except for Perlis, Kedah and Pahang have already amended their Waters Enactments to include additional Clause 7(A) for the prohibition of pollution of river water. The additional Clause 7(B) pertaining to compounding offences and making of rules can be found only in the Enactment of Johor.

(2) Water Supply Enactment/Water Authority Enactment

The Water Supply Enactment, framed as FMS Cap. 203, applies to the States of FMS, while UMS have their own Water Supply Enactments. In Pulau Pinang and Melaka, the Penang Water Authority Enactment and the Malacca Water Authority Enactment are existent for water supply.

(3) Irrigation Areas Ordinance

The Irrigation Areas Ordinance, framed as FM31/1953, applies to all the States in Peninsular Malaysia.

(4) Drainage Works Ordinance

The Drainage Works Ordinance, framed as FM1/1954, has extended to all the States in Peninsular Malaysia.

(5) Electricity Act

A law corresponding to 'electricity' and 'hydropower generation' in the Federal List is the Electricity Act revised as Act 116 in 1973. This Act is applicable to all the States in Peninsular Malaysia.

(6) Environmental Quality Act

The Environmental Quality Act was promulgated in 1974 as Act 127. It is applicable to all the States of Malaysia.

(7) Street, Drainage and Building Act

The Street, Drainage and Building Act was enacted by Parliament in 1974 as Act 133, for ensuring law and policy with respect to land and local government. It is applicable wholly to the States in Peninsular Malaysia.

(8) Local Government Act

This is also the law enacted for ensuring uniformity of law and policy with regard to local government. It was promulgated in 1976 as Act 171 and applicable to all the States in Peninsular Malaysia.

(9) Forest Enactment

All the States of FMS have the Forest Enactment framed as FMS Cap. 153. Similarly, UMS have their own Forest Enactments. Likewise, the States of Pulau Pinang and Melaka enacted their own Enactments framed as SS Cap. 147.

(10) Land Conservation Act

The Land Conservation Act framed as FM 3/1960 is the law for promoting the uniformity of the laws of two or more States. It has been adopted by all the States in Peninsular Malaysia.

(11) Fisheries Act

The provisions relating to riverine fishing of the Fisheries Act, revised as Act 210 in 1978, are adopted by all the States in Peninsular Malaysia. This is another example of the law for promoting uniformity of the laws of two or more States. However, these provisions have not been extended to Sabah and Sarawak.

(12) Mining Enactment

The States of FMS rely on the Mining Enactment framed as FMS Cap. 147. On the other hand, UMS have their own Mining Enactments which are partially different from the FMS Cap. 147. The States of Pulau Pinang and Melaka also have their own Mining Enactments.

(13) National Land Code

The National Land Code, Act 56 of 1965, was enacted for the application to Peninsular Malaysia only, for ensuring uniformity of law and policy with regard to land. It aims at introducing a uniform land system and is actually approved by all the States in Peninsular Malaysia.

(14) Land Acquisition Act

The Land Acquisition Act was framed as FM 34/1960, and seems to be a law for ensuring uniformity of law and policy within the constitutional framework. It is applicable to all the States in Peninsular Malaysia.

(15) Merchant Shipping Ordinance

The Merchant Shipping Ordinance was enacted as FM 70/1952, being extended to all the States in Peninsular Malaysia.

(16) Town and Country Planning Act

The Town and Country Planning Act was promulgated in 1976 as Act 172, which was pursuant to the power of Parliament for ensuring uniformity of law and policy. It applies only to the States in Peninsular Malaysia.

3.4 Outline of Water-related Laws

Water resources development and management in the States of Peninsular Malaysia are executed in accordance with numerous laws. The outline of contents of water-related laws will be discussed, being aggregated into ten groups; namely, (a) river and water management, (b) water supply, (c) irrigation and drainage, (d) hydropower generation, (e) water pollution control, (f) watershed management, (g) land use control, (h) fisheries and navigation, (i) financial procedures, and (j) institution and organization.

(1) River and water management

With respect to river and water management, the Water Enactment is a fundamental law. It contains provisions for property in rivers, prohibition of diversion of water from rivers except under licence, restriction on construction of walls and building on banks of rivers or within flood channels.

The Mining Enactment caters for legal aspects of mining industries, including regulations of river water use for mining purposes.

The Geological Survey Act requires that any person who wishes to develop certain wells or to carry out certain excavations should notify the Director General of Geological Survey.

Table 11 shows the outline of the involved provisions of these laws. It is notable that neither the Waters Enactment nor other laws have any provision for the classification of rivers, coordinative procedure of water use, methods for executing river works, apportionment of expenses for river works and procedures for dam construction.

(2) Water supply

Table 12 outlines the laws and the involved provisions for water supply. The Water Supply Enactment prevails in the States other than Pulau Pinang and Melaka. It deals with declaration of water supply areas, water supply services inside or outside a water supply area, imposition of water rates and determination methods of water rates.

In the State of Pulau Pinang, the Penang Water Authority Enactment provides for the establishment of the Penang Water Authority responsible for managing water supply throughout the State. Similarly, in the State of Melaka, the Malacca Water Authority is to be incorporated under the Malacca Water Authority Enactment.

(3) Irrigation and drainage

As shown in Table 13, fundamental laws pertaining to irrigation and drainage are the Irrigation Areas Ordinance and the Drainage Works Ordinance. The Irrigation Areas Ordinance includes the declaration of irrigation areas, classification of the lands within an irrigation area and imposition of water rates. Declaration of drainage areas, appointment of the Drainage Board and imposition of drainage rates are provided by the Drainage Works Ordinance.

(4) Hydropower generation

The Electricity Act is a Federal law which takes effect in Peninsular Malaysia. It provides for the establishment of the National Electricity Board (NEB), functions and powers of NEB, matters relating to supply of electricity and other matters concerned. As regards hydropower generation, NEB is vested with the power to prescribe sources of water. These provisions are shown in Table 14.

(5) Water pollution control

Water pollution is to be controlled under several laws such as the Environmental Quality Act, Waters Enactment, Local Government Act and the Street, Drainage and Building Act. Table 15 summarizes the involved provisions in these laws.

As early as in 1971, the Waters Enactment of the States other than Perlis, Kedah and Pahang were amended in order to provide for the prohibition of pollution of river water. According to this additional Clause, no person shall discharge polluting matters into the river except in accordance with the terms and conditions of a licence issued by the State Secretary.

The Environmental Quality Act, enacted in 1974 by Parliament, is a basic law providing for pollution control and environmental improvement. With reference to water pollution, the restriction on pollution of inland waters is provided. Environmental quality standards are also safeguarded by the involved provisions. Licence systems are to be introduced in the case of prescribed promises under this Act.

Water pollution control in a Local Authority area is vested in the Local Authority, under the Local Government Act. Maintenance, cleansing and repair of drains and construction and operation of sewerage are the responsibilities of the Local Authority, which is provided by both the Local Government Act and the Street, Drainage and Building Act.

(6) Watershed Management

The control of silt and erosion and conservation of hill land are appertained to the provisions of the Land Conservation Act. The Forest Enactment provides for the procedure of constituting a Reserved Forest, while the National Parks Act lays down that of establishing a National Park. The Protection of Wild Life Act aims to protect wild life and to safeguard ecological aspects. Outline of these law are shown in Table 16.

(7) Land use control

The National Land Code was enacted in order to introduce a uniform land system to the States in Peninsular Malaysia. It deals with land tenure, registration of title to land, dealings of land and revenue collection from land, including classification of land, categories of land use and disposal of land.

With regard to land use planning, the National Land Code provides for the alteration of land use categories, while the Town and Country Planning Act prohibits any development without permission. The Town and Country Planning Act provides for the proper control and regulation of town and country planning in Local Authority areas.

Acquisition of land, assessment of compensation and the matters concerned are an integral part of the Land Acquisition Act.

Table 17 summarizes the contents of the above-mentioned laws. Besides these, there are various other laws dealing with different aspects of land.

(8) Fisheries and navigation

The Fisheries Act is a principal law providing for the procedure of fisheries control. It deals with not only maritime fisheries and fishing but also inland fishing, with licence systems.

With regard to navigation, the Merchant Shipping Ordinance relates mainly to marine transportation. On the other hand, the River Launches Enactment which is a State law, regulates the launches used on rivers.

The provisions involved in these laws are listed in Table 18.

(9) Financial procedures

A representative law is the Financial Procedure Act which provides for the control and management of public finances and financial and accounting procedure both in the Federation and in the States. The Development Fund Act and the Loan (Local) Ordinance stipulate the procedure for payment of public moneys into the Development Fund.

The State Water Supply Funds have been established in the several States in Peninsular Malaysia, based on the respective States' State Water Supply Fund Enactments in accordance with the State Water Supply Fund (Financing and Accounting Procedure) Act.

The Loan Enactments authorize the borrowing from the Federation for the purpose of financing the specific State development projects.

Table 19 outlines the involved provisions for financial procedure.

(10) Institution and organization

The Federal Constitution gives the basic framework of the roles and functions of the Federation and the States as well as inter-relationships between the Federation and the States as mentioned earlier. The State Constitution provides for executive and legislative organization within each State. Status and administration system of the Local Authority are provided by the Local Government Act. Jurisdiction of each Local Authority is also given by the Local Government Act.

Many statutory bodies have been established for water resources development and management. The legal grounds are shown in Table 20. NEB was established as a Federal statutory body, based on the Electricity Act. The other important Federal Statutory bodies are the Federal Land Development Authority (FELDA) under the Land Development Ordinance and the Muda Agricultural Development Authority (MADA) under the Muda Agricultural Development Authority Act. In the States of P. Pinang and Melaka, the Penang Water Authority and the Malacca Water Authority were established as State statutory bodies, under the respective Water Authority Enactments.

It is worthy of note, however, that there is no legislation providing for either a central organization for comprehensive planning and coordination or a multi-purpose oriented organization for project implementation in water resources development and management.

4. WATER-RELATED INSTITUTIONS

4.1 Water-related Institutions at Three Levels

With respect to water resources development and management, considerable efforts have been made by water-related agencies at Federal, State and Local levels. Several statutory bodies have been established mainly at Federal and State levels.

(1) Federal Government

According to the Federal Constitution, a Supreme Head of the Federation is the Yang di-Pertuan Agong (King) who shall take precedence over all persons in the Federation. He is elected among the Conference of Rulers consisting of the Rulers and the Yang di-Pertua Negeri (Governor) of the States. The executive authority of the Federation shall be vested in the Yang di-Pertuan Agong and exercisable by him or by the Cabinet or any Minister authorized by the Cabinet. Members of the Cabinet, Prime Minister and other Ministers, are appointed from Parliament. The Prime Minister's Department and about twenty Ministries have been set up under the Cabinet in order to execute their individual offices, as shown in Fig. 1.

Planning and coordination are carried out by the Economic Planning Unit (EPU), Implementation Coordination Unit (ICU), Socio-economic Research and General Planning Unit (SERGPU) and the Malaysian Administrative Modernisation and Manpower Planning Unit (MAMPU) of the Prime Ministers' Department.

