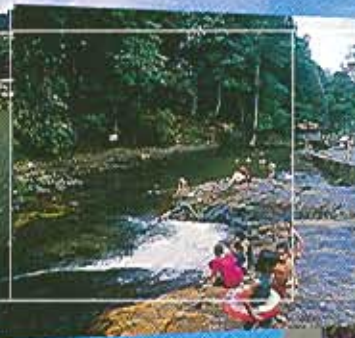




PORT KLANG

COASTAL STRATEGY



**INTEGRATED COASTAL MANAGEMENT PROJECT (ICM)
PORT KLANG (KLANG - KUALA LANGAT)**

Port Klang Coastal Strategy

PROJECT MANAGEMENT OFFICE (PMO)

NATIONAL ICM DEMONSTRATION PROJECT IN PORT KLANG

SELANGOR WATERS MANAGEMENT AUTHORITY (LUAS/SWMA)
SHAH ALAM, SELANGOR, MALAYSIA

August 2003



LEMBAGA URUS AIR SELANGOR
(LUAS)

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ABBREVIATIONS

ALAM	Maritime Academy of Malaysia
CBO	Community Base Organisation
DID	Department of Irrigation and Drainage
DOE	Department of Environment
EIA	Environmental Impact Assessment
EPU	Economic Planning Unit
GEF	Global Environment Facility
ICM	Integrated Coastal Management
IEC	Information Education Communication
IPT	Institute of Higher Learning
JPA	Public Services Department
JPBD	Town and Country Planning Department
LA	Local Authority
LESTARI	Institute For Environment And Development
LKIM	Malaysia Fisheries Development Authority
LPK	Klang Port Authority
LUAS/SWMA	Selangor Waters Management Authority
MARDI	Malaysian Agriculture Research and Development Institute



ABBREVIATIONS

MIDA	Malaysian Industrial Development Authority
MIMA	Maritime Institute of Malaysia
MITI	Ministry of International Trade And Industry
NAHRIM	National Hydraulic Research Institute of Malaysia
NCC	National Coordinating Committee
NGO	Non-Governmental Organization
PEMSEA	Partnership in Environmental Management for Sea of East Asia
PTD	District Office
PCC	Project Coordinating Committee
PWD	Public Works Department
REHDA	Real Estate And Housing Developers Association
RPO	Regional Program Office
SALM	Malaysia Farm Accreditation Scheme
SSDC	Selangor State Development Corporation
TDC	Tourist Development Center
UNCLOS	United Nation Convention on The Law of The Sea
UPEN	State Economic Planning Unit

ACKNOWLEDGMENT



The Port Klang Coastal Strategy was developed with the active participation of various stakeholders, including the Selangor Waters Management Authority (LUAS) Klang Municipal Council, Klang District Office, Kuala Langat District Council and Kuala Langat District Office, other government agencies at the national and State levels, the private sector, civil society, which consists of NGOs, CBOs and others, and LESTARI (UKM) and NAHRIM.

The Coastal Strategy is the culmination of a series of consultations in formulating a shared vision, mission and action plan for the Port Klang marine and coastal environment. Special thanks is expressed to the Government of Selangor and the Government of Malaysia for their consent and firm support to the National ICM Demonstration Project in Port Klang.

Gratitude is also extended to the GEF/UNDP/IMO Regional Programme on Partnerships in Environmental Management of The Seas of East Asia (PEMSEA) for the training and guidance provided in executing the coastal strategy development process.

Finally it is hoped that the people's aspirations in this document will be realized, and transformation processes will be smoothly accomplished, within a reasonable time frame for the common good of all.

PROJECT COORDINATING COMMITTEE (PCC),
NATIONAL ICM DEMONSTRATION PROJECT,
PORT KLANG, MALAYSIA.

FOREWORD

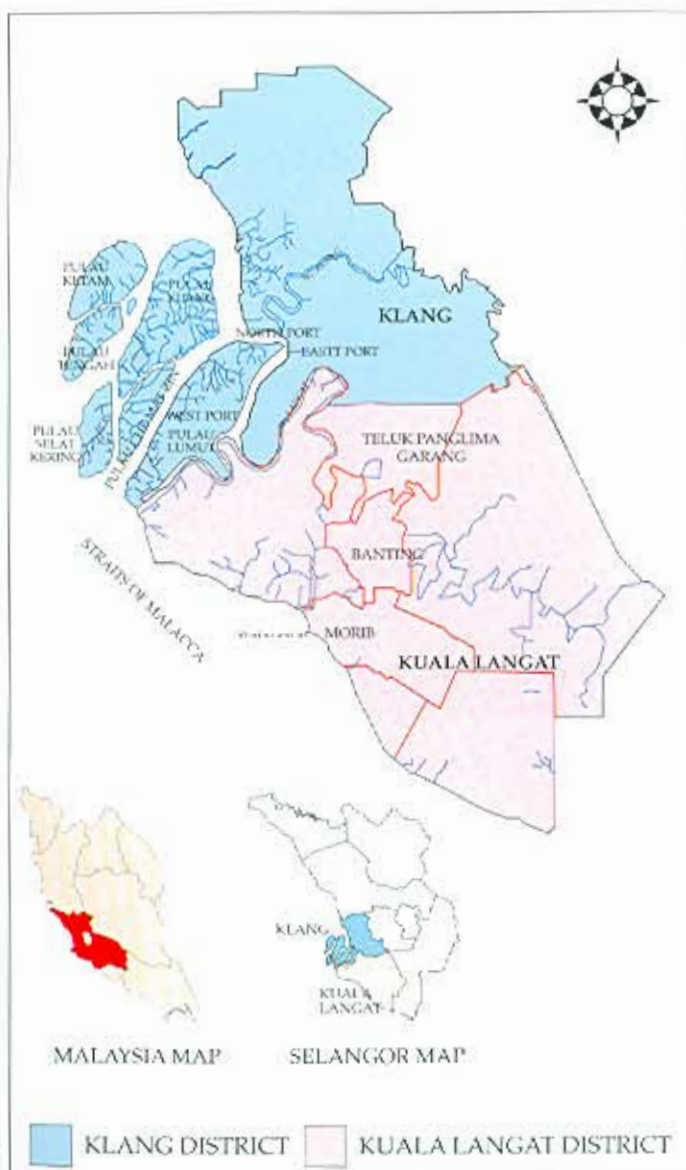
The Port Klang Coastal Strategy is a statement of hopes and aspirations of the people in Klang and Kuala Langat Districts, to enjoy an improved standard of living in line with better overall environmental quality. The coastal zone of Klang and Kuala Langat are important for many reasons, as a source of livelihood, the natural beauty of the environment and its ecological functions, historical and cultural heritages and economic activities. Essentially the strategy may be viewed as a 'window to the future' for the various participating parties and stakeholders in their endeavour to transform vision into reality.

The strategy covers social, economic and environmental issues in the coastal areas of Klang and Kuala Langat, which are directly related to the environmental values and threats as perceived by the people in these areas. Strategic responses have been developed to address such concerns, supported by series of action programs. The involvement of all stakeholders, including government, industry, private sector and the public is required in the efforts to implement the strategy. This will require a change in attitude and behaviour on the part of stakeholders.

The strategy provides a comprehensive environmental management framework, complete with objectives and action programs for achievement of the shared vision for Port Klang. The framework is a blueprint for progress, identifying how each sector of society can play a role, individually and collectively, in the development and implementation of action programs.



THE GEOGRAPHICAL BOUNDARY OF PORT KLANG COASTAL STRATEGY



The strategy covers two coastal districts, namely the districts of Klang and Kuala Langat. Four local authorities function within this area, namely: Klang Municipal Council (KMC); Klang District Office; Kuala Langat District Council (KLDC); and Kuala Langat District Office. All waters and islands located within the administrative borders of the local authorities, such as Pulau Klang, Pulau Ketam and Pulau Carey, are also included as they are within the 3 nautical miles boundary of coastal waters under the jurisdiction of the State of Selangor. On the landward side, the Strategy includes two main watershed areas in Selangor, i.e. Sungai Klang and Sungai Langat. These two rivers cover 1300 and 2400 square km of catchment areas respectively.

Human activities in the coastal zones or in the hinterland have a direct impact on water quality, health of the ecosystems, and the well-being of coastal socio-economic activities. Both Klang and Langat River basins are major sources of pollutions of the coastal waters of Klang and Kuala Langat Districts. To address the control and reduction of pollution and consequently environmental management of the estuaries, coastal waters and islands, the Coastal Strategy is the primary guide to integrated river basin and coastal area management. This integrated approach is congruent with the balanced development concept espoused by the Agenda 21 program.

FORMULATION OF THE PORT KLANG COASTAL STRATEGY

The Port Klang Coastal Strategy was formulated in stages. It started with consultations and discussions sessions among the stakeholders to gather information relating to the current state of the environment, and to formulate a shared vision for the coastal areas of Klang and Kuala Langat. Consensus was reached on the objectives and action programs that would lead to the shared vision among participating parties, including scientists, fishermen, government departments and agencies, the community, the industrial sector, businessmen, financial institutions, as well as other organisations involved in environmental management. The culmination of this effort is the Coastal Strategy, and a new awareness of the partnership approach that is required in order to implement the Strategy. This newly emerging management concept will be ratified with the signing of the Port Klang Declaration, a statement of acceptance of the strategy and pledge by the stakeholders to implement the supporting plan of action.

BOX 1: THE CHRONOLOGY OF THE FORMULATION OF THE COASTAL ZONE STRATEGY

INITIAL STAGE

- Secretariat training course
- Stakeholders consultative workshops
- Findings of workshops are consolidated and integrated.

INTERMEDIATE STAGE

- Final Stakeholders consultative workshops
- Formulation of the first draft of the Coastal Strategy
- Review of the draft by the Regional Program Office in Manila.

FINAL STAGE

- Presentation of the draft to the Klang ICM Project Coordinating Committee (PCC).
- Publication of the Coastal Zone Strategy
- Submission to the Regional Program Office in Manila
- Organising Port Klang Declaration Event.

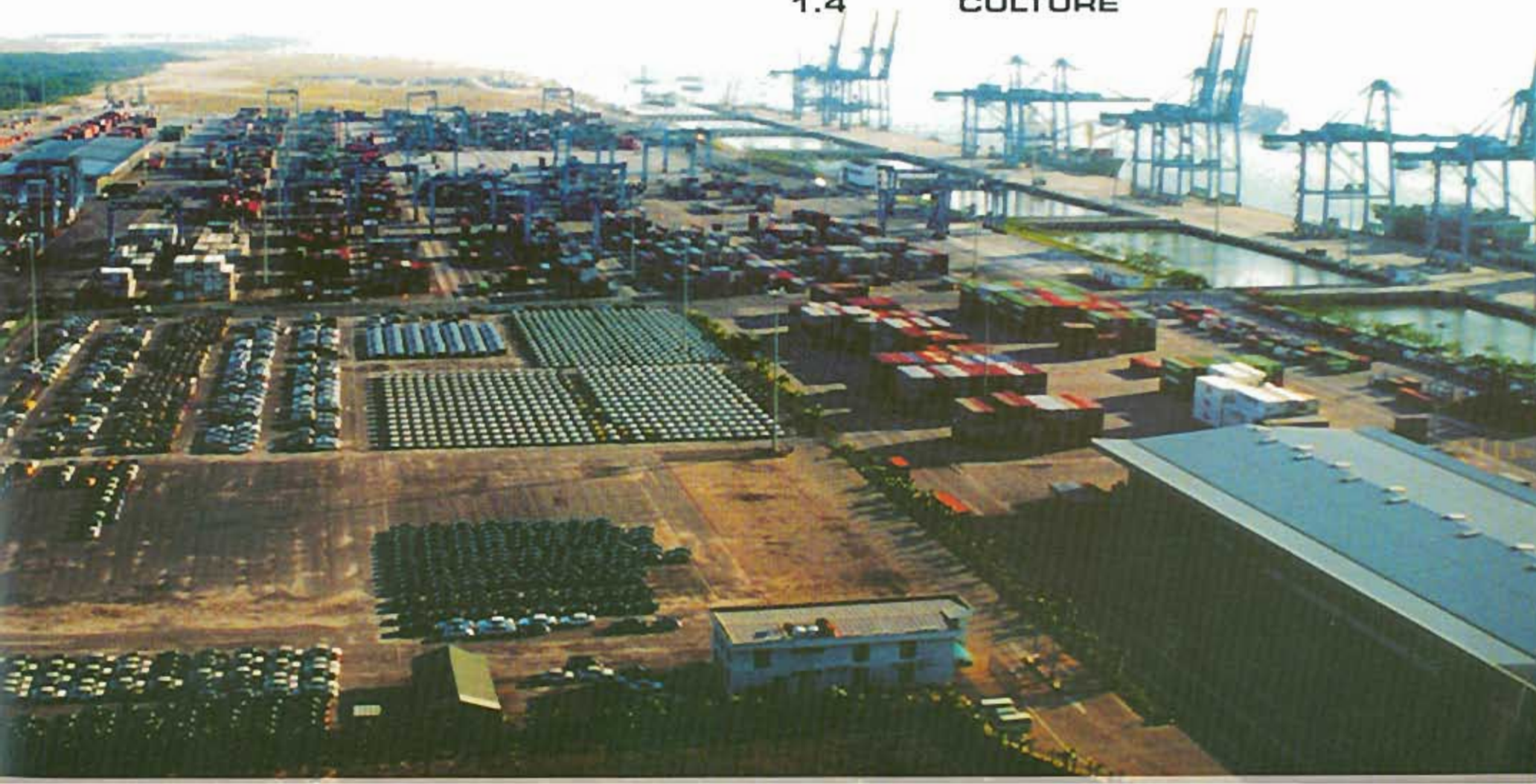
CHAPTER 1 AN OVERVIEW OF PORT KLANG

1.1 BACKGROUND

1.2 HISTORY

1.3 DEMOGRAPHY

1.4 CULTURE



1.1 BACKGROUND

Klang

Klang District comprises of two mukims (sub-districts) namely Klang Town and Kapar. Klang Town, located 32 km south-west of Kuala Lumpur, is the Royal Town of the State of Selangor and is also one of the main gateways to Malaysia via sea. The district area includes several islands, namely Pulau Ketam, Pulau Kelang, Pulau Tengah, Pulau Selat Kering, Pulau Selat Gedung, Pulau Che Mat Zin and Pulau Indah. It covers 626.78 square km of land with a 53.75 km coastline. It is bounded on the north by the Kuala Selangor District, on the east by Petaling District and on the south by Kuala Langat District. Port Klang, which is Malaysia's premier port, is located eight kilometres to the southwest of Klang Town. The progressive development of this port over the past decades has enormously contributed to the robust growth of the State's and nation's economy.