Budgeting and accounting of water-related Federal projects and disbursement of loans to the States or statutory bodies are under the jurisdiction of the Ministry of Finance (Treasury). Legal advice and drafting of legislations with regard to water resources development and management are the functions of the Attorney General's Chamber.

The Public Works Department (PWD) is a consulting, designing and coordinating agency for all Federal public works including water supplies, which is established under the Ministry of Works and Public Utilities. Consultative roles of PWD cover both the Federal Government and the State Governments.

The Drainage and Irrigation Department (DID) under the Ministry of Agriculture, is responsible for the implementation of water resources development projects which are composed of drainage irrigation, flood mitigation, hydraulic investigations and collection of hydrological data.

The Fisheries Department, also under the Ministry of Agriculture, controls fisheries activities and promotes fishing industries.

The Mines Department and the Forest Department are the responsible agencies for mining and forestry respectively under the Ministry of Primary Industries. The Ministry of Primary Industries also includes the Geological Survey Department (GSD) which carries out mapping and assessment of groundwater and hydrogeological investigation as well as survey of mineral resources.

Land administration is the charge of the Ministry of Land and Regional Development, in particular, the Lands and Mines Department.

The Division of Environment (DOE) of the Ministry of Science, Technology and the Environment is engaged in protection and enhancement of the environment including water pollution control. The Chemistry Department under the same Ministry provides the services of water quality analysis to the other agencies.

The Meteorological Services Department under the Ministry of Transport provides with meteorological information.

Enhancement of public health is sought by the Ministry of Health (MOH). With regard to water resources, MOH is concerned with water supplies in rural areas in line with the improvement of sanitation as well as technical services for sewerage provision to Local Authority.

Advisory roles to local governments are the duties of the Ministry of Housing and Local Government (MOHLG). Matters pertaining to sewerage projects are also included. The Town and Country Planning Department under MOHLG is responsible for overall planning policy and coordination in town and country planning.

The Statistics Department of the Prime Minister's Department provides with the statistical services.

(2) State Government

Government structure of the State is provided by the State Constitution, subject to the provisions of the Federal Constitution. The Ruler or the Yang di-Pertua Negeri (Governor) is the Head of each State, taking precedence over all other persons within the State. The Yang di-Pertua Negeri is found only in the States of Pulau Pinang and Melaka, the former Strait Settlements, while the other nine States in Peninsular Malaysia have the Rulers. The Ruler or the Yang di-Pertua Negeri is otherwise called the State Authority. The State Authority in Peninsular Malaysia shall appoint an Executive Council, consisting of the Mentri Besar (Chief Ministers in case of P. Pinang and Melaka) and other members from the State Legislative Assembly. The State Secretary assists the Mentri Besar, and the State Secretariat coordinates administrative activities within the State. A State is divided into the several administrative units; that is to say, the Districts. The District Officer is a State officer who is responsible for coordination of administrative activities within the District.

The State Economic Planning Unit (SEPU), inside the State Secretariat, formulates development strategies of the State and is responsible for the coordination in preparation of State development programmes. SEPU reviews, checks and recommends the plan of water-related projects within the State. The consistency with the national development policy is ensured by SEPU through the liaison with the Federal EPU.

The functions of the State Drainage and Irrigation Department (SDID) are basically similar to those of Federal DID. SDID is responsible for the improvement of paddy cultivation, agricultural drainage systems, river conservancy works, flood mitigation works and collection of hydrological data. Significant functions of SDID are found in its advisory roles to the State Government, which involve the services to the District Officers or the Senior Inspector of Mines in issuing water licences.

The State Public Works Department (SPWD) plans, constructs, operates and maintains State public works in collaboration with Federal PWD including water supply systems for domestic and industrial purposes. With regard to water resources, SPWD's functions include the monitoring of water quality of the supplied water, requests to the Land Offices to reserve catchment areas for water supply, liaison with Federal PWD in the implementation of water supply projects and construction and maintenance of roadside drains.

The Lands and Mines Department of the State basically administers the registration, transaction and transfer of land, having set up the Land Offices as its branches within the State. Management of State land is another important function of the Department. The Department is also concerned with control of river water through handling of the application for water licences, as well as State agricultural development schemes.

The State Governments in Peninsular Malaysia have not established the Ministries inside. The above-mentioned Departments; namely, SDID, SPWD and the Lands and Mines Department, are therefore self-existent Departments. In terms of water resources management, the District Offices of the State play an important role. Issuances of water licences, management of irrigation water in irrigation areas and management of the Drainage Boards are under the jurisdiction of the District Offices.

(3) Local Government (Local Authority)

The Local Government Act is a fundamental law providing for the legal ground of the Local Governments in Peninsular Malaysia. Local Authority is another name of the Local Government which means City Council, Municipal Council and District Council. Every Local Authority shall be a corporate body with perpetual succession and a common seal. Under the Local Government Act, "the State Authority, in consultation with the Minister (of Housing and Local Government) and the Secretary of the Election Commission, may by notification in the Gazette (a) declare any area in such State to be a local authority area; (b) assign a name to such local authority area; (c) define the boundaries of such local authority area; and (d) determine the status of the local authority for such local authority area and such status shall be that of a Municipal Council or a District Council."

All of the affairs of every Local Authority area should be administered by the Local Authority established by and in accordance with the Local Government Act. The functions under the Local Government Act are shown in Table 21. Jurisdictions of the Local Authority include the prohibition of pollution of any stream, channel, public drain or other watercourse within the Local Authority area, restriction of public nuisances and construction and maintenance of public drains and sewerage works. Provisions of drainage and sewerage works by the Local Authority are authorized by the other two laws; namely, the Street, Drainage and Building Act and the Town and Country Planning Act.

4.2 Statutory Bodies

Statutory bodies established for water resources development and management are classified into two kinds; namely, the Federal statutory body and the State statutory body. Major water-related statutory bodies and their legal grounds are as shown in Table 20. As Federal statutory bodies established are NEB, Farmers' Organization Authority (FOA), FELDA, Pahang Tenggara Development Authority (DARA) and MADA. Of the State statutory bodies, major water-related agencies are found in the Penang Water Authority, Malacca Water Authority and the State Economic Corporations.

NEB has been set up under the Ministry of Energy, Telecommunications and Posts, dealing with the services of supply of electricity. FOA informs the members of the Farmers' Organizations of irrigation schedule. FELDA, under the Ministry of Land and Regional Development, is responsible for the projects of land development and settlement schemes. DARA, under the same Ministry carries out, besides the land development, water supply and sewage disposal treatment in the Pahang Tenggara area. MADA provides with irrigation systems in addition to regional development in the Muda Area, under the Ministry of Agriculture.

The Penang Water Authority is responsible for planning, operation and management of water supply system in the State of Pulau Pinang, while those in Melaka are implemented by the Malacca Water Authority. The State Economic Development Corporations carry out various State development projects.

4.3 Outline of Functions of Federal Agencies

(1) EPU

EPU is a central staff agency of the Federal Government in planning national economic development. The major functions are (a) to formulate government objectives in national development, (b) to prepare the Five Year Plan, and (c) to prepare an annual development plan. EPU acts as the secretariat to the National Development Planning Committee (NDPC), and submits a draft development plan to NDPC.

The Infrastructure and Utilities Section of EPU carries out the formulation and recommendations on policy, progress and budgets of the development projects for water supply, electricity and sewerage. It directs, coordinates or assists in project identification, preparation of projects and project approval.

The Agriculture Section supervises in the review of annual budget estimates relating to agricultural development, and evaluates project implementation in association with the Ministry of Agriculture, Ministry of Primary Industries and the Ministry of Land and Regional Development.

The Technical Service Section reviews and recommends for the approval of major development projects from the engineering and technical viewpoints.

(2) ICU

The objectives of ICU are the monitoring and evaluation of implementation of all economic and social policies or programmes, in order to fulfill the New Economic Policy. ICU is the secretariat to the National Action Council.

(3) SERGPU

SERGPU is engaged in depth studies of socio-economic aspects of development and evaluation of socio-economic impact of development programmes or projects.

(4) MAMPU

MAMPU is entrusted with administrative research and reorganization of the Federal and State Governments, in order to modernize administrative machineries so that administrative systems should be kept with present needs. Especially, the activities of MAMPU are carried out for the purpose of strengthening administrative capacity in the implementation of the Five Year Plan.

(5) Statistics Department

The Statistics Department is responsible for collecting, processing and publishing statistical data throughout Malaysia. It deals with the information services to the other government agencies, located in the Prime Minister's Department.

(6) Ministry of Finance (Treasury)

The Treasury is responsible for (a) budget management, (b) preparation of expenditure estimates, (c) coordination of Federal and State financial matters, (d) management and securing of domestic and external loans, (e) guarantees to the States, statutory bodies and corporations in securing project loans, and (f) disbursement and account of the Federal Consolidated Fund.

(7) Attorney General's Chamber

The functions and responsibilities of the Attorney General's Chamber are (a) legal advice to the Federal Government, (b) drafting of all legislations, and (c) public prosecution.

(8) PWD

PWD is an agency responsible for all public works including roads, highways, buildings and public water supplies. The other client Departments delegate the construction of the charged engineering works to PWD.

The Water Supply Division of PWD is engaged in (a) planning of water supply, (b) urban water supply schemes, (c) regional water supply development, (d) rural water supply schemes, and (e) FELDA water supply. In respect of State water supply schemes requiring Federal loans, the Ministry of Works and Public Utilities makes recommendations to NDPC and the Treasury on the feasibility and economic justification before the loans are approved, on the advice of the Director General of PWD.

(9) DID

The functions of DID may be summarized (a) expansion and improvement of irrigation and drainage systems in paddy areas including the provision of facilities for double cropping, (b) reclamation of swamp land by providing drainage and irrigation systems, (c) rehabilitation of coastal land for agricultural development, including construction of coastal bunds or tidal control gates to prevent saline water intrusion, (d) provision of irrigation and drainage engineering services for the expansion of the agricultural sector, (e) planning and implementation of engineering works for flood mitigation, and (f) collection and dissemination of hydrological data and information for the nation's water resources development and management.

The Planning Section of DID consists of five sub-sections; that is, Planning Design, Hydrology, Research Station, and Training. The Hydrology Sub-section is engaged in making of data base, water resources assessment and the hydrological application.

(10) Fisheries Department

The Fisheries Department is responsible for (a) fisheries administration, (b) development of marine and freshwater fisheries and fishing, and (c) fisheries research.

(11) Mines Department

The functions of the Mines Department are the enforcement of mining legislation and the supervision of mining operations, in order to ensure the efficiency of mineral resources extraction. In respect of water resources, it controls water use for mining and water pollution through regulating discharge from mining activities.

(12) Forest Department

The Forest Department is responsible for (a) technical direction and advice on forestry management and development, (b) conservation of forests, and (c) assessment of utilization and development of forest resources.

(13) GSD

The functions of GSD relating to water resources are (a) mapping and assessment of the groundwater potential, (b) investigation on groundwater utilization, (c) assistance and advice to the other agencies in groundwater exploitation, and (d) inventory of all available hydrogeological data.

(14) Ministry of Land and Regional Development

This Ministry acts as the secretariat of the National Land Council for which the Federal Constitution provides. The other important functions are to ensure the maximum and orderly use of land, to supervise statutory bodies such as FELDA and DARA, and to create legislations for land administration.

(15) Lands and Mines Department

Through advising the Land Offices of each State, the Federal Lands and Mines Department carries out (a) assistance in the study of land policy, (b) assistance in the formulation of land policy, (c) administration of the reserved land for Federal purposes, (d) administration of private land use, and (e) land acquisition for Federal purposes.

(16) DOE

The general functions of DOE are (a) pollution control, (b) medium-term planning through zoning of land and land use control, and (c) long-term planning for conservation of environmental assets. In respect of pollution control and water quality management, DOE is involved in planning, programming, implementing, operating and evaluating the matters pertaining to water resources, including management of the discharge of solid and hazardous waste materials.

(17) Chemistry Department

The Chemistry Department provides with analytical, investigatory and advisory services to all the other public agencies including Local Authorities and statutory bodies. The Department extends the services of water quality analysis to all water-related agencies.

(18) Meteorological Services Department

The Meteorological Services Department is responsible for (a) weather forecast, (b) hydro-meteorology, (c) climatology, and (d) environmental studies including rain water chemistry.

(19) MOH

The subject matters to the Ministry are (a) hospitals, (b) medical profession, (c) public health, (d) prevention of diseases, (e) sanitation, and (f) international health. MOH carries out water supplies in rural areas as a part of the Rural Environmental Sanitation Programme. In respect of sewerage projects, MOH gives the technical advice to Local Authorities and chairs technical committees in both the study and the implementation phases.

(20) MOHLG

The functions of MOHLG are (a) to achieve uniformity of laws and policy pertaining to local government (Local Authorities) and (b) to equip urban or Local Authority areas with required facilities through minor development schemes.

The Local Government Division advises Local Authorities on all the matters concerned; for example, sewerage projects. On the other hand, the Town and Country Planning Department is responsible for the overall direction of planning policy with technical advice and assistance to Local Authorities.

(21) NEB

The basic functions of NEB are (a) to establish, manage and work electrical installations, (b) to promote and encourage the generation of energy, (c) to secure the supply of energy at reasonable prices, (d) to make regulations for the generation, transmission, distribution and use of energy, and (e) to advise the Minister of Energy, Telecommunications and Posts on all matters concerned.

With regard to water resources, the Planning Section and the Operation Section of NEB involve the functions for (a) planning, construction and maintenance of waterways, dams and other facilities for hydropower generation, (b) stabilization of river flow through reservoir operation, and (c) requests to the Land Officers to reserve catchment areas.

(22) FELDA

According to the Land Development Ordinance, FELDA is empowered to promote and assist the investigation, formulation and carrying out of projects for the development and settlement of land. For these purposes, the functions of FELDA includes (a) to clear unused land for agricultural development schemes, (b) to provide infrastructure for such schemes, and (c) to operate palm oil mills.

Water supply projects for FELDA schemes are planned and designed by PWD and financed by the funds of the Ministry of Land and Regional Development. The actual construction is supervised by PWD or SPWD.

(23) DARA

Of all the functions of DARA, those related to water resources are (a) construction of interim water supply schemes (up to 12 months), (b) planning, design and construction of water reticulation systems within DARA towns, and (c) planning, design and construction of municipal sewage disposal and treatment facilities in DARA towns.

(24) MADA

The basic functions of MADA are (a) to promote, stimulate, facilitate and undertake economic and social development in the Kawasan Muda (Muda Area), and (b) to plan and undertake within Kawasan Muda such agriculture development as may be assigned to it by the State Authority of the States of Perlis and Kedah.

In respect of water resources, MADA has the two important functions; namely, (a) to operate and maintain the reservoir, watercourse and other facilities for irrigation water supply, and (b) to develop and extend suitable water control and management systems.

4.4 Manpower Problems in Water-related Agencies

Tables 22 to 30 show manpower allocation of water-related agencies at Federal, State and Local levels including some statutory bodies. Of these, manpower problems in PWD and DID, the two major agencies, are cited hereunder.

(1) Manpower problems in PWD

PWD has not yet effectively expanded its implementation capacity in terms of manpower to the extent as required. There are several reasons. One is that PWD has taken to fill up newly created post mainly in clerical staff. Another reason is that new recruits lack the experience and would take 6 to 12 months in training. A large turnover of contract of civil engineers is the other reason. It is inevitable that these problems will recur.

Strategies must be formulated to analyse manpower requirement, especially for professional grade, and to check rapid staff turnover as well as to provide effective on-job training to the new recruits. The quantum of additional manpower requirement is summarized in Table 24.

(2) Manpower problems in DID

Shortfalls and problems have been experienced in the implementation of DID's projects during the Third Malaysia Plan (TMP) period, as shown in Table 26. The difficulty of fill up the post occurs in the technical and sub-professional grade as well as clerical staff. Steps must be taken to improve the staffing position by checking the rapid turnover and to provide effective on-job training to the new recruits.

DID has already employed consultancy services to assist in project implementation. It is proposed to progressively increase the use of these services, in order to cope with any significant increase in workload beyond the projects in charge.

5. PLANNING ASPECTS

5.1 National Development Plan

Setting aside the constitutional framework, each development project is planned and coordinated in the procedure of the National Development Plan (Five Year Plan). With reference to the authorized planning system, that of the National Development Plan is the only one.

In the National Development Plan, sectoral development programmes follow such parts as review of the former Plan for the previous five years. The Plan includes establishment of objectives and policies, socio-economic framework and contribution of the public and private sectors to development.

The sectoral development programmes are divided into those of agriculture, fisheries, forestry, manufacturing, mining, housing, transport and communication, utilities, education and training, health and family planning, community services and general administration. Water supply, hydropower generation and sewerage provision are categorized in the utilities. Drainage and irrigation are treated as a component of agriculture.

5.2 Planning Procedure

Figure 2 shows the procedure of the National Development Plan

(1) Preparation and submission of draft programmes

The headquarters of the Federal agencies plan their own development programmes for the coming five years. With regard to water resources, DID, PWD and NEB are included in the agencies responsible for such drafting. These draft programmes are then submitted to EPU for consideration. Prior to the making of draft programmes, the reference to the counterpart State agencies is carried out.

(2) Integration at State level

SEPU, located within the State Secretariat, works out the State development plan for the State Action Committee (SAC) which are chaired by the Mentri Besar or the Chief Minister. The activities of SEPU inside the State Government are usually supplemented by the Federal and/or State development statutory bodies which are specifically established for regional development.

SEPU, functioning as the secretariat of the State Development Planning Committee where it is set up, integrates the State development objectives with those of the Federal Government. As such, SEPU is involved in or aware of all the major development projects being planned in the State. SEPU reviews the programmes and rough estimation of budgets prepared by the Departments of the State for development projects. It consolidates the individual programmes into an integrated development budget estimation which is to be submitted to the State and Federal Government. In this consolidation process, the assistance is given by the State Treasury.

(3) Preparation of the Five Year Plan

EPU formulates national objectives for development and prepares the Five Year Plan. The Federal Treasury is engaged in the preparation of annual development budget, after consultation with EPU. The Five Year Plan is a configuration coordinating various programmes of development projects.

EPU is concerned with planning, formulation and evaluation of policies and programmes of all development projects. It plays an important role in ensuring that adequate funds are made available and that implementing agencies have the required ability and capacity. EPU makes up the presentation of issues and policies of nation-wide development into the Five Year Plan, for the submission to NDPC.

(4) Review and approval by NDPC

NDPC is a committee appointed by the Cabinet, consisting of the Chief Secretary to the Government, the Governor of Bank Negara, the Permanent Secretary of the State Treasury, Sabah, the Financial Secretary of Sarawak, and the representatives from the Federal Treasury, Ministry of Commerce and Industry, EPU and the Statistics Department. EPU acts as the secretariat to NDPC. NDPC is an inter-agency committee, under the chairmanship of the Chief Secretary. It reviews and approves the Five Year Plan submitted by EPU, and in turn reports to the National Economic Council (NEC).

(5) Approval by the Cabinet and Parliament

NEC is a council in the Federal Cabinet, chaired by the Prime Minister. The overall allocation of public development expenditures and target of development projects of the various sectors in the Five Year Plan are approved by the Cabinet on the recommendations of NDPC, through NEC. The Five Year Plan is finally authorized by Parliament.

5.3 Problems in National Development Plan

The Five Year Plan includes not only socio-economic development but also various kinds of sectoral development programmes. This results in the scattering of the components relating to water resources development and management into various sectors. It is difficult to confirm the detailed programmes of each water resources development project at both Federal and State levels.

On the other hand, there has been no specific planning system in which water supply, irrigation and drainage, flood mitigation and others are categorized as a comprehensive form. These sectoral plans are to be integrated at both Federal and State levels, from the viewpoint of comprehensive water resources development. It is necessary to establish the legal systems for the integration. Planning system for water resources development should be incorporated in the Five Year Plan.

6. COORDINATION IN PLANNING AND IMPLEMENTATION

As presented earlier, the multiplicity of water-related agencies is found in the present systems for water resources development and management. Not only are these agencies involved in the formation catering for their own purposes, but also are in competition for available water resources in the absence of effective arrangements to ensure coordinations or the multi-purpose development and use. Existing systems to ensure coordination among the agencies concerned are found in (a) bilateral consultation, (b) committee system, (c) council system, (d) specific unit for coordination, and (e) statutory bodies.

6.1 Councils and Committees for Planning and Policy

As listed in Table 31, the National Land Council, National Finance Council and the National Council for Local Government have been established under the Federal Constitution. The National Land Council deals with the matters relating to promotion and control of land utilization, the secretariat to which is the Ministry of Land and Regional Development. The National Finance Council is to be consulted for financial matters by the Federal Government. The Treasury acts as the secretariat. The National Council for Local Government is concerned with the matters pertaining to local government. The Ministry of Housing and Local Government is the secretariat to the National Council for Local Government. These three National Councils are all policy formulating bodies, comprising the representatives of the States and the Federal Ministers concerned as members.

Besides the constitutional Councils as mentioned above, the National Action Council (NAC), NEC and NDPC have been established to discuss or approve development plans. The secretariat is ICU to NAC, and EPU to both NEC and NDPC. The functions of these Councils/Committee are as shown in Table 32. In the formulation of the Five Year Plan, approvals by NAC, NEC and NDPC are necessary. NEC plays a significant role in preparing of development plan proposal among the inter-agency planning groups. The Prime Minister or the Deputy Prime Minister of the Federal Government chairs NAC and NEC, while NDPC is under the chairmanship of the Chief Secretary to the Federal Government.