Kuala Langat

Kuala Langat is located 44 km from Shah Alam, the capital of Selangor. It is bounded on the north by Klang District, on the east and south by Sepang District and on the west by the Straits of Melaka. The district is made up of seven sub-districts, namely: Tanjung Dua Belas, Telok Panglima Garang, Jugra, Bandar, Kelanang, Morib and Batu. It has a 48 km coastline and a land area of 857.75 square km. Being adjacent to the fast growing newly emerging growth centers of Klang Valley, Putrajaya, Cyberjaya and the Kuala Lumpur International Airport, the district is experiencing rapid development.

1.2 HISTORY

Klang

Klang is one of the oldest towns in Malaysia. Pre-historic implements known as 'Mawas Bones' which were used during the Iron Age have been found, indicating that civilisation appeared in Klang some 2,000 years ago. The first written account of Klang started during the reign of Majapahit about 600 years ago. When Malacca was just a fishing village and long before it became the capital of a Malay empire in 1400, Klang was already a bustling center of commerce, famous for its high-grade tin. The metal was found in abundance in-stream and along the Klang River. The town started as a dwelling for the Malay chiefs who controlled the mineral and forest products trade. Klang has been literally on the map for centuries. The Klang River was already marked and named on the earliest maritime charts prepared by navigators who accompanied the Chinese Admiral Cheng Ho on his visits to Malacca from 1409 to 1433. Klang was the state capital before the seat of government shifted to Shah Alam in 1977.



Kuala Langat

Previously Kuala Langat was known as Langat and it was located where Bandar Temasya and Jugra are now situated. Langat was believed to have been founded by the Bugis who came from Johor in the 18th century to trade with Melaka. Jugra was already well known during the golden age of the Melaka Sultanate. Actually it existed well before the Sultanate emerged, as proven by the discovery of archaeological remains believed to be 2,000 years old in Kampung Sungai Lang in 1964. During the reign of Sultan Abdul Samad Ibni Almarhum Raja Abdullah (1857 - 1898), the seat of power was moved to Bandar Temasya during the Klang War (1868). Thereafter, Bandar Temasya became a Royal Town and it played an important role in the political, social and economic development of Selangor. This was mainly due to its location on the coast, which made it suitable for a riverine and marine-based governance system. River navigation was made safe due to its location near the bank of Sungai Langat and natural protection provided by the nearby Carey Island. It attracted people from the neighboring areas as well as traders from Sumatera and Bugis. After the death of Sultan Abdul Samad on 6 February 1898, his son Sultan Alauddin Sulaiman Shah was installed as the Sultan. The decline of Bandar Temasya and Jugra began early in his reign and finally due to the power struggles within the palace, the seat of power was moved back to Klang in 1903.



1.3 DEMOGRAPHY

POPULATION

The trend of total population for both districts showed an increase from 1991 until 2000. The trend and projection of total population increase for the period (1991-2005) is 424,000 peoples as shown in Figure 1.

POPULATION DENSITY

Population density in Klang is higher compared with Kuala Langat, i.e., 1034 and 218 people/square km respectively. The number of population by gender and age in 2000 is as shown in Figure 2. Ratio of males and females in both district is 1.1 : 0.9. Age distribution by age group showed that 61% of them are aged between 15 to 64 years.

RACIAL COMPOSITION

The Malays form the majority of the population of Klang and Kuala Langat with 49%, the Chinese 31%, Indian 15% and others 5%.

EMPLOYMENT

Sixty-seven percent of the labour force is estimated from age group of 15 to 64.

Figure 1 : Population in Klang and Kuala Langat District

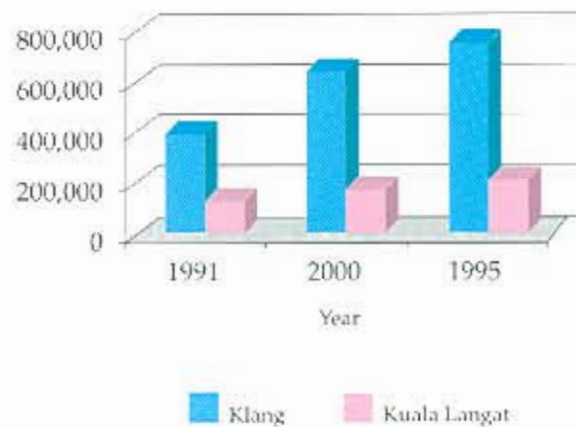
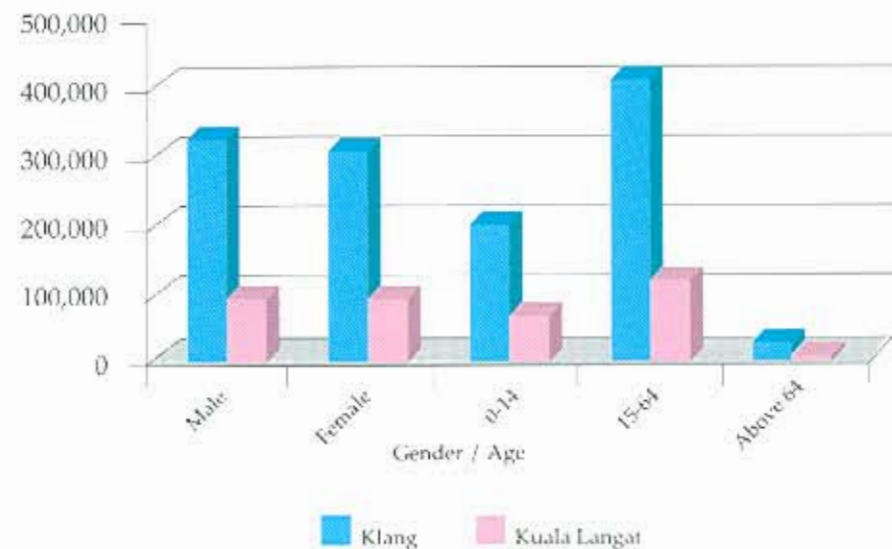


Figure 2 : Population by gender and age



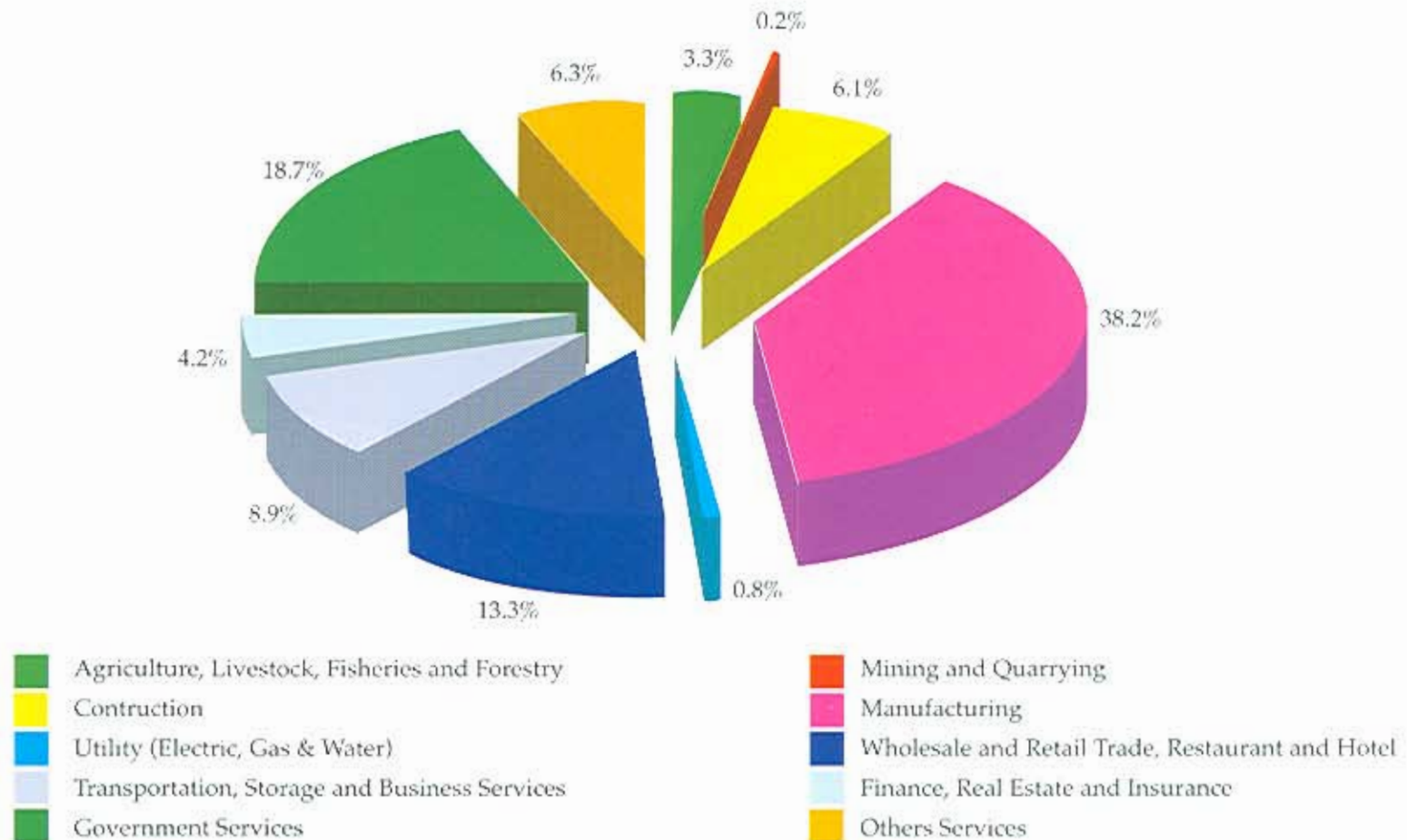
OCCUPATION BY SECTOR

In Klang, the manufacturing sector employs the most workers, followed by the government and business sectors. In Kuala Langat, the manufacturing sector also provides the most jobs followed by the agricultural and government sectors. Klang district hosts a total labour force of 431,518 which comprise 289,797 men and 145,268 woman. Kuala Langat district hosts a total labour force of 122,529 which comprise 83,685 men and 38,844 woman.

Occupation by Sector for Workers from the 15-64 Age Group

Sector	Klang (%)	Kuala Langat (%)
Agricultural and forestry	3.3	23.3
Mining and quarrying	0.2	1.0
Construction	6.1	5.6
Manufacturing	38.2	31.6
Utility (Electricity, gas and water)	0.8	0.3
Wholesale and retail trade, Restaurant and Hotel	13.3	10.2
Transportation, Storage and Business Services	8.9	5.2
Finance, Real Estate and Insurance	4.2	1.4
Government services	18.7	17.8
Other services	6.3	3.6

OCCUPATION BY SECTOR FOR WORKERS FROM THE 16 - 64 AGE GROUP AT KLANG DISTRICT BY 2000



OCCUPATION BY SECTOR FOR WORKERS FROM THE 16 - 64 AGE GROUP AT KUALA LANGAT BY 2000

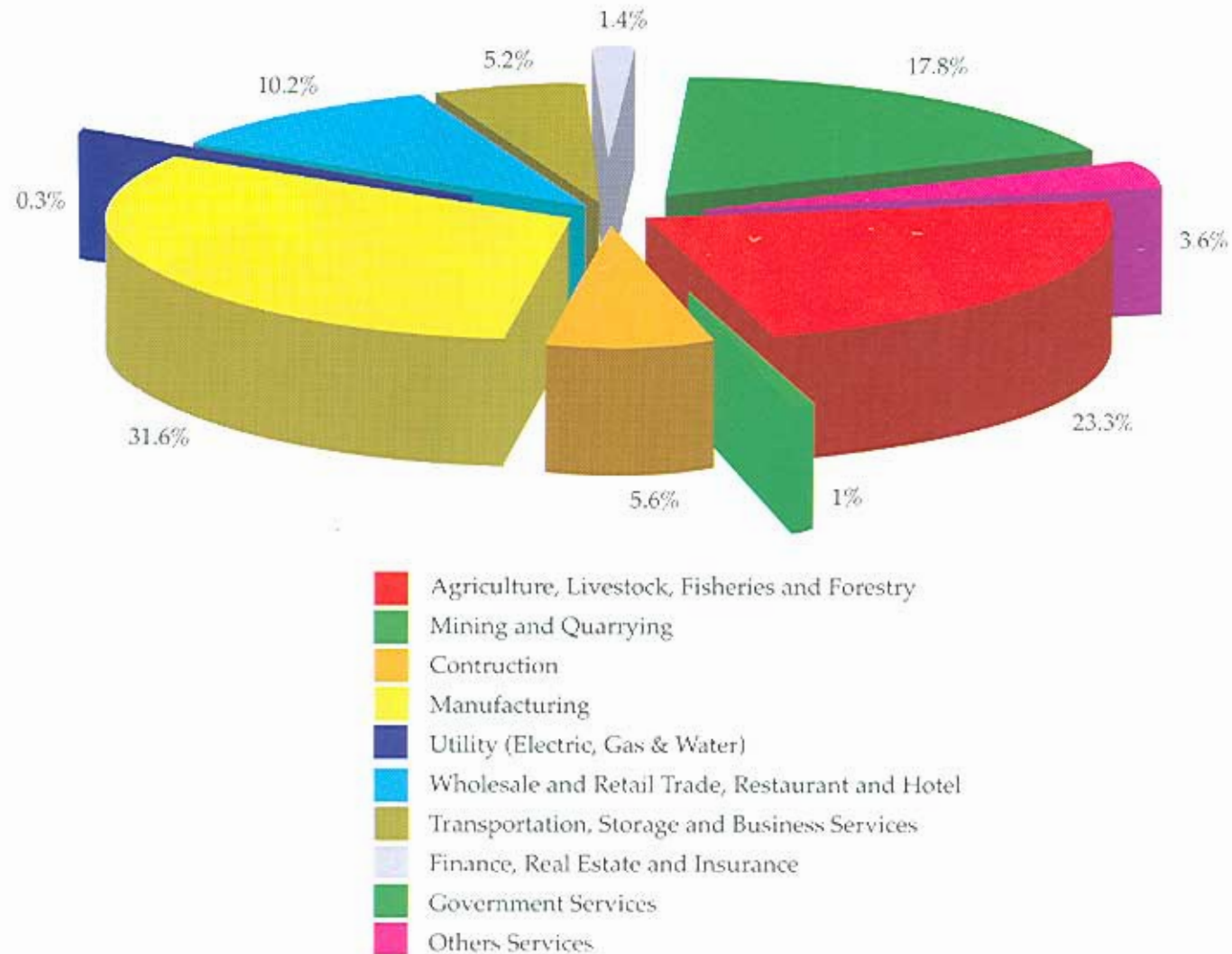


Figure 3 : Occupation by sector for workers from the 15-64 age group in Klang and Kuala Langat Districts