6.2 Committees for Project Implementation

In addition to the councils and committees for planning and policy formulation, various committees are existent to review, plan and discuss the relevant issues to project implementation. Examples of these committees are presented in Table 33. Table 34 lists the members of water-related Councils/Committees. Besides, steering committees are instituted for water supply, agricultural study, river basin study, sewerage study and hydropower generation study.

6.3 Inter-state Water Resources Development and Management

Rivers often flow beyond the administrative boundaries between the States. More than ten are identified as inter-state rivers in Peninsular Malaysia, which is shown in Table 35. Water demand areas do not always correspond with water resources area. One irrigation area may occasionally astride State boundaries. Discharge into the upstream reaches of inter-state rivers inevitably influence the downstream areas. Any existing law, however, does not provide for legal procedure to deal with any possible disagreement between the States. Inter-state management of water use is imperative in the future. Present situations of inter-state jurisdiction are summarized also in Table 35.

(1) Management of inter-state rivers

So far, there has been no agreement on inter-state river which is stipulated in the Federal Constitution. The Consultative Committee on Sungai Kesang has been set up in order to discuss the inter-state issues of the Kesang river such as determination of the amount of water use, future water use, water pollution and maintenance of rivers. The Committee consists of the representatives from the States of Melaka and Johor, as previously shown in Table 33.

(2) Inter-state water supply

A few of inter-state water supply schemes are on-going though no agreement is existent except for between Perlis and Kedah. With reference to the Sungai Benus Scheme, the Federal PWD takes up matters from the respective State Governments.

(3) Inter-state irrigation schemes

Inter-state irrigation schemes are carried out in Muda Area and in the Sungai Krian Project, not through the committee systems. MADA is in charge of irrigation schemes of Muda Area in the States of Perlis and Kedah, consisting of not only Federal staff but also the personnel of both the States.

(4) International issues

The Golok river flows along the boundary between Malaysia and Thailand. However, there seems to be no specific agreement between both countries.

There exists an international water supply between Malaysia and Singapore. An agreement was concluded in 1962 between the State Government of Johor and the City Council of Singapore, concerning the Johor river. The similar agreements had been concluded in 1961 in respect of the Terbau and Scudai rivers. Table 36 shows an example of the Johor river agreement. According to these agreements, full right to draw off and to use water is granted and the demise of land in terms of charges is payable for the water drawn off by Singapore.

6.4 Flood Relief System

Flood relief is carried out through committee system which is organized for natural disaster including flood hazard. Committees are established at Federal, State and District levels under the National Security Council, as illustrated in Fig. 3.

(1) At Federal level

A committee for natural disaster relief at Federal level is named the Malaysian Natural Disaster Relief Committee. It is composed of several Federal Government staff, chaired by a senior Cabinet Minister who is a member of the National Security Council. In order to assist the Committee, working groups are set up such as for supplies, transport and communication.

(2) At State and District levels

At State and District levels, committees include representatives from the several government agencies, Local Authorities and voluntary organizations. The State and District Security Committees appoint the members of the committees, respectively.

(3) Flood Control Centre

For the purpose of considering and planning relief measures for the occurrence of floods, operation rooms have been established at the respective levels. It is called the Flood Control Centre inside the Malaysian Natural Disaster Relief Committee. Similar operation rooms have been set up in the relevant agencies; namely, the Ministry of Welfare Services, MOH, Ministry of Defence, Police Headquarters, Ministry of Works and Public Utilities, DID and the Meteorological Services Department.

(4) Comprehensive plan of operation

The committee for disaster relief is specifically requested to prepare a comprehensive plan of operation, covering (a) establishment of flood relief machinery, supplies centers and evacuation center, (b) communication system and command, (c) distribution of boats in flooded areas and location of helicopters, (d) record of all rivers and water levels to indicate the normal, alert and dangerous conditions, and (e) record of all flood-prone areas and flood measuring systems.

(5) Duties of the agencies concerned

The duties of the Ministries and the Departments involved in the Malaysian Natural Disaster Relief Committee are determined in the process of relief operations for floods. Table 37 shows these duties.

6.5 Implementation of Large-scale Projects

Long term projects are found in the fields of flood mitigation, water supply, drainage and irrigation, hydropower generation and sewerage. These water-related projects are sometimes planned too big to be promptly implemented by the responsible agencies, and project scale of them is extended in the midst of the Five Year Plan. Increase in staffing requests to meet that in workload has not satisfactorily been enough for the Five Year Plan. In addition, the process of land acquisition has, in general, taken more than 6 months and, in certain cases, 18 months to be finalized. The long duration required for land acquisition has resulted in delay in the initiation of construction works. Moreover, the tremendous increase in contract jobs has placed great workload on the existing contractors, and some construction works could not be implemented at the expected rate of progress due to the shortage of construction materials.

Items necessary for consideration in the implementation of a dam construction project are cited hereunder as an example.

(1) Resettlement of residents

Before constructing new dam, residents who have resided for a long time in the planned reservoir area are forced to be relocated at other place and to change their ways of life. Compensation will be provided to these affected residents based on the criteria shown in the Land Acquisition Act.

(2) Watershed conditions

Dam construction will not only influence the lives of residents but incur the loss of natural resources. The amount of revenue which the State Government derives from forest resources will be reduced, while the destruction of forest will adversely affect the social well-being in the region. The impact will be accentuated if there is no coordination system. The Electricity Act provides for the establishment of prescribed sources of water. The State Authority may declare a prescribed source of water at the request of NEB. The Forest Enactment stipulates the constitution of the Reserved Forest. Once the proclamation of Reserved Forests is published, any new plantation or fresh clearing for any purpose may not be carried out without the permission of the District Officer or the Collector of Land Revenue in conformity with the terms of licence issued by the Forest Officer. Compensation on forestry resources will also be provided along the criteria of the Land Acquisition Act.

(3) Regional development

As usual, indirect damages on the individuals hardly come to the scope of compensation. The implementation of large-scale public projects incurs some adverse effects on the project area and the people as well as beneficial effects. The affected people tend to demand the improvement of social infrastructure. A flexible program capable of coping with the predicted change in socio-economic conditions is to be established. For this purpose, effective and efficient development of the region is necessary through the implementation of a set of multifold package projects.

7. FINANCIAL PROCEDURES

7.1 Basic Financial System

As far as public finance in Malaysia is concerned, the basic legal provisions are provided by the Federal Constitution and the Financial procedure Act. Financial systems of the Federal Government and the State Government are outlined hereunder, followed by the descriptions of those of Local Authorities and statutory bodies. Framework of basic system is shown in Fig. 4.

(1) Federal Government

As mentioned in 2.5, all revenues of the Federal Government from the Federal Consolidated Fund within the constitutional framework. The Federal revenues consist mainly of income taxes, custom duties, indirect taxes and excise duties as well as other non-tax revenues such as licence fees and service fees. Amount and share of each revenue item are as shown in Table 38.

According to the Financial Procedure Act, three kinds of independent accounting systems are obligate for the Federal Consolidated Fund. These are (a) Consolidated Revenue Account, (b) Consolidated Loan Account, and (c) Consolidated Trust Account. The Consolidated Revenue Account is for the use of normal revenue accounting, while the moneys incidental to borrowings have to be included in the Consolidated Loan Account. The Consolidated Trust Account of the Federal Government relates to Funds such as the Contingency Fund, State Reserve Fund and the Development Fund. All of these accounting procedure are handled by the Treasury.

(2) State Government

Based on the Federal Constitution, each State Government has established the State Consolidated Fund into which all revenues and moneys received by the State Government shall be paid. There exist three kinds of accounting systems with regard to the State Consolidated Fund, as same as to the Federal Consolidated Fund, also under the Financial Procedure Act.

Table 39 shows the revenue of the State Government of Selangor. Revenue from forest and land, receipt from Government services, revenue from Government properties and water fees make up the major portion of revenue items of the State. Besides, the Federal Government contribution; that is, loans or grants, plays an important role in the finances of the States.

(3) Local Authority

The Local Government Act provides for the financial system of each Local Authority in Peninsular Malaysia. According to the Act, the revenue of a Local Authority driven from the authorized sources are paid into the Local Authority Fund. As shown in Table 40, own revenue sources of Local Authority comprise taxes, rates, rents, profits from the Federal

and State Governments' services and properties within the Local Authority area and licence fees. Grants-in-aid are also given by either the Federal Government or the State Government. Local Authority is empowered to borrow moneys or raise loans to defray the expenses incurred.

(4) Statutory bodies

The Federal statutory bodies like NEB and MADA have established their own Funds to be in charge of receiving revenue or moneys. Similarly, the State statutory bodies such as the Penang and Malacca Water Authorities have their own Funds established under the relevant laws. These statutory bodies have the power to borrow moneys, raise or make loans and invest surplus funds. In addition, they are required to keep proper accounts as well as to submit the financial statements for each financial year to the supervising agencies, the Ministries in charge or the State Governments.

7.2 Disbursement from the Consolidated Funds

In general, expenditures from the Federal Consolidated Fund or the State Consolidated Fund are grouped into two categories. One is the Operating Expenditure which is composed of the charged expenditures by law, recurrent expenditures for salaries and allowances of staff and other requisite expenditures in each financial year. Another is known by the name of the Development Expenditure. All costs of the development projects specified in the Five Year Plan must be included in the Development Expenditure. The Development Expenditure is covered by the Federal Development Fund or the State Development Fund, both of which are established for the Consolidated Trust Account in the respective Consolidated Funds.

The Development Funds Act was enacted in 1966 to regulate financial procedures with respect to the Federal Development Fund and the Development Fund of each State. According to this Act, the moneys of the Development Funds shall be applied only to the specific purposes. These purposes are listed in Table 41. Among the applicable purposes included are water supplies, drainage and irrigation, distribution and supply of water power, sanitation and sewerage. The Act also authorizes the grants and loans to any Government in the Federation and the grants and loans to or investment in statutory bodies for these purposes.

7.3 Grants and Loans

Under the Federal Constitution, the Capitation Grant and the State Road Grant are available from the Federal Government to the State Government, as mentioned in 2.5. In addition, the Revenue Growth Grant is payable to each State by the Federal Government based on the Revenue Growth Grants Act. Of these three basic Federal Grants to the State Governments, the Federal Treasury has instructed that the Revenue Growth Grant should be applied only to the Development Expenditure in each State.

A part of the costs of development projects carried out by the State Government is thus covered by the Revenue Growth Grant from the Federal Government. The other two Federal Grants, the capitation Grant and the State Road Grant, are usually utilized for the purpose of the Operating Expenditure in each State.

As shown in 2.5, the Federal Government may make grants to any State, after the consultation with the National Finance Council, out of the State Reserve Fund for the purpose of development or the revenue supplements.

With regard to development projects, the Development Funds Act authorizes the grants and loans to any Government or statutory body for specific purposes. Water supplies, drainage and irrigation, sewerage and hydropower generation are the major fields in which these development grants and loans are applicable.

According to the Federal Constitution, "a State shall not borrow except under the authority of State law, and State law shall not authorise a State to borrow except from the Federation or, for a period not exceeding five years, from a bank or other financial source". Any State Government or statutory body can borrow the loans for more than five years only from the Federal Government, under the present legal system. The loan funds from the foreign sources are transferred to the State Governments or statutory bodies inevitably through the Federal Government. In this consequence, the Federal Treasury plays an important role in the financing procedure of development projects of the State Governments and statutory bodies. Table 42 shows the examples of foreign loans for water-related projects.

7.4 Financing of Water-related Projects

(1) Classification of projects by financing system

From the financial viewpoint, development projects may be categorized into seven groups; namely, (a) State direct project, (b) State loan project, (c) State grant project, (d) Federal reimbursable project, (e) Federal loan project, (f) Federal grant project, and (g) Federal direct project.

State direct projects are financed and carried out wholly by the State Government. State grant projects and State loan projects are found in those of the State statutory bodies or of Local Authorities. Grants or loan funds are offered by the State Government to cover the costs of projects.

Federal reimbursable projects are implemented by the State Government. Capital cost is first paid by the State Government and later reimbursed by the Federal Government. Operation and maintenance cost in the project is financed by the State Government.

Federal loan projects and Federal grant projects are to be seen in those by the State Government, Federal or State statutory bodies or by the Local Authority. Grants or loan funds are given by the Federal Government for financing.

In the Federal direct projects, funds for the development come directly from the Federal Government. Capital cost and manpower cost are borne by the Federal Government. Implementation of the projects is carried out by the Federal personnel.

(2) Overview of financing of water-related projects

Tables 43 and 44 summarize the financing systems of water-related projects by purpose. Urban water supply is identified as Federal loan projects, State direct projects or the Water Authorities' own projects. A half of rural water supply projects are uniformly the Federal grant projects, which are carried out by the State Government and the Water Authorities. On the contrary, rural water supply by MOH are identified as the Federal direct projects. For the purpose of irrigation and agricultural drainage, development projects are carried out in the form of Federal direct projects, Federal reimbursable projects or State direct projects. As regards urban drainage, sewerage and hydropower generation, the financing systems are dependent on mainly Federal loans.

(3) Financing and accounting procedure for water supply

It has been envisaged that water supply should have an accounting system independent of the other items in the State Development Funds. At the moment, the State Water Supply Funds have been established in several States. The legal grounds of the State Water Supply Fund are provided by the Water Authority Enactments of Pulau Pinang and Melaka, State Water Supply Fund Enactments and the State Water Supply Fund (Financial and Accounting Procedure) Act. These give a common procedure of accounting for increasing the efficiency of the operations connected, as shown in Table 45 and Fig. 5.

The Malacca Water Authority Enactment was enacted in 1971 in the State of Melaka, and the Penang Water Authority Enactment in 1972 in the State of Pulau Pinang. The financial provisions of these Enactments include the establishment of the Fund, balancing of revenue accounts, provision of the Reserve Fund, expenses to be charged to the Fund and preparation of expenditure estimates.

Nine States in Peninsular Malaysia have legislated their own State Water Supply Fund Enactments. The financial provisions are essentially similar to those of the Water Authority Enactments, excluding the power of virement vested in the Menteri Besar and the establishment of a Contingencies Reserve. The State Water Supply Fund Enactment, however, does not provide for any accounting procedure.

In 1980, Parliament enacted the State Water Supply Fund (Financial and Accounting Procedure) Act. According to the Act, there shall be established a Water Supply Fund in the State where no such Fund has been established. Moneys from various sources are appropriated into the Fund, and the Director of the Water Department (SPWD) or the Department of other names has to submit a financial statement to the State Financial Officer for approval by the State Authority, for the next financial year. The Water Department should pursue the policy for achieving a proper financial result.

So far as accounting procedure is concerned, the books and accounts of the Water Department should be kept in accordance with the generally accepted commercial accounting principles and practices. Each State Government in Peninsular Malaysia is expected to adopt this Act.

7.5 Water-related Charging System

(1) Legal ground

As summarized in Table 46 and 47, charging systems with regard to water resources are provided by the various laws concerned. Fees for water licence are given by the Waters Enactment. The Water Supply Enactment provides for the domestic water rate and charges for trade water supply. Water rates for irrigation and drainage rates are provided by the Irrigation Areas Ordinance and the Drainage Works Ordinance, respectively. The Electricity Act involves the provisions for electricity fees in the services of NEB. Licence fees to discharge effluents are stipulated in the Environmental Quality Act. Within the Local Authority areas, the Local Government Act gives the imposition of the sewerage improvement rate and the drainage rate, while the city drainage cost is found in the provisions of the Street, Drainage and Building Act.

(2) Payment of fees and charges

Water-related fees and charges are payable to the Federal Consolidated Fund, State Consolidated Fund, Local Authority Fund or the Fund for each statutory body, as a rule. In case of the States where the State Water Supply Funds have been established, the collected water supply charges are paid into the Water Supply Fund.

Fees for water licence, domestic water rates and charges for trade water supply, irrigation rates and drainage rates are paid into the State account. Among these, fees for water licence, irrigation rates and drainage rates are collected through the Collector of Land Revenue of the Land Offices. Other charges are paid directly to the State consolidated Fund or the State Water Supply Fund.

Electricity fees are paid to NEB, never contributing to the Federal Consolidated Fund. Fees for licence to discharge effluents, however, are appropriated into the Federal Consolidated Fund.

The Local Authority Fund may receive the sewerage improvement rate, drainage rate and the city drainage cost.

8. MANAGERIAL ACTIVITIES FOR WATER RESOURCES

8.1 River and River Water Management

As regards the control of rivers in the State, the District Officer and the State Authority have the typical powers. According to the provisions of the Waters Enactment, the District Officer issues the licence to divert water from a river in any District for the use (a) for private of domestic purposes, (b) in the cultivation of rice, and (c) for industrial and other purposes. In case of (a) and (c), the approval of the State Authority is required.

In the course of mining operations, the Senior Inspector of Mines of the Mines Department is vested with the authority to issue licences for river water use and to permit the alteration or the interference with river banks, streams or watercourse.

Under the Electricity Act, the declaration of any lake, river or waterway to be a prescribed source of water is the power of the State Authority. The State Forest Officer has the authority to stop any watercourse in a Reserved Forest, provided by the Forest Enactment.

Besides, the DID Engineer plays an important role in the consultation with the above-mentioned licencing officers for river water use. He is originally to ensure that the waterways are clear of trees or plants and to authorize the construction, widening or draining of any canal, watercourse or drain within the irrigation areas and drainage areas. In the drainage areas, nothing may interfere with or fall into drainage works without the permit from the DID Engineer. Construction of unauthorized drains or ponds is also prohibited.

Tables 48 and 49, Figs. 6, 7 and 8 show the distribution of functions and procedures for river and river water management. Four types of procedures are cited hereunder.

(1) Permission of river water use for general purposes

When the Land Office (District Office) receives an application to use river water, the Office seeks the technical advice of SDID. The DID engineer is consulted by the District Officer on all matters pertinent to river and river water management. If SPWD has been utilized the river areas, the Office informs SPWD of the new application. These procedures are carried out in the District Action Committee or in the Town/District Council. At the same time, the Office refers the application to the State Authority through the State Lands and Mines Department. In the event that SPWD wishes to extract river water, the prior consultation with SDID and the District Officer is mandatory.

(2) Permission of river water use for mining purposes

Under the Mining Enactment, any person shall apply for a licence from the Senior Inspector to divert, make use of and discharge water for mining. If the discharge is or may be required for the cultivation of rice,

no licence may be issued except with the approval of the State Authority. Application for a licence should be submitted to the Inspector of Mines before the Senior Inspector.

The Mining Enactment also provides that any person may apply for permission to alter or interfere with river banks to the Senior Inspector. The Senior Inspector should then refer the application to the State Authority. In practice, miners should submit their proposals to the Inspector who forwards the proposal plans to the Senior Inspector after making the relevant comments. The Senior Inspector, in turn, refers the plans to the Senior DID Engineer. SDID acts as a technical adviser. On approval, the Senior Inspector authorizes the deviation or refers the application to the State Authority if so required.

(3) Declaration of the prescribed sources of water for NEB

According to the provisions of the Electricity Act, the State Authority may declare any lake, river or waterway to be a prescribed source of water. No person can dam up or interfere with such prescribed source of water, without first serving three months' notice on the Secretary of NEB. NEB may prohibit any person from undertaking the proposed work. Any person who is dissatisfied with the decision of NEB may appeal to the State Authority.

(4) Water management for irrigation use

Within the paddy fields except for the Muda and Kemubu Areas, irrigation is scheduled through a committee system at District level. The committee is called the Irrigation Committee, consisting of (a) District DID Engineer, (b) Officer of the Department of Agriculture at District level, (c) Manager of FOA, (d) District Officer or his representative, and (e) others.

8.2 Groundwater Management

Distribution of functions in the existing groundwater management is tabulated in Table 50. Activities of groundwater exploitation by DID are shown in Fig. 9.

Where surface water is insufficient or inaccessible, there is a need to search for groundwater and to assess groundwater potential. These are the functions of GSD in groundwater management. In addition, GSD is responsible for the preparation of hydrogeological maps throughout Malaysia and the provision of consultative sources to various government agencies in respect of groundwater development. The assistance of GSD to the other agencies includes supply of facilities, expert manpower, information and technical knowhow.

The development of wells and groundwater exploitation for irrigation purposes are carried out by DID, usually assisted by GSD. SPWD or PWD extracts groundwater for the supply of domestic and industrial water from its own wells or the wells developed by GSD. SPWD or PWD is responsible for monitoring the adequacy of the supplied water. The respective agencies inform the other agency only when the exploited areas are overlapped.

In rural areas, MOH plays a significant role in surveying groundwater potential. Supply of materials and technical assistance in well development or improvement are carried out by MOH in line with its Rural Environmental Sanitation Programme.

Under the Geological Survey Act, no person may develop certain wells without notifying to the Director General of GSD. The same applies to the certain exploitation of groundwater. However, these legal provisions have not taken practical effects in groundwater management.

8.3 Watershed Management

(1) Management of hill land

Under the Land Conservation Act, the State Authority may declare any area of land to be hill land by notification in the Gazette. The Collector of Land Revenue of the Land Office shall present a memorandum to the Registrar containing a complete list of affected lands. The Registrar registers all such lands. No person can clear any hill land or interfere with or destroy trees and plants on or from any hill land, without the permission of the Collector of Land Revenue. The procedures are as shown in Fig. 10.

(2) Control of silt and erosion

The Land Conservation Act provides that the Collector of Land Revenue may require the owner or occupier of land to show the cause where the damage by silt and erosion is suspected to the other land or any water-course. If the owner or occupier fails to do so, the Collector may make an order (a) prohibiting interference or destruction of plants on his land, (b) requiring him to make drains and to construct dams and retaining walls, and (c) prohibiting any act that may cause silting or erosion. All owners or occupier of land are required to maintain any drain, water-course and dam in good and efficient order. Figure 11 illustrates these procedures.