Source : State of Selangor Basic Information 1999/2000 and State of Selangor Demographic Data 2000/2001

1.4 CULTURE

LANGUAGE

The Malay language is the main language of communication. However due to the area's multi-racial population, Javanese, Mandarin and Tamil are still being widely used.

INDIGENOUS PEOPLE

Aborigines in both districts totalled up to 7,385 (3,821 in Klang and 3,564 in Kuala Langat). Two main tribes in Kuala Langat are the Mahmeri tribe and Temuan tribe. In Klang, only Mahmeri tribe is found and they mainly inhabit the Pulau Indah, Bagan Hailam and Pulau Ketam. Most of the tribes live on the coastal area and earn their living as traditional fishermen, while those in the mainland are more involved in the planting activities such as rubber and oil palm cultivation.





RELIGION

Islam is the official religion in both districts but people are free to practise other religions. Hinduism, Christianity and Buddhism are also practised in the area.

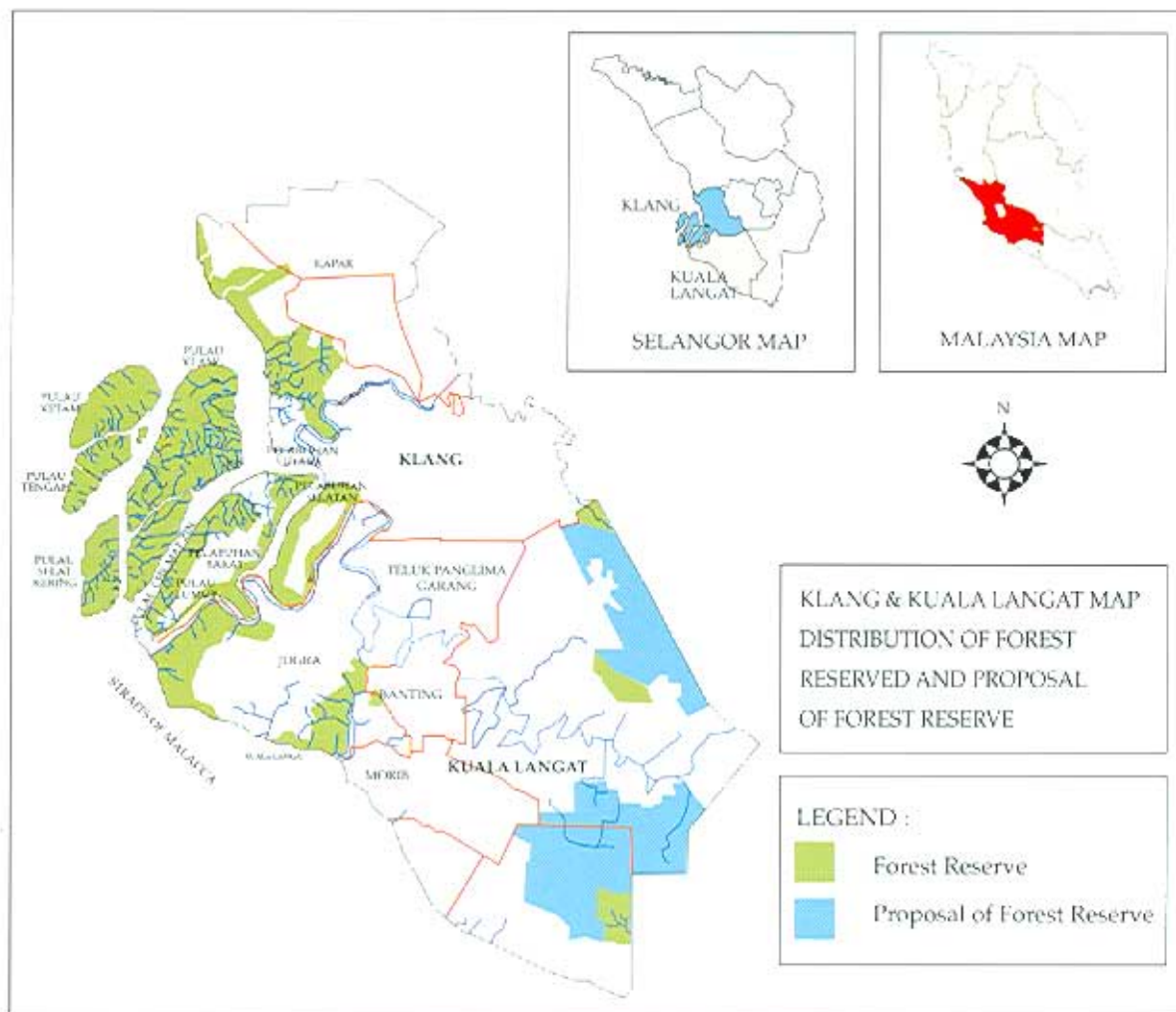
CHAPTER 2 VALUES

- 
- 2.1 **ECOLOGICAL**
 - 2.2 **HISTORICAL AND CULTURAL SITES**
 - 2.3 **TOURISM AND RECREATION**
 - 2.4 **ECONOMY**

2.1 ECOLOGICAL VALUES

Mangrove Swamp

Mangrove swamps are one of the most productive ecosystems. This natural sanctuary provides natural resources and services such as fish, shellfish, shrimps, breeding area, wave protection and erosion buffers, as well as a natural bio-filter for storm water runoff. The mangrove swamp forest reserve in both districts covers an area of 11,253 hectares.



Peat Swamp

The peat swamp functions as a reservoir for water, before releasing it to other drainage areas. It also supports unique flora and fauna. It acts as a sanctuary for several species of migratory birds from other continents and is well known for its population of Jelutong, *Dyera costulata*. In Klang, the peat swamp in Raja Musa Forest Reserve covers 36,161 hectares, whereas in Kuala Langat there are two locations of swamps, namely the North and South Kuala Langat Forest Reserves covering 1,265 and 2,053 area of land respectively.



Virgin Forest Reserve

Forest reserves and natural arboretas are intended to preserve biological diversity and store forestry stocks for the future. Virgin forest can only be found in Kuala Langat at two locations, namely in Bukit Jugra Forest Reserve covering 40 hectares, and Compartment 26 of the South Kuala Langat Forest Reserve covering 174 hectares. The types of forest in both locations are coastal hill forest and peat swamp.



Coastal Forest

This forest is unique because of its position between the lowland and hill. The area is located at a height of less than 500 metres but it has elements of a dipterocarp forest. Genera of Dipterocarpaceae such as *Hopea* and *Shorea* can be found in the Jugra Forest Reserve, as well as elements of a hill forest such as *Breynia coronata* (Euphorbiaceae), *Polyalthia cauliflora* (Annonaceae) and *Quercus subsericea* (Fagaceae).



2.2 HISTORICAL AND CULTURAL SITES

Kuala Langat

Jugra was the state government's administrative center from the 19th century until the early 20th century and also the capital during the reign of Sultan Abdul Samad, the 4th Sultan of Selangor, and Sultan Alauddin Sulaiman Shah, the 5th Sultan. Among the historical remains that can still be seen today are the Sultan Abdul Samad Mausoleum, Alauddin Palace or better known as 'Istana Bandar', the Sultan Alauddin Mosque, the remains of the Jugra District Office, Klang Building and the remains of the Jugra District Officer's house.

Klang

In 1903, Sultan Alauddin moved the administrative center of the Selangor Sultanate from Jugra to Klang and now the town is accorded the status as Selangor Darul Ehsan's Royal Town. There are many governmental historical sites in the town. Amongst them are the famous Suleiman Jamiur Rahman Mosque, a former state mosque built in 1932 by Sultan Alauddin Suleiman Shah. In 1866, Raja Mahadi Ibni Almarhum Raja Sulaiman built Raja Mahadi Fort as a defence fort against attacks by Raja Abdullah Ibni Raja Jaafar. Thereafter, it became the residence of Tengku Kudin until 1898.



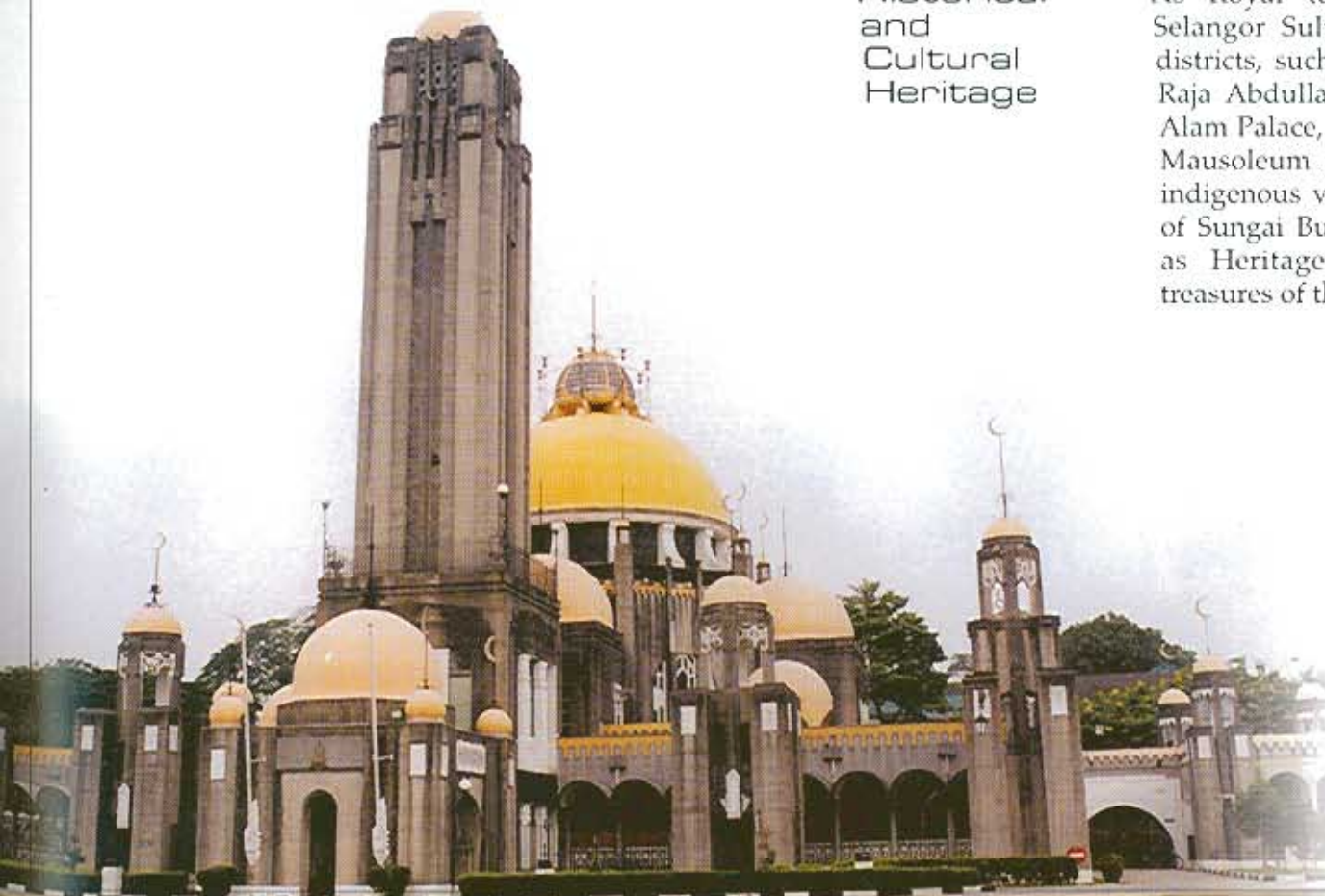
Gedung Raja Abdullah (Raja Abdullah Godown) was the residence of Raja Abdullah Ibni Almarhum Raja Jaafar who was installed as the Sultan in 1845. This building was used to store tin ores and other trading goods. It is now a Tin Museum. The Sultan Suleiman Shah Building built in 1910 is one of the oldest buildings on Stesen Road. It was once a Japanese military camp and then became the district administrative headquarters. In 1985 it was used as the Selangor Police Contingent Headquarters and thereafter as the Klang Municipal Council branch office from 1988 until now.