(3) Declaration of Reserved Forests

Under the Forest Enactment, the State Authority may propose to constitute any land a Reserved Forest, by notification in the Gazette. Upon such notification, the District Officer publishes a proclamation of the proposal in public places. After the proclamation, new buildings and cultivation are prohibited within such areas.

The District Officer shall enquire into all objections or privileges to be conceded and record any opinion which may be expressed by the Forest Officer of each District. Then he shall forward to the State Authority a statement of particulars of all objections, privileges and opinions recorded. The State Authority shall make an order admitting or rejecting such objections or privileges, after reference to the State Forest Officer. The exercise of privileges is subject to the control and regulation by the State Forest Officer with the approval of the State Authority. Upon expiry of the period of proclamation, the State Authority

may declare the land to be a Reserved Forest. Permission of the prohibited acts in Reserved Forests is granted by the Forest Officer.

Figure 12 shows the above-mentioned procedures.

8.4 Land Use Control

Distribution of functions for land use control is shown in Table 51, together with that for watershed management. Procedures in controlling land use are illustrated in Figs. 13, 14 and 15.

(1) General land administration

The National Land Code; Street, Drainage and Building Act; Mining Enactment and the Forest Enactment provide for the framework of land administration. The revocation of reservation of land and forest and the surrender of mining land reverts such lands to State lands. These lands can be alienated for building purposes, while the land previously alienated for the purposes of agriculture and industry requires an alteration of category to building land. The land previously alienated for the purpose of building can be used directly as it is. All land-related matters are handled by the Land Office. For housing development, written permission from the Local Authority must also be obtained.

(2) Town and country planning

The State Authority is responsible for general planning policy of a State. Under the Town and Country Planning Act, the State Authority may give general directions to the State Planning Committee or Local Authority. Local Authority is renamed to be the Local Planning Authority in the course of planning.

The Local Planning Authority should prepare and submit to the Committee a Draft Structure Plan for the area in charge. The Committee approves or rejects the Draft Structure Plan. Upon the approval of the Draft Structure Plans, the Committee should submit it to the State Authority, and the Plan should be put into effect. When the Structure Plan comes into effect, the Local Planning Authority must prepare a Draft Local Plan for its responsible area. After the expiry period for objections or inquiries, the Local Planning Authority may, in turn, adopt the Local Plan as originally prepared or modified. The Local Plan shall be submitted to the Committee for the approval.

(3) Procedure for land acquisition

Based on the Land Acquisition Act, the procedures of land acquisition may be summarized as below.

The State Authority may propose to acquire any land for public purposes by notification in the Gazette, and the Collector of Land Revenue shall give public notice of land likely to be acquired. The Collector shall prepare and submit a schedule of lands affected by the acquisition. The State Authority shall then publish in the Gazette

a declaration of the intended acquisition, after which the Collector shall make full enquiry into the value of all the Scheduled lands and prepare a written award of compensation. The State Government may take possession of the land of which an award has been made and then issue documents of title or other deeds are delivered through the Land Offices. Any objections to the intended acquisition or the amount of compensation may be referred to the Court by the Collector.

Actual procedures of land acquisition for project implementation are mentioned hereinafter. Prior to the official request to the State Authority, an official negotiation between the implementing agency and the Land Office is held. As soon as an application from the agency is approved by the State Authority, the State Authority orders the Collector of Land Revenue to acquire the land. The Collector should decide the land to be acquired and the price of land. After the plan is approved by the State Executive Council, the Collector sends an official letter to the land owner stating a will of land acquisition. Meeting with the agencies concerned, the Collector informs the owner of the land value. Land acquisition is recorded in the Register Book of the Land Office.

8.5 Water Pollution Control

(1) Agencies and activities for water pollution control

At least legally, government agencies may be involved in water pollution control of rivers and streams at three levels. DOE, responsible for the enforcement of the Environmental Quality Act, is a Federal agency. The State Secretary is responsible for the prohibition of pollution of river water, under the Waters Enactment. Local Authority is vested with the power to prohibit the pollution of streams in the Local Authority area as stipulated in the Local Government Act.

In terms of practical duties and functions, many agencies are found in water pollution control. At Federal level, different agencies have various responsibilities. DOE is responsible for issuance of licences to discharge effluents and monitoring of pollution, MOH for the assistance to Local Authorities in planning and implementation of sewerage projects, the Mines Department for regulation of mining effluent discharge, and DID and PWD for monitoring of water quality in their respective fields. At State level, State agencies like the Land Office and the Forest Office take their own responsibility besides the State Secretary. Local Authority is in charge of operation and maintenance of sewerage system as well as the prohibition of stream water pollution. The distribution of these responsibilities is shown in Table 52.

DOE is the most involved agency in water pollution control. The enforcement of the Environmental Quality Act is the charge of DOE. Among the responsibilities of DOE included are (a) to survey and inventory pollution sources to be monitored, (b) to develop and prepare regulations/guidelines, and (c) to review, evaluate and document effluent treatment technology. The Environmental Quality Act also have provisions relating to licence system for water pollution control. Licences based on the

Environmental Quality Act are granted by the Director General of DOE. Complaint of environmental pollution may be channelled to DOE in tow ways. One is directly by letters to DOE. Through governmental and non-governmental organization, members of Parliament and members of the State Legislative Assembly are categorized to be another.

As far as mining operations are concerned, the Mines Department is the enforcing agency of the Mining Enactment. Water Pollution control in mining operations aims at ensuring that miners should not discharge deleterious chemicals and allow effluent water containing solid matters to discharge into any river. The miner must provide facilities or devices to contain such discharge. These conditions are attached to a mining licence when it is issued. The Senior Inspector of Mines of the Mines Department is the licensing officer in respect of mining operations.

According to Section 7(A) of the Water Enactment, no person may discharge any polluting matter into any river, without an application for a licence from the State Secretary. The State Secretary may appoint a committee to look into the matters connected to determining the conditions and restrictions to be prescribed on the licence. The power to grant, refuse to grant or revoke any licence or alter the period, terms and conditions is vested in the State Secretary as shown in Fig. 16. In practice, as is consistent with these legal provisions, the Land Office plays an important role in prohibiting the entry of any poisonous matter into any river. Any person aggrieved by the decision of the State Secretary may appeal to the Appeal Board under the State Authority.

Local Authority is vested with the power to administrate pollution of streams in the Local Authority area as public nuisance, under the Local Government Act. Besides, Local Authority is responsible for sewerage services based on the Local Government Act and the Street, Drainage and Building Act. With regard to public sewerage services, the responsibility lies in the hands of the Public Health Inspector of each Local Authority.

(2) Water pollution control under the Environmental Quality Act

The legal provisions of the Environmental Quality Act are illustrated in Figs. 17 and 18. Section 3 of the Environmental Quality Act stipulates:-

"There shall be a Director General of Environmental Quality who shall be appointed by the Minister from amongst members of the public service."

"The Director General of the Environmental Quality" is performed by the Director General of DOE, while "the Minister" means the Minister of Science, Technology and the Environment. The Director General shall recommend environmental protection policy and standards and criteria for protection and enhancement of the environment to the Minister, as well as reports on such matters. The Minister may give general directions to the Director General with respect to the powers, duties and functions of him.

The Environmental Quality Act otherwise provides for the establishment of the Environmental Quality Council whose chairman is appointed by the Minister. The function of the Council is stipulated to be advisory role for the matters pertaining to the Act. The Minister, after consultation with the Council, may by order (a) prescribe the premises to be licenced, (b) make regulations prescribing the standards or criteria for the implementation of environmental policy, and (c) prescribe fees for processing application for a licence.

An application for licences shall be made to the Director General who may grant a licence unconditionally as subject to conditions or may refuse to grant. Any person aggrieved by a refusal to grant a licence may appeal to the Appeal Board. The Appeal Board may make such order as it deems fit, after hearing the Director General and the appellants.

The dischargeable limits of effluents are dictated in the Regulations established under the Environmental Quality Act. Section 21 of the Act stipulates:-

"The Minister, after consultation with the Council, may specify the acceptable conditions for the emission, discharge or deposit of wastes or the emission of noise into any area, segment or element of the environment and may set aside any area, segment or element of the environment within which the emission, discharge or deposit is prohibited or restricted."

Section 25 of the Act states that "no person shall, unless licenced, emit, discharge or deposit any wastes into any inland waters in contravention of the acceptable conditions specified under section 21". Up to now, the following three Regulations have been framed under the Environmental Quality Act:

Environmental Quality (Prescribed Premises) (Crude Palm-Oil)
Regulations 1977

Environmental Quality (Prescribed Premises) (Raw Natural Rubber)
Regulations 1978

Environmental Quality (Sewage and Industrial Effluents)
Regulations 1979

In the above-mentioned Regulations, given are the parameter limits of effluent discharge from two kinds of prescribed premises and of sewage and industrial effluents. These are summarized in Tables 53 and 54. Prescribed premises include rubber factories and palm oil mills, under the Regulations. Licence system is applicable to both the prescribed premises and the premises discharging sewage and industrial effluents provided by the last Regulations. DOE has established several branch offices in the States in Peninsular Malaysia, for the enforcement of these Regulations.

Table 55 shows the fees for effluent discharge imposed under the Environmental Quality Act. In line with the three Regulations, two types of discharge fees are found. One is imposed on the prescribed premises.

Anchor is for sewage and industrial effluents. In both cases, the amount payable prior to the plant operation is composed of the fee for written permission and the licence fee. After the plant comes into operation, fees are imposed on the waste load in the discharged effluents. Since the establishment of the first two Regulations for prescribed premises, the fees for written permission and for licences have been collected by DOE. They amounted to M\$3.5 x 10⁶ in 1979, and M\$2.6 x 10⁶ in 1980.

(3) Monitoring activities by DOE and DID

Water quality monitoring by DOE is carried out based on the National Water Quality Monitoring Programme which was published in 1978. Peninsular Malaya is divided into 49 river basin control regions, and 510 monitoring stations were set up in 1980. At each station, sampling of water is carried out one to twelve times per annum. BOD, pH, COD, SS and other parameters are analyzed. Chemical analysis is entrusted to the Chemistry Department.

For DID, water quality monitoring is a part of long-term hydrological observation programme. No control areas are set up in DID's monitoring activities. Stations are located mainly at major tributaries and main rivers. Only 66 out of 200 permanent stations assessed water quality, once a month in 1977. Water quality parameters include pH, SS, alkalinity, conductivity and chlorine content, while discharge rate and water level are also noted. Chemical analyses are carried out by the Chemistry Department, except for sediment.

Data exchange between DOE and DID has been held only on an adhoc basis. The comparison of monitoring activities between DOE and DID is as shown in Table 56.

9. WATER SUPPLY PROJECTS

9.1 Procedures

(1) Responsible agencies for water supply at State level

Under the Federal Constitution, water supply within wholly one State belongs to the authority of the State in terms of legislative and executive powers. Each State has been possessed of the Water Supply Enactment or the Water Authority Enactment in line with these constitutional enumeration. The Water Supply Enactment provides that the State Engineer may execute operations relating to laying-down of water mains and pipes for supplying water in a water supply area. The State Engineer is usually a staff of SPWD. The Water Supply Section of SPWD is, in general, responsible for water supply in the State. Only the State Government of Selangor has the Waterworks Department separate from SPWD. The Penang Water Authority and the Malacca Water Authority were established in the States of Pulau Pinang and Melaka as the State statutory bodies.

As shown in Table 57, the above-mentioned State agencies are engaged in two types of water supply; namely, urban water supply and rural water supply. These activities are usually assisted by the Federal PWD. Another type is found in rural water supply by MOH. Differences of rural water supplies between the State agency and MOH are summarized in Table 58.

Rural water supply by the State agencies is carried out in the area where less than 10,000 residents occupy. Water is derived from the newly-developed source or extended from the existing supply sources. Supply system is dependent on the pumping method or the gravity in case of extension. Construction of capital works, operation and maintenance are carried out by the State agency, while water charges are collected and paid into the State account or the Fund of the Water Authority.

MOH supplies water in the area 200 to 500 residents occupy and rural water supply by the State agency is not likely to take place in the coming 5 years. Water sources are composed of hill water, waterfalls and shallow wells. Water is served by gravity, usually untreated. Operation and maintenance are carried out by the Kampong people though MOH provides the materials for capital works.

(2) Approval of urban water supply projects

The State agency; SPWD, Selangor Waterworks Department or the Penang or Malacca Water Authority, first submits a feasibility study report of the project to SEPU. If the Federal funds are required for the project, the study report is submitted to EPU after the approval by the State Government. Otherwise, water supply projects are formulated inside the State Government and State funds are allocated to them.

In case of Federal financed projects, EPU reviews the feasibility study report. At the same time, PWD appraises the technical and financial aspects of the project, and accordingly advises EPU. The recommendations by EPU are then forwarded to the Estimate Sub-committee of NDPC for

consideration. Approval of the project is followed to the signing of a loan agreement between the State Government and the Federal Treasury. The loan agreement sets out the interest rate payable, loan repayment period and loan withdrawal schedule.

(3) Formulation of rural water supply projects by the State agencies

The areas where rural water supply projects must be carried out are first appointed by the Federal Government. Figure 19 shows an example of formulating a project. The village executive committee for development and security, the head of village (Penghulu) or the person appointed by the people (Wakil Rakyat) chooses the project to be implemented. The list of selected projects by villages are handed to the District Officer who will pass it on to the State Development Officer. The State Development Officer sends a list of projects to the State agency responsible for water supply, for the purpose of cost estimation. After it is sent back to the State Development Officer, he forwards the list of projects to PWD for the purpose of project approval. Upon approval at Federal level, the State Development Officer informs the responsible agency of the go-ahead.

(4) Procedure of rural water supply by MOH

All the projects for rural water supply by MOH are carried out as a part of the Rural Environmental Sanitation Programme. For the selection of supplied areas, prior contact with PWD is made by MOH in order to articulate the areas where rural water supply projects by the State agencies have not been planned for the coming Five Year Plan period.

The District Health Officer, belonging to the branch office of MOH, makes survey and assessment of needs in his responsible areas. In the priority area, health education is provided for the village community. The village people must bring the initiative of water supply. The District Action Committee is requested to take up project implementation and an agreement is concluded as to the provision of labour, contributions from the village people benefited by the project and installation of latrines. The District Action Committee makes request to the District Health Office, whereupon the District Health Officer forwards the request to the Director of the State Medical and Health Services which is the State branch office of MOH.

The Director of the State Medical and Health Services seeks project approval from the headquarters of MOH. The headquarters of MOH review and check the requested projects from the State branch offices. After the approval at Federal level, the Director of the State Medical and Health Services grants the implementation of the water supply and allocates budgets to the District Health Offices. The District Health Office provides technical and material assistance to the village community for design and construction of water supply system. Figure 20 summarizes these procedures.

(5) FELDA and regional development authorities' water supply

With reference to FELDA projects, SPWD is also engaged in water supply for villages. In the other regional development such as the project by DARA, specific units have been established by the State Government in order to carry out water resources development and works for trunk mains. FELDA and other regional development statutory bodies are only responsible for their charged development other than water supplies. Though reticulation systems in each area are planned and constructed by the regional development statutory body, SPWD is in charge of the maintenance. The State Government may receive the funds from the Federal Government. Federal grants are receivable for FELDA projects. On the other hand, water resources development for the other regional development is financed by Federal loans.

9.2 Financing and Charging System

(1) Financing of urban water supply projects

Almost all urban water supply projects by the State agencies are classified as Federal loan projects. Each State Government pays the cost of the capital works for urban water supply with Federal loans. Under the Federal Constitution and within the existing legal system, the State Government may not borrow moneys except from the Federal Government. All external loans or foreign loans come through the Federal Treasury. Besides Federal loans, cost of the capital works and maintenance cost are dependent on the other sources such as water charges, consumer fees for connection and deposit, and contribution from the private housing estates.

(2) Financing of rural water supply projects by the State agencies

As mentioned in 7.4, rural water supply projects by the State agencies are Federal grant projects. In order to provide with treated water to rural people, a new grant system has been started since 1974 in line with the New Economic Policy of the Federal Government. According to this grant system, the State Governments may obtain grants from the Federal Government based on the following criteria:-

- (a) For the deficit States, full grant for water supply projects, and
- (b) For the non-deficit States, two-thirds of the total cost of each project.

The States of Perlis, Kedah, Melaka, Trengganu and Kelantan are categorized as the deficit States, while the other States are included in the non-deficit States as previously shown in Table 43.

(3) Financing of rural sanitation improvement projects by MOH

Rural sanitation improvement projects by MOH are completely the Federal direct projects. MOH supplies the materials of capital works and pipes for water supply. Though the supplied water is usually free of charge, each household receiving services contributes about M\$20. The moneys collected are managed by the Kampons or the Kampong Committees and used for repair works and operation and maintenance of the supply system.

(4) Problems in the criteria for grants and loans

The criteria to provide either Federal grant or Federal loan for each water supply project seem to be rather ambiguous. In addition, application of either Federal funds or the State's and funds is not clarified.

So far, the rural area for water supply means such area as its population is less than 10,000. The demarcation between the urban area and the rural area is not practically clear. It is difficult to draw clear-out distinctions between the urban and rural areas since the progress of urbanization takes place, especially in suburban areas.

In the classification of deficit States and non-deficit States, revenue and the Operating Expenditure of each State Government are compared. However, the surplus of revenue over the Operating Expenditure changes annually and the extent of change varies among the States. From this viewpoint, the present criteria for rural water supply lack the flexibility.

(5) Charging system

Differences of water charge among the States are tabulated in Table 59, while Table 60 shows water charges in Kuala Lumpur.

As regards domestic water charges, minimum charges are imposed except for the States of Perak, Selangor and Kelantan. Minimum charges ranges from M\$1.00 to M\$2.50 for the monthly minimum consumption of water. Charges for the first excess consumption of 1,000 gallons over the minimum consumption ranges from M\$0.30 to M\$1.36.

Minimum charges for industrial water supply are not imposed in the States of Perak and Kelantan. In the States the minimum charges are set out, they are 2.0 to 3.4 times that of the domestic charges. Charges of industrial water for the first excess consumption of 1,000 gallons over the minimum consumption level range 1.7 to 2.4 times that of the domestic charges.

10. IRRIGATION AND AGRICULTURAL DRAINAGE PROJECTS

10.1 Procedures

(1) Legal ground for irrigation projects

Under the Irrigation Areas Ordinance, the State Authority may declare any land in the State within an area affected by irrigation works to be an irrigation area, by notification in the Gazette. The State Authority may also classify the lands within the irrigation area and impose an annual rate called water rate upon all or any land within the irrigation area.

(2) Legal ground for agricultural drainage projects

The Drainage Works Ordinance is the principal law for agricultural drainage. The State Authority, by notification in the Gazette, may declare any land within an area affected by any drainage works to be a drainage area. Also by notification in the Gazette, the State Authority may appoint a Drainage Board. Declaration of the intention to constitute the drainage area is to be posted in conspicuous places. The owner or occupier of land may object in writing to the chairman of the Drainage Board within a month after the declaration. The Drainage Board shall hear the objections and make recommendations. The State Authority may impose on all land within the drainage area, a drainage rate to meet the costs of drainage works. These procedure are shown in Fig. 21.

(3) Roles of the Drainage and Irrigation Engineer

Every irrigation area and the irrigation work is in the charge of the Drainage and Irrigation Engineer under the Irrigation Areas Ordinance. The Drainage Works Ordinance also provides that the Drainage and Irrigation Engineer shall be responsible for every drainage area. He is endowed with the authority to withhold water from lands where irrigation rate is in arrears of and where there is no adequate retention or drainage facility. The role of the Drainage and Irrigation Engineer is executed by the personnel of SDID. He is otherwise called the DID Engineer in practice. The DID Engineer is usually found at District levels.

(4) Procedures of irrigation and agricultural drainage projects

The needs of the people come to the table of the District Action Committee. The schedule of information, an outcome of the District Action Committee, is forwarded to the headquarters of SDID where the projects are collated. Priorities of the projects are set by SDID according to its own development policy. At this stage, decision is made whether the particular project is to be implemented as a Federal direct project or as a Federal reimbursable project. For the Federal direct projects, the approval at Federal level is necessary through the headquarters of DID. In case of the Federal reimbursable projects, the subsequent approval is sought from the State Development Committee and finally from SAC, in addition to the approval at Federal level. SEPU is informed by SDID of the project proposals in order to coordinate the other State agencies concerned. Table 61 lists the examples of the irrigation projects.

10.2 Financing and Charging System

(1) Financing of the projects

Hitherto, the capital cost of each Federal direct project depends on Federal funds. However, the maintenance costs are paid by the State Government as SDID maintains the completed facilities. In the specific Federal projects such as the Muda Irrigation Scheme, the maintenance cost is borne by the Federal Government.

Federal reimbursable projects of SDID are first financed by State funds and later reimbursed by the Federal Government. Costs of the State's own projects are completely borne by the State Government. In the both kinds of projects, the maintenance cost of facilities is paid by the State Government.

Water rates collected from the irrigation services, which constitute the State Consolidated Funds, are not utilized for operation and maintenance costs. Although the drainage rate should cover the operation and maintenance cost of drainage works, deficit usually occurs in actual cases due to the failure in the collection. The annual drainage rate is also credited into the State account.

(2) Water rates for irrigation services

All sums due for water rate shall be collected by the Collector of Land Revenue together with land tax, according to the provisions of the Irrigation Areas Ordinance. Table 62 summarizes the water rates imposed in the State in Peninsular Malaysia.

Flat rates are imposed in the irrigation areas of the States of Perlis, Kedah (Muda Area only), Selangor and Negri Sembilan, ranging from M\$3.00 to M\$10.00 per acre. Contrary in the State of Johor, no rate is imposed.