Historical and Cultural Heritage

As Royal towns, historical remains of the Selangor Sultanate are still preserved in both districts, such as the Raja Mahadi Fort, Gedung Raja Abdullah, Sultan Sulaiman Mosque, Shah Alam Palace, Istana Bandar, Sultan Abdul Samad Mausoleum and Sultan Alauddin Mosque. An indigenous village in Carey Island by the name of Sungai Bumbun Village has been designated as Heritage Village to house the cultural treasures of the Mahmeris tribe.



National ICM Demonstration Project in Port Klang, Malaysia



2.3 TOURISM AND RECREATION

Natura

Pulau Ketam is a small island located in the waters of Klang, which is known for its seafood restaurants. It is a sea village built over the sea. Access to the island can easily be made by taking a passenger ferry or fishing boat from the Port Klang jetty. Another attraction, Pantai Morib located 20 minutes drive from Banting Town is a popular spot for picnics and a place to unwind over the weekends.



Man-Made Attractions

KRIS MONUMENT

This silver coated monument is located near the Bukit Raja Industrial Area. The memorial was built to commemorate the Silver Jubilee celebration of the Rule of the Sultan of Selangor, HRH Sultan Salahuddin Abdul Aziz Shah. It was officiated on 30 September 1985 as a symbol of power and sovereignty of the Malay Rulers of the past as well as the strength and unity of the State.

GOLF RESORT

The location of Port Klang Golf Resort in Tanjung Harapan is indeed perfect as a recreational area. While enjoying the beautiful scenery of Port Klang, visitors can play golf on the 18-hole course. At the Seri Bayu Golf Resort which is located at Pantai Morib in Kuala Langat, the refreshing sea breeze and the sound of breaking waves is a welcome environment for visitors.



KLANG TRAIN STATION

Klang Train Station is a unique historical building with its blend of colonial and eastern architectural influences.

SULTAN ABDUL AZIZ ROYALI GALLERY

The gallery houses the personal collections of HRH the Sultan of Selangor.

AGRO-TOURISM

Kampung Kanchong Darat, Kampung Endah and Kampung Batu Laut in Kuala Langat have been earmarked as traditional villages in which local culture and features of a traditional society will be preserved despite the fast-paced development and modernisation in the surrounding areas. Most of the people in these two villages carry out farming activities, especially cash crops for their main source of livelihood. In addition, there are also some agro-based cottage industries. There is a lowland tea plantation in Bukit Cheeding in Kuala Langat which is a perfect setting to gain knowledge on tea cultivation and processing, and enjoy the quiet surroundings.



2.4 ECONOMIC VALUES



Agricultural

The agricultural sector plays an important role in the socio-economic development of Malaysia. Besides its contribution towards the national income, it is also a major provider of jobs. Four main agricultural activities are carried out by the people in both districts, i.e. planting of crops, livestock, fishery and aquaculture.

CROPS

The area planted to crops in Kuala Langat is 70,387.2 hectares compared to an area of 7,446 hectares in Klang. The types of crops planted are industrial crops (palm oil, rubber, cocoa, coffee); cash crops (tapioca, sweet potato, corn); and fruits, vegetables and herbs.

Livestock

The types of animals in livestock farming are buffaloes, cattle, goats, sheep, chickens, ducks, pigs and ostriches. The pig farming area in Kuala Langat is the largest in Selangor. The total number of livestock reared in the district is 2,672,185 and its detailed breakdown is shown in the Table below:

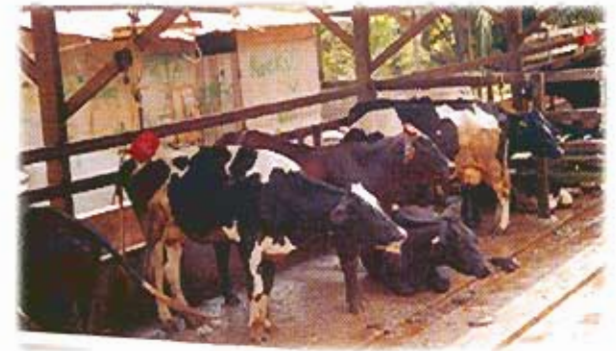


Table : Numbers of Livestock By Group at Klang and Kuala Langat
(Census of Livestock 2001, Veterinary Department)

District	Buffalo	Cow	Milch Cow	Goat	Sheep	Chicken	Duck	Pig	Total
Klang	38	2,246	437	2,279	503	1,388,001	501	0	1,394,005
Kuala Langat	12	1,653	321	830	63	989,000	0	286,301	1,278,180
Total	50	3,899	758	3,109	566	2,377,001	501	286,301	2,672,185

Fishery and Aquaculture

This is one of the main activity of the coastal population in both districts. In 2001, fish landing tonnage for both districts stood at 39,765 tonnes with a market value of RM 98,989,186 while aquaculture produce a sum of 1,353 tonnes with a value of RM 26,116,296 (Department of Fisheries Selangor Annual Report, 2001). In Klang, the cage method is largely being used while in Kuala Langat the pond method is more popular. Among the popular species cultured include *Lates calcarifer* and *Penaeus monodon*.



Manufacturing Sector

The industrial areas in Klang are concentrated in Bukit Raja, Selat Klang Utara, Pelabuhan Klang Utara, Meru, Klang Selatan, Pandamaran and Kapar. The types of industries found here are food, textile, clothing, wood and furniture, paper and printing, plastic goods, basic metal and construction material industries. The industrial areas in Kuala Langat are quite small, i.e. in Telok Panglima Garang, Olak Lempit and Banting. The industries carried out are electronic, furniture, construction materials and palm oil-based industries.



Port And Shipping



Port Klang previously known as Port Swettenham was opened by Frank Swettenham in the early 20th century. Prior to that it was a small port used by traders to unload their merchandise such as tin ores, opium and foodstuff. Now Port Klang is continuously spreading its wings to become the country's premier port with its North, South and West Ports. The West Port, where the Star Cruise terminal is located, is one of the biggest leisure cruise terminals in the Asia-Pacific region. More than 14,207 number of ships call were recorded at Port Klang for the year 2001 which comprise of bulk liquid, dry bulk, general cargo, container and passenger ships. On the same time, the port handles an import cargo volume of 40,486,597 ton metric and export of 29,662,546 ton metric. Number of container handled were 3,759,512 TEUs which is 17.2% higher than 2000. Star Cruise terminal at West Port and North Port handled a total of 346,067 passengers. North Port handles passengers between Port Klang and Pulau Ketam and Tanjung Balai, Indonesia.





Commercial Area

The commercial zones in Klang are located in the North and South Klang, Port Klang, Kapar and Meru. Commercial enterprises operating here are hotels and restaurants, wholesale and retail trade, building contractors, financial and business services, transportation and storage and professional services.



Housing Area

Inhabitants in both districts reside both in town and rural areas, where majority of Klang district population (93%) live in urban areas while the remaining 7% live in rural areas. In contrast, 44% of Kuala Langat district population lives in urban areas while 56% live in rural areas. Among the Klang coastal village located in the project are Kampung Bagan Hailam, Kampung Perepat, Kampung Telok Gong, Sementa, Sungai Serdang, Pulau Ketam dan Pulau Indah. On the other hand Kampung Morib, Kampung Batu Laut, Kampung Titip dan Kampung Tanjung Layang are located on the coastal belt of Kuala Langat district.

CHAPTER 3 RISKS AND CHALLENGES

3.1 ISSUES AND THREATS



3.1 ISSUES AND THREATS



The natural environment of the coastal areas of Klang and Kuala Langat are under threat from many sources, including pollution from land and sea-based activities, indiscriminate and improperly planned coastal development, over fishing and destruction of natural habitats. These phenomena have caused adverse impacts on the health of the ecosystem and man, resulting in increased costs of new and remedial infrastructures in both social and health service areas.

Water Pollution

The quality of coastal waters of Klang and Kuala Langat is declining due to the increased dumping of wastes into upstream catchment activities, especially from housing and industrial areas, as well as discharges from agricultural and urban areas. Klang District comprises only 2 mukims, i.e. Mukim Klang (including the islands in the waters of Klang) and Mukim Meru. These two mukims are located on the coastal areas of Klang. As a downstream district, the coastal areas of Klang bear the full force of all impacts from activities and developments carried out in the upstream catchments of two major rivers, namely Sungai Klang and Sungai Langat. Both rivers are seriously polluted by sewage discharges, industrial wastewaters and land runoff, which are not properly treated. Sungai Klang flows across many districts and Local Authorities in Klang Valley including Kuala Lumpur. Sungai Langat flows from Gunung Nuang across Langat Basin to Kuala Langat, covering four Local Authorities in Hulu Langat and Kuala Langat Districts. In addition to the upstream sources, there are also direct discharges of surface runoff, domestic sewage, ship wastes and industrial discharges into coastal waters. River and coastal waters are contaminated by *E. coli* in excess of marine water quality standards. Other contaminants, such as inorganic chemicals, are also present, which will not only threaten the ecosystem, but also enter the food chain resulting in human health risks.

Port Klang is the premier port of Malaysia, with more than 14,207 vessel arrivals (year 2001). The port does not have reception facilities for wastes from ships which exposes it to potential threat of oil spills from port operations. In addition to this, discharges from ships in transit through the Straits of Melaka, or shipping accidents in the port or in the Straits, are a constant threat to the coastal waters and resources of the area.

The aquaculture also contributes to the flow of pollutants into the coastal areas of Klang and Kuala Langat.

Issues

- According to the Department of Environment, the main sources of water pollution are from livestock farms, domestic sewage, land clearings and a small percentage from agro-based and manufacturing industries.
- Oil and grease, suspended solids and E. coli are the main pollutants in the coastal waters.

Threats

- Contaminated water supplies (e.g., drinking, cooking) and contaminated seafood pose risks to human health, and result in increased infrastructure and health care costs.
- Oil and grease, suspended solids and E. coli are the main pollutants in the coastal waters.
- The breeding, growth and quality of fish/shellfish is adversely effected by water pollution.
- The deterioration of the quality of the coastal waters of Klang and Kuala Langat make these areas unsuitable for recreational purposes, such as swimming and diving, resulting in decline in tourism.
- Pollution adversely affects fishermen, indigenous communities and individuals who depend on these areas as sources of livelihood, and directly affecting the economic resources of the country.



Solid Waste

Indiscriminate dumping of solid waste causes pollution as well hampering efforts to utilise the services of river and coastal waters. Coastal and marine litter is an eyesore, and a nuisance for fishing vessels, fish cages, tourism and recreational activities and sea-based aquaculture. On land, indiscriminate dumping of rubbish causes health problems in the community, blocks rivers and drainage systems and is a source of land and water pollution.

Issues

- Pollution caused by solid waste mismanagement is a very serious environmental problem. Industrial, commercial and domestic activities produce solid waste, which enters coastal waters through the drainage systems and rivers.

Threats

- Solid waste is capable of destroying the ecosystem, smothering the habitats, ruining the aesthetic value of coastal vistas and resulting in risks to human health.
- Solid waste also obstructs the flow of water in storm water drains and rivers, causing floods.
- Mismanagement of solid waste results in social, economic and environmental losses to the community.

EROSION AND SEDIMENTATION

Coastal erosion is caused by natural actions of waves and by human activities. As an illustration for the latter, recent cases of erosion along the coast of Pulau Indah have been brought about by sand dredging activities in the surrounding waters for land reclamation purposes. Coastal development activities without proper mitigating measures and controls expose the areas to erosion mechanisms. For example, the coastal zone between Sungai Sementa and Sungai Puloh has been severely eroded up to 120-200 meters since 1963 at a rate of 5 to 7 meters per year. Erosion induces disturbances in coastal dynamics resulting in losses of land area in some parts and sedimentation and accumulation of land in other parts of the shoreline. The persistent changes in coastal dynamics will disturb and may eventually destroy the ecosystem of the mangrove forest.



Issues

- Excessive erosion and sedimentation occur due to uncontrolled development activities along the coast and upstream water catchments areas.

Threats

- Disruption of the process of photosynthesis.
- Alteration of the benthic communities thereby effecting the natural life cycle in the ecosystem.
- Shallowing of coastal waters, affecting navigation and access to ports.
- Obstruction of natural flow and drainage, hence causing floods.
- Changes in depth and positions of coastlines.
- Accumulation of sediment into navigational routes of the port, resulting in increased dredging costs to deepen access routes.
- Increased costs to build and maintain beach stabilisation/ protection walls and other coastal structures.



DESTRUCTION OF HABITATS

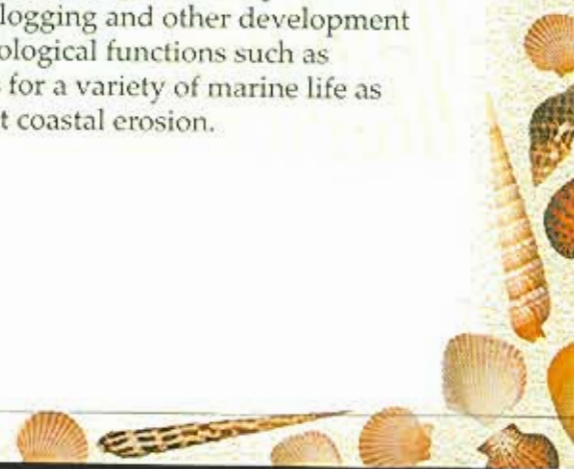
The coastal areas of Port Klang and its islands are habitats for many wildlife and fish stocks. There is an area in Kapar, which has become a transit point for migratory birds from the continent of East Asia during certain seasons. Apart from providing shelter for many commercial fishery resources, such as shrimps, crabs and fish, the mangrove ecosystem acts as flood regulator, bio-filter of wastes, and carbon storage reservoir. The degradation and decline of habitats directly affects food supply, shelter for marine organisms and wildlife, and livelihood. Although many of these areas have been gazetted as forest reserve to preserve their ecosystems, there have been cases where these habitats are degazetted for development purposes. Studies have shown that declining mangrove habitats due to extensive development will have adverse impacts on the fishing industry in terms of decreasing amounts of fish catch.

Issues

- Natural habitats provide important functions, such as sanctuaries and nurseries fish, shellfish, and other marine habitats.

Threats

- The destruction of mangrove forests and peat swamps, due to clearing of land for agriculture, logging and other development works, will result in losses of ecological functions such as breeding grounds and nurseries for a variety of marine life as well as a natural defence against coastal erosion.



OVERREXPLOITATION OF RESOURCES

Issues	Treats
<ul style="list-style-type: none">• Usage of illegal fishing gear.• Encroaching into other fishing areas, contravening the conditions of fishing licenses.• Illegal logging in mangrove forests, cutting of forest in upstream coastal and hinterland areas for housing, agriculture and other activities	<ul style="list-style-type: none">• The stocks of flora and fauna are dwindling and biological diversity is threatened.• Dwindling resources adversely affect the livelihood of individuals who depend on the natural resources, resulting in increased poverty.• The functions of forests as natural erosion buffers, water catchments areas and genetic banks are lost.



CHAPTER 4 STAKEHOLDERS STATEMENT

4.1 VISION

4.2 MISSION

4.3 DESIRE CHANGES AND RESULTS

4.4 ROLES AND RESPONSIBILITIES

4.1 VISION



**A CLEAN, HEALTHY,
ATTRACTIVE AND VIABLE
COASTAL AREA FOR
PRESENT AND
FUTURE GENERATIONS.**

This Vision represents a statement of hopes and objectives from the stakeholders in the coastal areas of Klang and Kuala Langat for the future of their areas based on the integrated considerations on ecological, social and economic factors. It also declares their commitment and responsibility for safeguarding this natural treasure for the benefit of current and future generations..

4.2 MISSION

**TO INTEGRATE THE PLANNING,
MANAGEMENT AND IMPLEMENTATION
EFFORTS FOR THE DEVELOPMENT
OF COASTAL AND CONTINGENT
WATERSHED AREAS WITH THE
PARTICIPATION OF ALL PARTIES.**

This mission enunciates the means by which the Coastal Strategy will be implemented in order to achieve its vision. The government, the private sector and the civil society will work together as partner.

4.3 DESIRED CHANGES AND RESULTS



INSTITUTIONAL

- Commit to the implementation of the action programs set out in the strategy by signing the Port Klang Declaration.
- Work collectively to deal with threats to the environment that cannot be resolved by governments alone.
- Coordinate functions and tasks of the Local, State and Federal Governments in planning, development and management of the coastal zone, the contingent watershed areas, and all related resources with the formation of a Coastal Area Management Council / Committee.
- Encourage and provide a means for the participation of the public and other stakeholders in environmental management and economic development programs.
- Initiate joint ventures with international and donor organisations and carrying out responsibilities in accordance with international conventions and agreements.
- Judiciously utilise resources of the marine environment and coastal areas of Klang and Kuala Langat for the benefit of local communities and for the country as a whole.
- Provide Local Authorities with suitable mandate and responsibility to manage the marine environment and coastal areas within their jurisdiction.
- Adopt and implement policies, regulations and guidelines pertaining to integrated coastal management.
- Incorporate the Strategic Environmental Management Action Plan into economic development plans at the Local, State and Federal levels.

OPERATIONAL

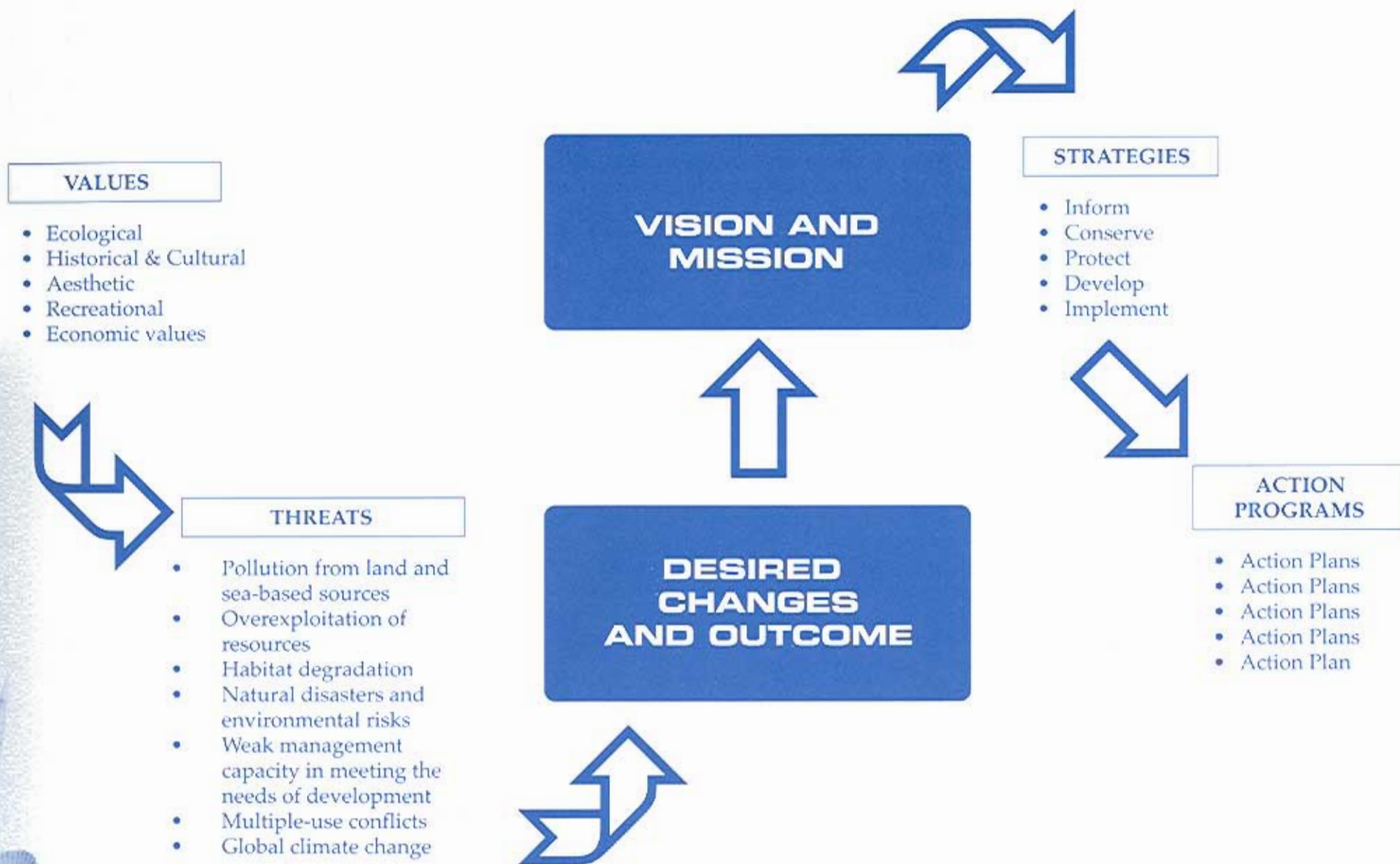
- Implement an integrated program to manage the ecosystems of the coastal areas and river basins in Klang and Kuala Langat, with Local Authorities playing the executing role and the Selangor Waters Management Authority functions as overall facilitator/coordinator.
- Resolve transboundary environmental problems through a cooperative arrangement among the Federal and State Governments, Local Authorities and pertinent stakeholders.
- Undertake joint ventures to manage coastal and marine resources.
- Provide scientific inputs for policy formulation and decision-making.
- Establish stakeholder participation in planning, developing and managing coastal areas and marine resources.
- Create partnerships between the public and private sectors to achieve sustainable environmental programs.

RESULTS

- Improved water quality in rivers and coastal waters.
- Rehabilitation and conservation of ecosystems and habitats.
- Fishery areas and biological diversity sanctuaries are effectively protected.
- Coastal waters and rivers are safe for recreational purposes.
- Seafood is safe for consumption.
- Coastal areas are developed in an environmentally sustainable manner.
- Systematic and safe management facilities for processing and disposal of toxic and hazardous wastes are available.
- Sewage treatment and disposal facilities are provided for urban and rural populations.
- Integrated solid waste management systems are in place.
- Ports areas are being equipped with shore reception facilities.
- Effective environmental management and safety measures are incorporated in the ports, shipping and navigational operations.



THE PROCESS OF FORMULATING THE PORT KLANG COASTAL STRATEGY



4.4 ROLES AND RESPONSIBILITIES

The Coastal Strategy calls for the involvement of various parties. All stakeholders have their own respective roles and levels of contribution in implementing the strategy and its action programs

FEDERAL GOVERNMENT

- Promotes/adopts relevant policies, regulations, and economic instruments that are compatible with the coastal strategy objectives and actions.
- Implements planning, development, administrative and financial management programs in support of the Coastal Strategy.
- Monitors and evaluates the implementation of programs and institutional arrangements in support of the Coastal Strategy.
- Conducts capacity building programs aimed at strengthening coastal and ocean governance capabilities at the State and local government levels.

STATE GOVERNMENT

- The State Economic Planning Unit and the Selangor Waters Management Authority develop a state coastal zoning system, which is consistent with the Strategy.
- Implements the planning, development, administration and financial management of program activities in the Strategy.
- Promotes smart partnerships between the Federal, State and Local governments with the private sector and the communities.
- Enhances mechanisms for public and private sector participation in the planning process, related to the management of the coastal zone and its resources.
- Develops public information and awareness programs to encourage appreciation of the importance of the coastal zone and its resources, and to mobilize civil society.

LOCAL GOVERNMENT

- Formulates and implements local action plans as identified in the Strategy.
- Participates in the planning, development, administration and financial management of infrastructure projects within the community.
- Establishes smart partnerships with the private sector and other local stakeholders as part of the action plan to provide environmental facilities and services.
- Identifies opportunities for economic development and environmental investment, which support the Strategy.
- Monitors and assesses progress, and refines local plans of action.

PRIVATE SECTOR

- Forges smart partnerships with local governments and communities to promote sustainable development of marine and coastal areas.
- Invests in development and environmental enhancement projects that support the Strategy.
- Practices corporate responsibility in developing, managing and using natural resources.

NON-GOVERNMENTAL ORGANIZATION

- Gathers and packages information on environmental issues and management programs and the environment for use in public information campaigns and education programs.
- Ensures that the rights of the indigenous people and other special interest groups are respected and given due consideration in development and environmental management.
- Raises funds to finance the implementation of the action programs at the community level.
- Conducts capacity building programs at the community level, addressing issues such as resource management, waste management and pollution prevention, health care and sanitation, and alternative livelihoods.

RESEARCH INSTITUTION/UNIVERSITY

- Provides advice and expertise on relevant policy matters at national and local levels.
- Conducts research projects to assist with problem-solving and management programs.
- Establishes partnerships with the public sectors and other stakeholders for the implementation of the Strategy.
- Develops and implements educational programs on sustainable development of marine and coastal areas.

COMMUNITY

- Develops awareness and understanding of local environmental issues.
- Mobilizes local citizens to fulfil their responsibilities as stewards of the local community and the environment.
- Implements a "community-watch" programme on the implementation of environmental policies and programs at the local level.
- Lobbies local officials regarding the progress being made toward the objectives and expected outputs of the Strategy

CHAPTER 5 THE STRATEGY

5.1 FOUNDATIONS OF THE STRATEGY

5.2 INFORM

5.3 CONSERVE

5.4 PROTECT

5.5 DEVELOP

5.6 IMPLEMENT



5.1 FOUNDATIONS OF THE STRATEGY

The Underlying Principles

*Principle 3
of the Rio Declaration:
The right to development
must be fulfilled so as to
equitably meet developmental
and environmental needs of
present and future
generations.*

• COLLECTIVE COMMITMENT

The essence of the coastal strategy is to solicit commitment from all the stakeholders in the form of a joint declaration elucidating the shared vision of the local stakeholders, including government, industry, private sector, civil society and the academe to sustainably transform and manage their environment according to Principle 3 of the Rio Declaration.

• SMART PARTNERSHIP

The formulation of the Strategy is geared towards developing sustainable partnerships among public and private sectors, local and national governments, non-governmental organisations, community-based organisations and others. The stakeholders are expected to be able to identify and define local problems and constraints, and develop and institute actions for win-win solutions to real-life issues.

• INTEGRATION AND SYNERGY

Existing institutions and their affiliated stakeholders will adopt an integrated approach to addressing sectoral concerns and diversified interests, sharing knowledge and skills and thereby strengthening the overall effort towards achieving the shared vision and mission of the Strategy.

• HOLISTIC FRAMEWORK

The strategy and action plan encompasses a holistic management framework including institutional arrangements, policies and legislation, scientific knowledge and technical expertise, economic instruments, environmental investments, social development and capacity building. The framework also incorporates stakeholder awareness, consensus building and mobilisation to address areas of existing or potential conflict among users and beneficiaries of marine and coastal resources.

• CONSOLIDATION AND ACTION

Coherent and concrete strategic action plans will be developed and diligently pursued. The international conventions and agreements provide guidance for actions within the framework of strategies at the national and sub-national levels.