In the States of Pulau Pinang, Kedah (other than Muda Area), Perak, Melaka, Pahang, Trengganu and Kelantan, different rates are imposed in the irrigation areas by rice yield. For the high yield paddy, the water rate ranges from M\$3.00 to M\$9.00. The criteria for determining the amount of these water rates differ among the States.

(3) Agricultural drainage rates

As same as water rates for irrigation, all sums in respect of any drainage rate are collected by the Collector of Land Revenue together with land tax. The District DID Engineer formulates the drainage rate accordingly to the provided drainage facilities. He has to prepare some form of balance sheets for the sake of the State Authority.

In practice, diversity is found in the imposition of drainage rates among the States in Peninsular Malaysia, while no information is available for Perlis, Kedah and Pahang. The two States of Trengganu and Kalantan do not impose drainage rates. In the other States, drainage rates differ by each project.

The situations of imposed drainage rates are shown in Table 63, Table 64 gives an example of financial features in irrigation and agricultural drainage projects, for Kuala Selangor District in the State of Selangor.

11. URBAN DRAINAGE PROJECTS

11.1 Procedures

(1) Responsibilities and practical functions

Local Authority takes the responsibilities for the planning, construction and maintenance of urban drainage. The legal ground upon the Street, Drainage and Building Act is as shown in Fig. 22. Other provisions are found in the Local Government Act, in which the imposition of drainage rates to meet the cost of the construction of drainage systems is stipulated.

Current jurisdictionary practice over urban drainage does not follow the above-mentioned principle strictly. DID or SDID is responsible for the trunk drainage in urban areas, as an extension of agricultural drainage. Furthermore, SDID sometimes constructs urban drainage works on behalf of Local Authority.

Local Authority may order to construct urban drainage works. On behalf of Local Authority, both SDID and SPWD may plan and construct these drainage works. SDID is also responsible for planning, construction, operation and maintenance of agricultural drainage, while SPWD is in charge of those of roadside drains.

(2) Implementation of projects

Urban drainage projects are in some cases carried out by Local Authorities, and sometimes implemented by SDID or DID, while the master plan study is conducted under the administration of DID. In Malacca Town Council Area, the Malacca Town Council undertakes the improvement of main drainage. The Kuala Lumpur Urban Drainage Project has been planned and carried out by DID, while City Hall also maintains the drainage works. Other urban drainage projects by DID are found such as in Kota Bharu Municipal Council Area.

When DID or SDID is involved in the urban drainage projects, similar types can be found as in the irrigation and agricultural drainage projects. They are categorized into three groups; namely, Federal direct projects, Federal reimbursable projects and the State's own projects.

With reference to urban drainage, Local Authority may cause to be made and constructed and maintained surface and storm water drains. However, these are not carried out in the form of projects but obligated to each property owner or private developer.

11.2 Financing and Charging System

(1) Financing of projects

If the urban drainage projects are undertaken by Local Authorities, three ways of financing are possible. One is the project financed by Federal loans. The drainage improvement scheme by the Malacca Town Council depends on the Federal loan. On the other hand, Federal grant is given to City Hall through the Ministry of Federal Territory for the maintenance of drainage works in Kuala Lumpur. In addition, the State Government sometimes offers State grants to Local Authorities for urban drainage projects.

When DID or SDID is involved in urban drainage projects, similar financial features are seen as in irrigation and agricultural drainage projects, being categorized into Federal direct, Federal reimbursable and State's own projects. As the Kuala Lumpur Urban Drainage Project is financed by Federal loan, funds are provided from the Federal Government in case of Federal direct and reimbursable projects.

It seems that the criteria for financing of urban drainage projects still remain unclear. The lack of the clarity also applies to the distribution of responsibilities among the agencies concerned for the construction and maintenance of urban drainage works.

(2) Charging system

No drainage rate has been imposed up to now by any Local Authority in the States in Peninsular Malaysia, though it is legally possible under the Local Government Act.

12. SEWERAGE PROJECTS

12.1 Procedures

(1) Legal ground upon the Street, Drainage and Building Act

The Local Authority may request the State Authority to acquire any property for the purpose of construction of sewerage works and may recover the cost of constructing and making such sewers from the frontager. It may, with the approval of the State Authority, require a developer to pay a deposit as if such developer were a frontager before proceeding to develop that area. If the frontager or developer is dissatisfied with such apportionment of costs, he may appeal to the State Authority.

The Local Authority shall also cause public sewers to be properly cleared, cleansed and emptied, and may with the sanction of the State Authority cause such sewers to communicate with and emptied into the sea or other fit place. No person may, without written permission from the Local Authority, cause or make any drains into any public sewers or allow any water-closets or privy to communicate with any sewer. Nor without written permission from the Local Authority and the State Authority, allow the water-closet privy to communicate with any river, canal and stream.

Figure 22 illustrates these legal provisions in the Street, Drainage and Building Act.

(2) Distribution of functions

Proposals for sewerage projects are initiated by Local Authority and forwarded to the State Authority for approval. Local Authority is then responsible for the supervision, construction and maintenance of sewerage works and sewers. For implementing these projects, the State Authority chairs the steering committee and also functions as a coordinator between the Federal agencies and Local Authorities in institutional matters.

MOHLG is the adviser to Local Authority, coordinating in initiatives and the implementation of projects. MOH reviews the plan of sewerage systems, as an agency responsible for public and environmental health. Financial matters of sewerage projects are also handled by MOH. Funds are appropriated by the Federal Treasury with the aid of EPU. In addition, DOE may advise Local Authorities on sewerage effluents and sewage treatment facilities.

Table 65 shows the distribution of functions with regard to sewerage projects.

(3) Study phase of sewerage projects

Local Authority forwards its initiative to MOH or MOHLG, whereupon it is sent to EPU after the technical review by the Engineering Service Section of MOH. Although the channel through MOHLG is honoured legally, MOHLG rarely handles technical aspects due to the lack of staff.

The list of sewerage feasibility studies is usually submitted to EPU at the beginning of the Five Year Plan. If any urgent request is received, it is submitted in the course of the Mid-term Review or for the particular year. Requests of feasibility studies are passed to the Feasibility Study Committee to determine the priority ranking of studies. The projects are collated by EPU according to the priority. At this stage, the amount of allocated budget during the Five Year Plan period is also considered.

Once the study projects are on the feasibility study vote, funds are disbursed subsequently from the Treasury. A steering committee and a technical committee are set up accordingly for the sewerage study project. The technical committee monitors and checks the study from the technical viewpoint, while the steering committee supervises the progress of project implementation. Figure 23 summarizes these procedures.

(4) Implementation phase of sewerage projects

Local Authority submits the proposal to EPU. EPU then sets up the Steering Committee, comprising MOH (special division for sewerage), MOHLG (Development Section), EPU (Infrastructure Section), DID, PWD, Local Authority (Engineering Section), the State Government and the Federal Treasury.

The Steering Committee generally supervises the progress of project implementation. The Treasury gives direct financial aid to Local Authority, while MOH provides with technical advice in planning and implementation. These are shown in Fig. 24.

12.2 Financing and Charging System

Local Authority is responsible for the planning, construction and maintenance of sewerage projects, as a rule. However, Federal funds are usually allocated to the cost of feasibility studies. Sometimes foreign technical assistance is sought to finance these feasibility studies.

In the implementation phase, capital cost of the sewerage system is financed by Federal loans, as a project of the Local Authority. It is worthy of note that there has been no specific Federal grant system to Local Authorities in sewerage provision. Present levels of interest rates and repayment terms of Federal loans for sewerage projects should be reviewed with reference to the other water-related projects such as for water supply and irrigation.

Operation and maintenance costs for sewerage system are financed by the own funds of the Local Authority. These funds come from the ordinary revenue sources of the Local Authority or from the sewerage improvement rates collected by the Local Authority.

According to the Local Government Act, the owner of the holdings which is served or is to be served by a sewerage system shall pay the sewerage improvement rate. This rate may be imposed by the Local Authority to meet the whole or part of the cost of the sewerage system and maintenance. The maximum amount chargeable is designated not exceed 5% of the annual value of the holding. It takes the form of raising up the house assessment rate over the ordinary one annually imposed on each property. The sums collected are paid into the Local Authority Fund.

13. HYDROPOWER GENERATION PROJECTS

13.1 Procedures

(1) Inter-relationship between NEB and the Ministry of Energy, Telecommunications and Posts

The overall electrical services throughout Peninsular Malaysia are carried out by NEB established under the Ministry of Energy, Telecommunications and Posts. Hydropower generation projects are also implemented by NEB.

Appointment of the Chairman, Deputy Chairman and the members of NEB is the responsibility of the Minister of Energy, Telecommunications and Posts. All the regulations and charges determined by NEB require the approval of the Ministry. The Ministry also issues the directions to NEB with regard to the services relevant to electricity supply.

On the contrary, the submission of annual report to the Ministry is obligated to NEB. NEB advises the Minister on the matters pertaining to generation, transmission, distribution and use of energy.

(2) Preliminary study

NEB itself conducts the preliminary investigation which mainly includes the hydrological survey of the project site. The preliminary study usually comes up with the identification of several possible project sites. The assessment of the viability of the projects is then given based on the cost estimation. At this stage both EPU and the Ministry of Energy, Telecommunications and Posts are informed of the study results.

(3) Feasibility study

Consultants are appointed to carry out the feasibility studies. At the same time, NEB starts talks with the related agencies such as the Ministry of Energy, Telecommunications and Posts, SEPU and the Forest Department. Sometimes, a steering committee is set up for the feasibility study, chaired by EPU to coordinate the agencies concerned in study implementation. The draft report of the feasibility study is first submitted to the Executive Committee of NEB. After the approval inside NEB, the study results are informed to the Treasury and the Ministry of Energy, Telecommunications and Posts particularly for the cost estimation of the project.

(4) Project approval

For the approval of NEB's projects, only that at Federal level is necessary. Procedures are alike as those of the Federal direct project. The arrangements of loans are the principal issues for the Federal Treasury and EPU. The Ministry of Energy, Telecommunications and Posts plays an important role in these procedures.

(5) Detail design and Construction

When the funds are secured, consultants are hired by NEB to obtain the engineering services including detail design, preparation of tender documents and supervision. Tenders are called for and contracts are awarded to constructors. Construction is then initiated. From the identification of projects to the beginning of the construction are illustrated in Fig. 25.

13.2 Financing and Charging System

The projects of NEB are usually financed by Federal loans. The Deputy General Manager of Development Planning is in charge of financial arrangements inside NEB. Financing systems are sought from the various sources, either external or domestic. An alternative source of funds, syndicated loans, is available through a consortium of commercial banks. Foreign loans are sometimes secured for allocating to projects. All loans are arranged by the Federal Treasury with the aid of EPU.

The interest rates of Federal loans range from 5% to 6%. In case of acquisition of ordinary stock, the Federal Government plays a role in equity participation.

The electricity fee under the Electricity Act is collected by NEB. It forms the revenue of NEB for the most part, and applied to the repayment of the above-mentioned Federal loans.