THE STRATEGY

INFORM	stakeholders of their rights and responsibilities regarding the development and management of coastal and marine resources.
CONSERVE	important natural ecosystems and historical and cultural features for future generations.
PROTECT	marine, coastal and watershed ecosystems and human health and welfare from environmental risks and threats caused by human activities and natural disasters.
DEVELOP	economic opportunities in the coastal and watershed areas of Klang and Kuala Langat in consonance with the social development and environmental management goals of the communities.
IMPLEMENT	appropriate policies, regulations and guidelines to achieve sustainable development of the Klang and Kuala Langat watershed and coastal areas

5.2 INFORM

INFORM stakeholders of their rights and responsibilities regarding the development and management of coastal and marine resources.

PRINCIPLES

1. The public needs to understand the relationship between the effects of their activities on the health of ecosystems of the coastal areas and sustainable development.
2. Communication is the key to knowledge enhancement, improved attitudes and behavioural change among the people.
3. All people have the right to be well informed on the importance of the coastal and marine resources for their livelihood.

OBJECTIVES

1. Communicate information to all stakeholders concerning the ICM framework and process as a vehicle for achieving sustainable development.
2. Mobilize multi-sectoral stakeholder participation in socio-economic development and environmental management of the coastal areas.
3. Facilitate sharing of data and research information among stakeholders.

OBJECTIVE 1:

Communicate information to all stakeholders concerning the ICM framework and process as a vehicle for achieving sustainable development.



ACTION PROGRAMS:

1. Establish a comprehensive program on Information, Education and Communication (IEC) to serve as a guide for public awareness program by:
 - Identify key issues to be addressed such as pollution control and abatement, managing solid and sewerage services, and establishing development control and regulation.
 - Developing a communication plan and mechanism as the blueprint of IEC for various stakeholders in Klang areas focusing on the issues identified.
 - Conducting a series of public awareness activities related to concepts and approaches of ICM and sustainable development.
 - Raising awareness on the importance of managing coastal and habitats and its aquatic living resources in sustainable manner.
2. Undertake a continuous education program to develop a society that is responsive to measures and programs to protect the natural environment and its resources.
 - Conduct comprehensive training program on environmental education targeted at industries, commercial enterprises, real-estate developers, agricultural and livestock farms, fishery industries, ship and port operators and the general public, to ensure understanding, compliance and self-regulation efforts by all the stakeholders.
 - Develop capacity of a core groups of trainers and communicators for community awareness programs.

OBJECTIVE 2:

Mobilize multisectoral stakeholder participation in socio-economic development and environmental management of the coastal areas.

ACTION PROGRAMS:

1. Mobilize support and build ownership in the coastal management program by involving partners and stakeholders in program development and build up a sense of self-reliance by:
 - Identifying key stakeholders in the coastal zone, or who are affected by activities, and who take part in developing, regulating and /or conserving its resources and land use;
 - Enhancing mechanisms for public participation so that public interests are reflected in the coastal zone planning and management process;
 - Facilitating inter-agency consultation and coordination and providing updated information to all stakeholders involved;
 - Developing a public information and awareness program on the value and environmental importance of coastal ecosystems and resources with a view to minimizing the casual abuse of such resources;

- Consulting relevant NGOs and CBOs on their views of important conservation areas and taking steps to evaluate their status and institute necessary actions;
 - Organizing workgroups or taskforces to get a more holistic view of the coastal land use and resources situation;
 - Promoting partnerships between the government (state and local) and the private sector and communities.
2. Involve local communities in formulating self reliance strategies to obtain desired local results by:
 - Organizing activities and projects such as "gotong-royong" (self-help cleaning) for environmental enhancement
 - Establishing a network of individuals and community-based organizations to identify key issues for the areas that they live in.

- Providing a forum for discussion of issues and forging of a common vision.



OBJECTIVE 3:

Facilitate sharing of data and research information among stakeholders.



ACTION PROGRAMS:

1. Develop a database of coastal resources and decision support system that will improve on existing planning and management efforts, and support the task of making rational decisions with regard to development and/or conservation initiatives by:
 - Establishing an integrated information management system (IIMS) for storing, collating and analyzing environmental, social and economic data on the Klang and Kuala Langat area.
 - Identifying IIMS applications and decision support uses for multi-sectoral groups at the national and local levels.

2. Develop an information network for sharing and exchange of IIMS information among government agencies, research institutions, private sector, NGOs and the general public by:
 - Identifying data providers and data users for IIMS network.
 - Defining institutional/ administrative arrangements for managing the IIMS database and network on a long term sustainable basis.
 - Introducing a user-pay system for access to services provided by the IIMS network in order to cover operating and updating costs of the database.

3. Promote effective use of existing information centers, networks and facilities of participating stakeholders to disseminate information to all levels of society. In Klang, there are 7 IT community center while in Kuala Langat, 4 of the same amenity exists throughout the district. This entire IT center is provided with Internet computers and is connected to ICT Center at the SUK Building at Shah Alam. A computer club named Selangor IT Club together with its web page was launched to facilitate information dissemination to communities in each district.



5.3 CONSERVE

CONSERVE
important natural
ecosystems and
historical and
cultural features
for future
generations.

PRINCIPLES

1. Preservation and conservation of the natural ecosystem and resources and restoration of damaged habitat are vital to ensure continuity of values and benefits into the future.
2. Concerted efforts to reduce and eliminate unsustainable patterns of production and consumption, and promote conservation measures are requisite elements of the concept of sustainable management of the coastal ecosystem and its life support system.
3. Conservation and preservation of geological, cultural and historical sites as well as other areas with special attraction are of utmost importance because of intrinsic economic and environmental values, as well as the heritage for future generations.

OBJECTIVES

1. Conserve and restore biodiversity of the coastal ecosystems.
2. Preserve local ecological, geological, cultural and historical heritage sites.

OBJECTIVE 1:

**Conserve and
restore
biodiversity of
the coastal
ecosystems**

ACTION PROGRAMS:

1. Develop and implement restoration program of habitats and resources of significant natural value and biodiversity by:
 - Identify major threatening activities, conflicts and processes in the coastal ecosystems, and areas that need immediate management intervention and designate these areas as Special Management Area. Pulau Ketam and its surrounding islands and waters are to be designated as such and integrated management plan for conservation and restoration will be developed and instituted.
 - Incorporating planning schemes which restrict development or misuse or conflicting use of significant sites into national, state and local development plans.
 - Drafting standard, guidelines and regulations for the implementation of 'best environmental management practices'.
 - Carry out gazettment of the designated areas under suitable legal provisions and implement the integrated management and development plans including the sustainable ecosystem restoration and conservation works.
 - Carry out close monitoring, evaluation and inspection of the implementation of policies, regulations and related legislative instruments in the designated preservation and protection areas.

2. Formulate a holistic resource management scheme to evaluate resource uses which could potentially exceed the natural carrying capacity of the ecosystem hence causing destruction and alteration of the natural habitats by:
 - Adopting an ecosystem management approach for all development projects.
 - Formulating legal and covering restoration and compensation for damage to habitat and biodiversity.
3. Safeguard bio-diversity (genes, species, habitat and ecosystem) and endangered species.
 - Improve and enforce relevant regulations on the protection and preservation of species under threat.
 - Engage local communities and community based organisations as stewards for the preservation of biodiversity and endangered species within their area.

- Formulating cooperative agreements on biotechnology research, intellectual property rights (e.g. traditional medicines) and bio-prospecting activities by third parties.



OBJECTIVE 2:

Preserve local ecological, geological, cultural and historical heritage sites.

ACTION PROGRAMS:

1. Develop Special Area Management Plans for areas that suffer from high development pressure as a result of conflict of land-use activity or have special environmental problems such as coastal erosion, pollution and habitat destruction.
 - Examining and reviewing existing guidelines for coastal resources conservation, development and management on mangroves, coastal forests, aquaculture, fisheries, mineral resources, groundwater resources, coastal land and sea-uses, coastal erosion, and eco-tourism guidelines for coastal development.

2. Protect and preserve historical, religious, and cultural establishments by:
 - Identifying and declaring significant historical and cultural sites. Reviewing, developing and implement zonation schemes and guidelines together with its legal and financial mechanisms to protect and maintain the sites, and enforce the regulation.



5.4 PROTECT

PROTECT marine and coastal ecosystems, watershed ecosystems and human health and welfare from environmental risks and threats caused by human activities and natural disasters.

PRINCIPLES

1. The state of the environment shall be protected from potential damages and irreversible changes.
2. Protection of the coastal environment and resources will deliver both tangible and intangible benefits to the present and future generations.
3. Prevention, mitigation and control of environmental pollution, degradation and damages shall be intrinsic components of any integrated economic development and strategic environmental management plan of the coastal areas.

OBJECTIVES

1. Protect the quality of coastal waters of Port Klang and water sources including ground and surface waters.
2. Manage sea-based activities to avoid and mitigate damage to the coastal environment.
3. Prevent adverse impacts from land-based activities to the coastal environment.

OBJECTIVE 1:

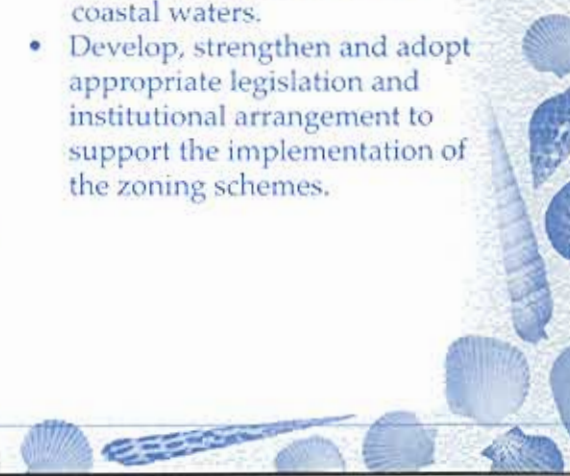
Protect the quality of coastal waters of Port Klang and water sources including ground and surface waters.

ACTION PROGRAMS:

1. Establish an institutional arrangement for planning, development control, regulation and enforcement of existing and new developments for effective implementation of integrated coastal management by:
 - Coordinating and integrating sectoral agencies and activities to ensure that inter-dependencies and conflicts among resource users can be reconciled in the most effective manner.
2. Adopt the Port Klang Coastal Strategy as the guiding framework for future use, protection, restoration and management of marine and coastal resources by:
 - Adopting local ICM legislation via SWMA's Enactment 1999 and institutionalised organizational arrangement through Project Coordinating

Committee (PCC) and National Coordinating Committee (NCC), local government and the governmental legal and administrative mechanism and procedures.

3. Develop integrated land use and water resources management zonation schemes in which pollutive activities will be controlled or eliminated in water catchments and other sensitive environmental areas by:
 - Establishing a multi-sectoral task team and organizing zonation consultation program to solicit opinions and assess use-conflicts and impacts on the proposal.
 - Formulating a master plan for integrated river basin management of the catchments of Sungai Klang, Sungai Langat Rivers and the Port Klang coastal waters.
 - Develop, strengthen and adopt appropriate legislation and institutional arrangement to support the implementation of the zoning schemes.



4. Carry out the environmental rehabilitation and enhancement programs for Sungai Klang and Sungai Langat Rivers and Port Klang coastal areas.

5. Forge partnerships with local communities, religious groups, industry, the private sector, indigenous peoples and marginalized groups in the area to participate in the planning, development and management of coastal resources.

6. Combine and link scientific input and traditional knowledge into planning and decision making processes and environmental programs by:

- Forging partnerships between scientists and local governments to encourage information and knowledge sharing in the development and implementation of ICM programs.
- Supporting scientific research that advances knowledge of ecosystem management, environmental risk assessment/management, carrying capacity, quality of life

indicators, etc., and provides input to decisions on sustainable economic development.

- Involving indigenous people and scientists in the gathering and interpretation of information on habitats and biological diversity including the development and implementation of appropriate restoration programs.

OBJECTIVE 2:

Manage sea-based activities to avoid and mitigate damage to the coastal environment.

ACTION PROGRAMS:

1. Overcome transboundary regional problems/issues that affect the coastal and marine resources and coastal communities of the Port Klang area by implementing programs for the purpose of:
 - Protecting and preserving the ecosystem/habitats and their resources, such as fish nursery and spawning grounds,
 - Effective and efficient response mechanisms to the environmental incidents such as oil spills,
 - Effective and efficient disaster control and management (floods, sea water inundation, forest fires, etc),
 - Safe navigation and maritime system.

2. Implement relevant international conventions concerning pollution from ships, including both accidental and operational discharges from vessels entering the Port Klang waters.

3. Formulate and adopt standards, guidelines and procedures for sea-based activities and identify environmentally sensitive areas which require enhanced protection by:
 - Establishing guidelines, criteria and procedures for identifying environmental sensitive areas in accordance with national, regional and international instruments,
 - Building consensus among stakeholders,
 - Identify implementing agencies,
 - Adopting the national/ international procedures.

4. Manage dredging and reclamation activities by:
 - Formulating guidelines and means for enforcing rules for dredging and reclamation projects with due consideration to the impacts on resource values, human health and the land and sea-use zoning system/and
 - Assessing environmental risk of dredging and land reclamation within the context of ecosystem management and public health.
 - Formulating, implementing rules and mechanisms, and monitor and enforce the

prevent uncontrolled dumping of dredge materials and other matters into the coastal waters of Port Klang.

5. Counter improper and uncontrolled aquaculture and mariculture by:
 - Identifying areas for near-shore and off-shore aquaculture and mariculture activities;
 - Formulating and applying regulation and economic instruments to ensure appropriate production techniques.



National ICM Demonstration Project in Port Klang, Malaysia

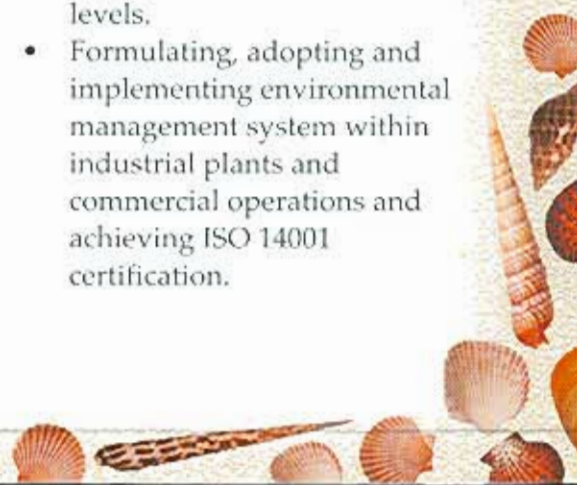
OBJECTIVE 3:

Prevent adverse impacts from land-based activities to the coastal environment

ACTION PROGRAMS:

1. Mitigate pollutive discharges from land-based point and non-point sources by :
 - Implementing the Klang and Langat River Clean-up programs.
 - Identifying priority concerns* and social and economic impacts utilizing the risk assessment process.
 - Develop and implement comprehensive response program, and identifying long-term commitments to provide necessary facilities, services and systems for mitigating problems.
2. Enjoining local industry and commercial enterprises to avoid and control pollutive activities by:
 - Developing voluntary agreements identifying targets for increased efficiency in the use of coastal resources.

- Avoiding conflicting and damaging practices, which are contrary to the shared vision of the strategy.
- Formulating and adopting a code of conduct for industrial and commercial enterprises, and promoting best environmental practices.
- Sharing technological know-how, expertise and skills in cleaner production and safety in environmental management and emergency response among the industrial sector, as well as with local and central government agencies.
- Conducting self-audits on industrial plants and commercial operations to ensure compliance with all relevant environmental laws and regulations at the national and local government levels.
- Formulating, adopting and implementing environmental management system within industrial plants and commercial operations and achieving ISO 14001 certification.



- Preparing and adopting Port Klang coastal waters contingency plan and oil spill response system involving shipping and petroleum industries, the private sector, Local Governments and relevant agencies of the Federal Government.
3. Undertaking Environmental Impact Assessment (EIAs) for resort developments in coastal areas, for ports and harbours, and petroleum and petrochemical industries.

PROBLEM SECTORS

- Management of solid wastes
- Management of sewerage services
- Management of toxic and hazardous wastes
- Management of ships and port wastes
- Pollution control and abatement, and management of land-based point sources pollution
- Pollution control and abatement, and management of land-based non-point/diffuse sources pollution
- Developing and managing urban and agricultural drainage systems
- Developing and managing flood mitigation systems and river corridors
- Managing zonation schemes and special protection zones in the coastal interlands



5.5 DEVELOP

DEVELOP economic opportunities in the coastal and watershed areas of Klang and Kuala Langat in consonance with the social development and environmental management goals of the communities.

PRINCIPLES:

1. Economic development is of vital local and national importance.
2. The coastal and marine environment are long term public assets, which shall not be sacrificed for short term goals.
3. The needs of the present generation shall not be met at the expense of future generations.
4. Development plans and programs which are sustainable shall have priority over others, in the development of coastal and marine areas.

OBJECTIVES:

1. Balancing economic development objectives with environmental management goals.
2. Develop and implement an environmental investment plan for treatment facilities for pollution from point and non-point sources.
3. Utilize sustainable fishing practices and management system.

OBJECTIVE 1:

Balancing economic development objectives with environmental management goals.

ACTION PROGRAMS:

1. Establish well-planned industrial, commercial and agricultural development activities compatible with the integrated economic development and strategic environmental management of the coastal areas.
 - Adopt and implement a zonation plan for industrial, commercial and agricultural development activities within the integrated land and sea-use zonation master plan of the coastal areas.
 - Developing and applying economic and regulatory instruments to smoothly implement the zonation plan.
 - Developing policy and guidelines and applying the principle that new development shall be provided with clean technology, and effective waste disposal and management system.
2. Develop linkages between socio-economic development opportunities with desired benefits and enhancement in the quality of life for coastal communities by:
 - Providing land and sea-based recreational amenities.
 - Enhancing the environmental quality of life by developing ports and fishing harbours as landmarks areas and as water front venues for recreation and tourism.
3. Control the indiscriminate use of pesticides, fertilizers and other chemicals used in the agriculture industry by:
 - Introducing policies and enforcing regulation and guidelines on pesticide usage through the enforcement of Pesticide Act 1974 and

adopting the Malaysia Farm Accreditation Scheme (SALM) for Best Farm Management Practices. The latter was introduced by the Department of Agriculture in 2002 to encourage the adoption of environmentally compatible best practices and standards including the fertilizer uses, to gain the stamp of approval of the SALM accreditation scheme logo on their agriculture production for enhance marketing.

- Implementing integrated pesticide management approaches adopting alternative technologies such as organic farming.
- Managing pesticides usage by packaging, handling containers and residual pesticides in accordance with approved practices.

OBJECTIVE 2:

Develop and implement an environmental investment plan for treatment facilities for pollution from point and non-point sources.



ACTION PROGRAMS:

1. Develop and improve policies, legislations, institutions and measures to support environmental investments in order to reduce risks and uncertainties hence creating a 'sustainable win-win partnership'.
 2. Developing and establishing a dedicated environmental investment fund for the coastal areas through innovative financial scheme consisting of both tax and non-tax revenue generations by:
 - Establishing a Port Klang Coastal Environmental Fund which is to be derived from both tax and non-tax fund acquisition scheme, based on the concept of 'beneficiaries and polluters pay principle'. Other sources would be from permits and licensing schemes as well as from donations, grants and endowments provided by Federal, State Governments and Local Authorities.
 3. Developing and implementing financial instrument such as incentive and penalty schemes according to the 'polluters and beneficiaries pay principle' to support the implementation of strategic environmental management plan.
- Providing economic or market-based instruments (e.g. 'beneficiaries and polluters pay principle') to complement legal and administrative mechanisms (e.g. total maximum daily load pollution charge), as part of the overall mechanism to change the attitude and behavior of people regarding the environment and sustainable development.

4. Developing the scheme based on the CLC, FUND and Basel Conventions where relevant, for recovery of oil and chemical spills clean up and damages compensation costs.
5. Identifying potential areas of investment and partnership with the private sector, such as:
 - Provision for treatment facilities for industrial and municipal wastewaters including centralised and regional treatment facilities.
 - Efficient and effective solid waste management system.
 - Efficient and effective toxic and hazardous waste disposal, treatment and management facilities.
 - Effective earthworks and siltation control measures.
 - Technologies and control systems for discharges for agriculture and livestock farming activities.
 - Environmental management systems for other small and medium sized enterprises.
 - Aforestation program and sustainable logging for the inland and coastal-forested areas to increase carbon sinks and provide protection against erosion and sedimentation.
6. Provide drainage facilities to low lying areas subject to flash and annual floods.
7. Provide coastal protection facilities and remedial works to mitigate erosion and sedimentation along the shoreline.



OBJECTIVE 3:

Utilise sustainable fishing practices and management system.

ACTION PROGRAMS:

1. Integrate fishery management into coastal management programs of the ICM.
2. Develop and institutionalise the fisher folks and fishermen association participation in regulating the commercial, recreational and sport fishing activities with special focus on the protected fish life support system areas.



5.6 IMPLEMENT

IMPLEMENT appropriate policies, regulations and guidelines to achieve sustainable development of the Klang and Kuala Langat watershed and coastal areas.

PRINCIPLES:

1. Effective environmental legislation is necessary for the management of coastal and marine areas.
2. Rules, standards and recommended practices and procedures should be given due emphasis in developing and managing coastal and marine environment.
3. Mediation and negotiation should be considered as a useful tool for resolving conflict prior to actual enforcement and litigation.

OBJECTIVES:

1. Strengthen laws, rules and regulations related to coastal and marine resource management, and establish an intergovernmental, interagency and multi-sector coordinating mechanism to implement the coastal strategy.
2. Enhance the enforcement of existing laws and regulations in natural resources development and environmental management by establishing the integrated environmental monitoring program, and develop new instruments where necessary.

OBJECTIVE 1:

Strengthen laws, rules and regulations related to coastal and marine resource management.

ACTION PROGRAMS:

1. The Federal Government provide overall framework for coordination and guidelines for the sustainable development of the coastal zone and the conservation of coastal resources.
 - Providing resources and capacity building for implementation of programs under the Eighth Malaysia Plan and its ensuing plans.
 - Reviewing on a continual basis the integration between the ICM processes and the overall development policy objectives of the government.

- Developing a system for monitoring the effectiveness of policy implementation on a national basis.
 - Developing capacity for conflict resolution between different interests and providing support to the state efforts in developing integrated response to current and emerging coastal zone and resource management issues.
2. The State Government coordinate and manage state coastal zone management programs and develop them consistent with the National Coastal Policy.
 - Provide funding for the initial period of establishing ICM in the State and additional funds will be allocated for the programs under periodic performance review.

3. Local Governments establish a network at the local level with representatives from government agencies, non-governmental organizations, private sectors, community-based organizations, and community leaders at the local level.
 - Establish suitable arrangement between state and local governments to manage marine and coastal resources within their administrative jurisdictions.

OBJECTIVE 2:

Enhance the enforcement of existing laws and regulations in natural resources development and environmental management and develop new instruments where necessary.

ACTION PROGRAMS:

1. Establish an integrated environmental monitoring and enforcement program involving intergovernmental and interagency technical cooperation and sharing of facilities, services, human resources and information with regard to monitoring, surveillance and enforcement activities.
 - Carry out regular monitoring and inspection of sites in an integrated manner to ensure compliance with the prescribed regulations.
2. Provide support and build capacity of the Local Authorities, i.e. the District Council and Local Government, to improve their management of the coastal areas and resources on a sustainable basis.
 - Training of government staff to enable them to interpret guidelines for managing development in sensitive coastal ecosystems and areas
 - Developing the support of local level groups (such as youth, charitable groups, social clubs, trade associations, etc.) as part of a strategy to develop partnerships for a more effective management of the coastal zone.
 - Building local capacities in environmental management of coastal areas, community-based management of coastal resources, fisheries management, integrated waste management and sustainable tourism.



CHAPTER 6 MONITORING AND EVALUATION

6.1 MONITORING AND EVALUATION



6.1 MONITORING AND EVALUATION

- A series of indicators will be developed to assess progress regarding implementation of the Coastal Strategy of Port Klang. The indicators provide a systematic method for each stakeholder group to assess its achievement in process-based development and management milestones identified in the Strategy. The implementation of the strategy will involve the stakeholder's review and acceptance of the indicators, the desired targets or reference values for each indicator and the protocols for assessing them. In the interim, institutional and operational indicators will be used with changes and additions to be incorporated over time, as the monitoring and reporting systems are refined. The conceptual framework and relationship for implementing the strategy is depicted in Figure 6.1 whilst the proposed institutional development is illustrated in Figures 6.2 – 6.5.
- The desired outcomes and changes to be achieved by the vision and objectives of Strategy can be classified into three broad categories, namely;

Institutional Activities:

Indicating the individual and collective policy, legal and administrative actions in accordance with the Strategy.

Operational Activities:

Indicating measures taken by stakeholders to halt, mitigate, adapt, or prevent damage to the environment caused by natural processes and human activities.

Environmental State:

Indicating the quality of natural resources, and the state of human and ecological health. Indicators in this category reflect the ultimate benefits derived as a consequence of the Strategy, and are chosen by considering biological, chemical and physical variables and ecological functions.

- Indicators will be considered according to milestones set for a certain period of time (i.e. one year, two years or five years) in comparison with current status. All indicators and their associated components will be assessed whether they are under development or already in place including their level of achievement.

Institutional Activities:

- Establishment and operationalisation of interagency multi-sectoral committee.
- Number of legal, economic and financial instruments applied to promoting partnerships.
- Number of environment and natural resources management offices established.
- Development and implementation of Integrated Land-Sea Use Plan.

Operational Activities:

- Adoption of multi-sectoral coastal management plans.
- Number of coastal districts/communes with multi-sectoral coastal management plans.
- Number of multi-sectoral voluntary agreements.
- Number of industries and private enterprises with ISO 14001 certifications.

Environmental State :

- Percent of population with waste treatment facilities.
- Percent of population with access to safe water supply.
- Percent of population with garbage collection and licensed disposal facilities.
- Quality of environmental component such as air, water, soil and biological resources.



KEY INTERNATIONAL AGREEMENTS RELEVANT TO COASTAL AND MARINE ENVIRONMENTAL MANAGEMENT WHICH MALAYSIA HAS SIGNED AND/OR RATIFIED

- Basel Convention on the Control of Transboundary Movement of Hazardous Wastes and Their Disposal, 1989 (Basel Convention)
- Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972 (World Heritage Convention)
- Convention on Biological Diversity, 1992 (BCD)
- Convention on International Trade in Endangered Species of Wild Fauna and Fauna, 1973 (CITES)
- International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78)
- International Convention on Civil Liability for Oil Pollution Damage, 1969 and its 1992 Protocol (CLC)
- International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC)
- International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1971 and its 1992 Protocol (FUND)
- Ramsar Convention on Wetlands, 1971 (Ramsar Convention)
- Rio Declaration on Environment and Development, 1992
- United Nation Convention on the Law of the Sea, 1982 (UNCLOS)
- United Nations Framework Convention on Climate Change, 1992 (UNFCCC)

IMPORTANT NATIONAL POLICIES AND LEGISLATIVE DOCUMENT RELEVANT TO COASTAL AND MARINE ENVIRONMENTAL MANAGEMENT

Acts / Enactments

- Antiquities Act 1976
- Continental Shelf Act 1966
- Drainage Work Ordinance 1954
- Environmental Quality Act 1974
- Exclusive Economic Zone Act 1984
- Forest Rules 1986
- Industrial Co-ordination Act 1975
- Irrigation and Drainage Ordinance 1954
- Irrigation Areas Ordinance 1953
- Land Conservation Act 1960
- Local Government Act 1976
- Malaysia Fisheries Act 1985
- Merchant Shipping Act 1991
- Merchant Shipping Ordinance 1952
- National Land Code 1965
- National Park Act 1980
- Navigation and Seamen Act
- Pesticide Act 1974
- Port and Harbour Act

- Protected areas and Places Act 1959
- Protection of Wildlife Act 1976
- Selangor Waters Management Enactment 1999
- Selangor Water Supply Enactment 1997
- Town and Country Planning Act 1976

Policy

- Biological Diversity Policy
- Coastal Zone Management Policy
- Conservation Strategy Policy, 1993
- National Environment Policy
- National Forestry Policy

Guidelines and Standards

- Department of Environment - Agricultural Effluent Standards
- Department of Irrigation and Drainage - Guidelines on Coastal Development

- Department of Environment - Interim Sea Water Quality Standards
- Department of Environment - Schedule Wastes Regulation
- Incentives for Industry to attain ISO 14001
- Local Authorities/ Town and Country Planning Department - Structure and Local Plans
- Natural Resources Management and Implementation Plan Guide
- Shellfish and Land Fisheries Regulations
- State Government of Selangor/ Town and Country Planning Department - Sustainable Development Strategy and Agenda 21
- Town and Country Planning Department - Development Guidelines and Standards
- Vessel Traffic System

THE PARTNERS

GOVERNMENT AGENCIES

- a. Department of Agriculture
- b. Department of Education
- c. Department of Environment
- d. Department of Fisheries
- e. Department of Forestry
- f. Department of Health
- g. Department of Information
- h. Department of Irrigation and Drainage
- i. Department of Marine Police
- j. Department of Sewerage Services
- k. Economic Planning and Development Unit, Selangor State Secretary Office
- l. Economic Planning Unit, Prime Ministers Department
- m. Fisheries Development Authority (LKIM)
- n. Fisheries Research Institute (FRI)
- o. Klang Port Authority
- p. Land and Mines Office, Klang District Office; and Kuala Langat District Office
- q. Local Authorities; Klang Municipal Council and Kuala Langat District Council
- r. Malaysian Agricultural Research and Development Institute (MARDI)
- s. Malaysian Industrial Development Authority (MIDA)
- t. Malaysian Tourism Promotion Board, Ministry of Culture, Arts and Tourism
- u. Marine Department
- v. Maritime Institute of Malaysia (MIMA)
- w. Maritime Academy of Malaysia (ALAM)
- x. Ministry of Internal Trade and Industry (MITI)
- y. Ministry of Transport
- z. Museum and Antiquity Department

- aa. Public Works Department
- bb. Selangor State Investment Centre (SSIC)
- cc. Selangor Waters Management Authority (SWMA/LUAS)
- dd. State Economic Development Corporation (SEDC)
- ee. Selangor Water Supply Corporation (PUAS)
- ff. State Water Supply Regulatory Department
- gg. Town and Country Planning Department
- hh. Veterinary Department

UNIVERSITIES AND RESEARCH INSTITUTIONS

Universiti Kebangsaan Malaysia (LESTARI, UKM), Universiti Putra Malaysia (UPM), Universiti Malaya (UM), National Hydraulic Research Institute (NAHRIM), Universiti Industri Selangor (UNISEL).

NGOs and CBOs

- a. Federation of Malaysian Consumers Association (FOMCA)
- b. Federation of Malaysian Manufacture (FMM)
- c. Malaysia Nature Society (MNS)
- d. Sahabat Alam Malaysia
- e. Village committees, Fishermen Association
- f. Wetland International (WI)
- g. World Wildlife Fund (WWF Malaysia)

PRIVATE SECTORS

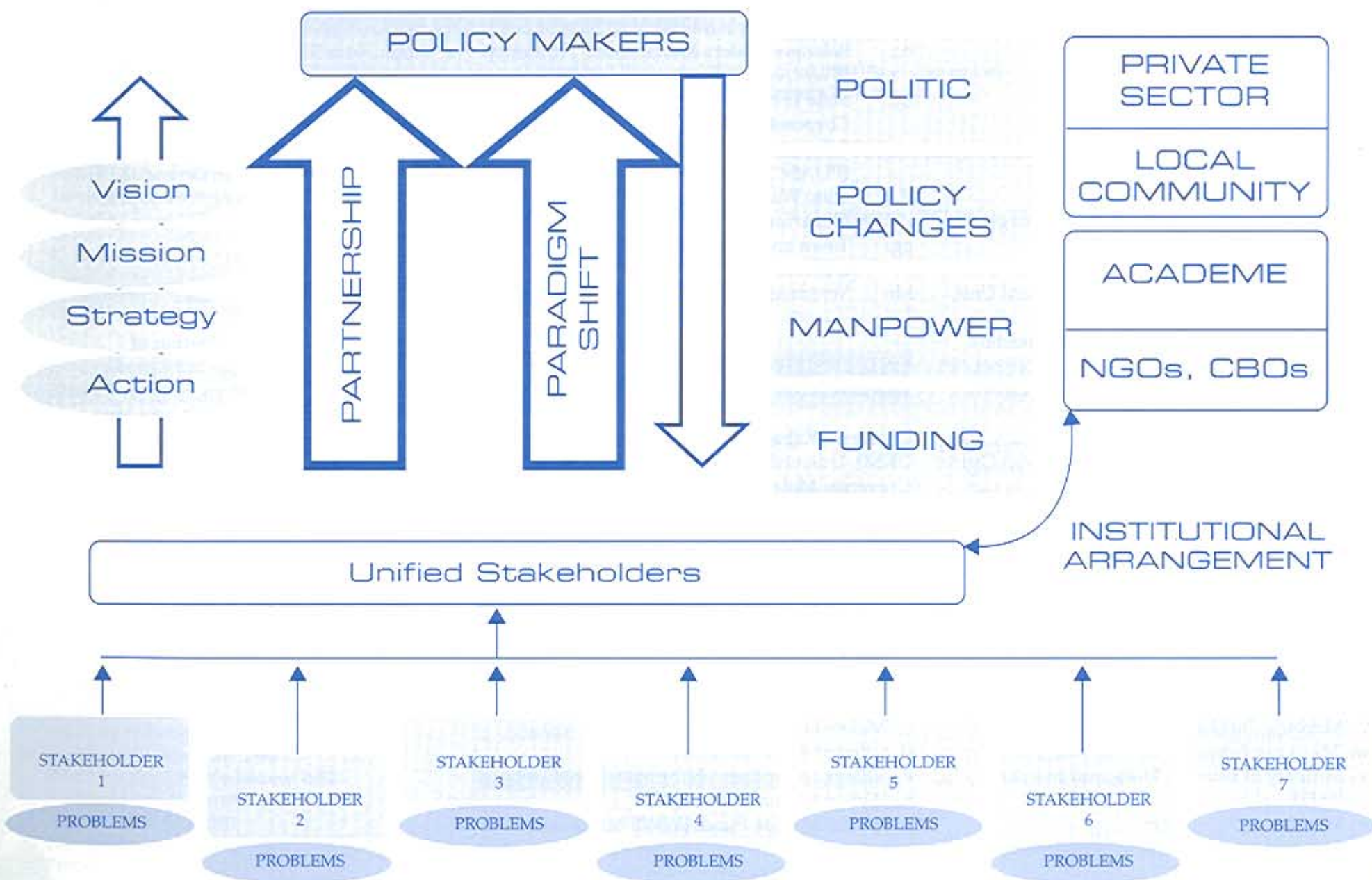
- a. Alam Flora Sdn Bhd – Solid waste management concessionaires for the central region
- b. Indah Water Konsortium Sdn. Bhd (IWK) – Sewerage Services concessionaires
- c. Kumpulan Darul-Ehsan Berhad (KDEB)
- d. Real Estate and Housing Development Association (REHDA)

APPROACH BY AGENCIES

- a. Campaigns and dissemination of information through the mass media
- b. Developing and adopting new standards and regulations and enacting by-laws
- c. Gazettement for enforcement under relevant legislation.
- d. Memorandum of Understandings/ Memorandum of Agreements

FIGURE 6.1

ORGANIZATIONAL LINKAGE FOR STRATEGY IMPLEMENTATION



REFERENCES

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- State Economic Planning Unit. Demography Data Selangor State 2000/2001.
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- Water Act. 1920. Malaysia.

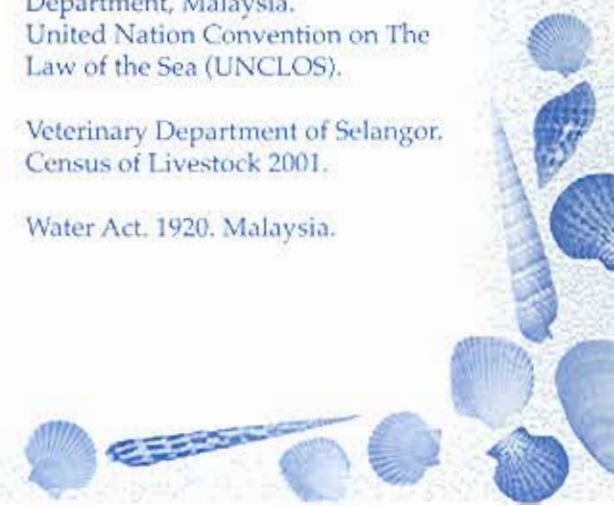


FIGURE 6.2 NATIONAL COORDINATING COMMITTEE (NCC) FOR ICM DEMONSTRATION SITE AT PORT KLANG

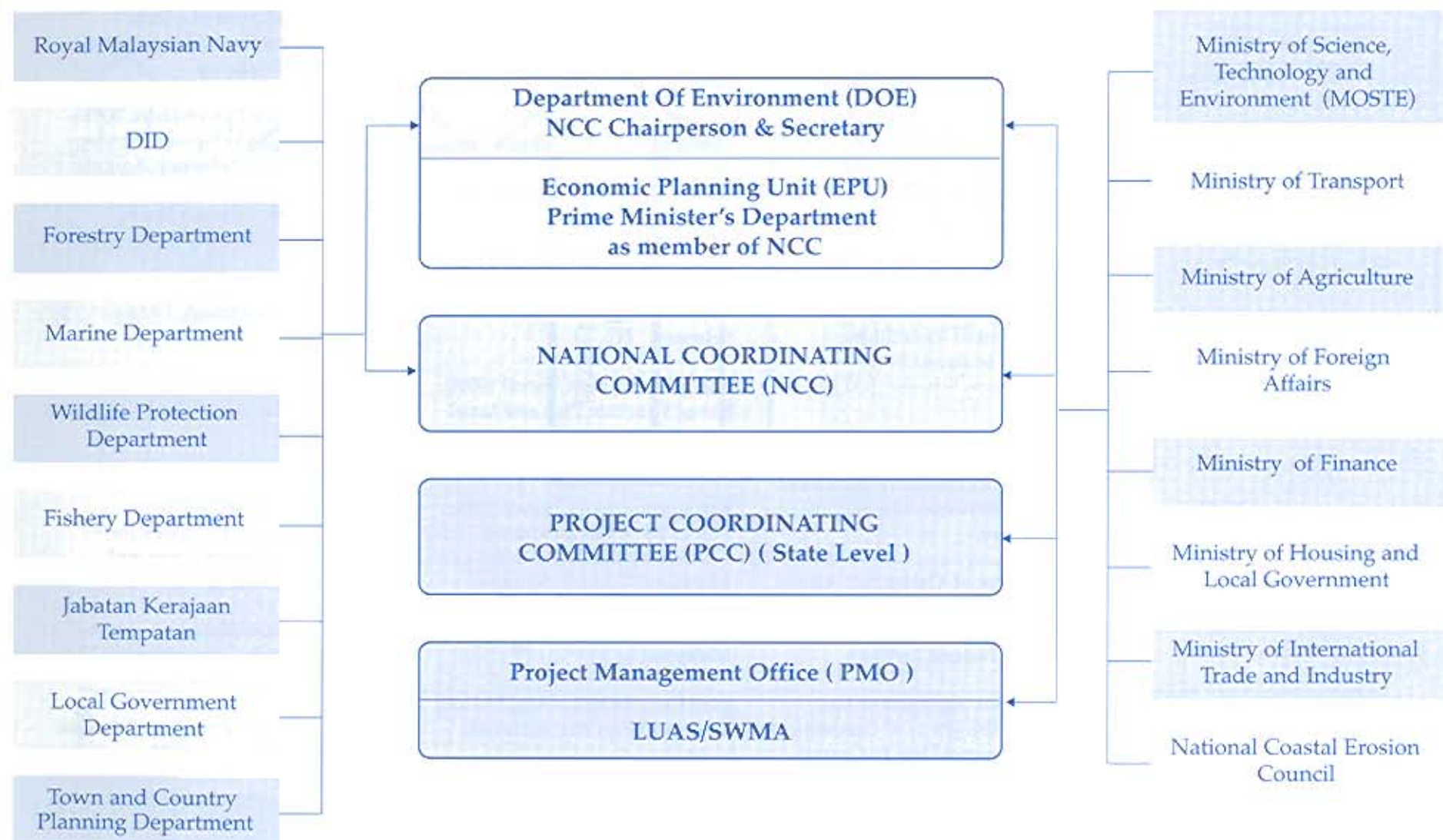


FIGURE 6.3 THE PROJECT COORDINATING COMMITTEE (STATE LEVEL) FOR ICM DEMONSTRATION SITE IN PORT KLANG

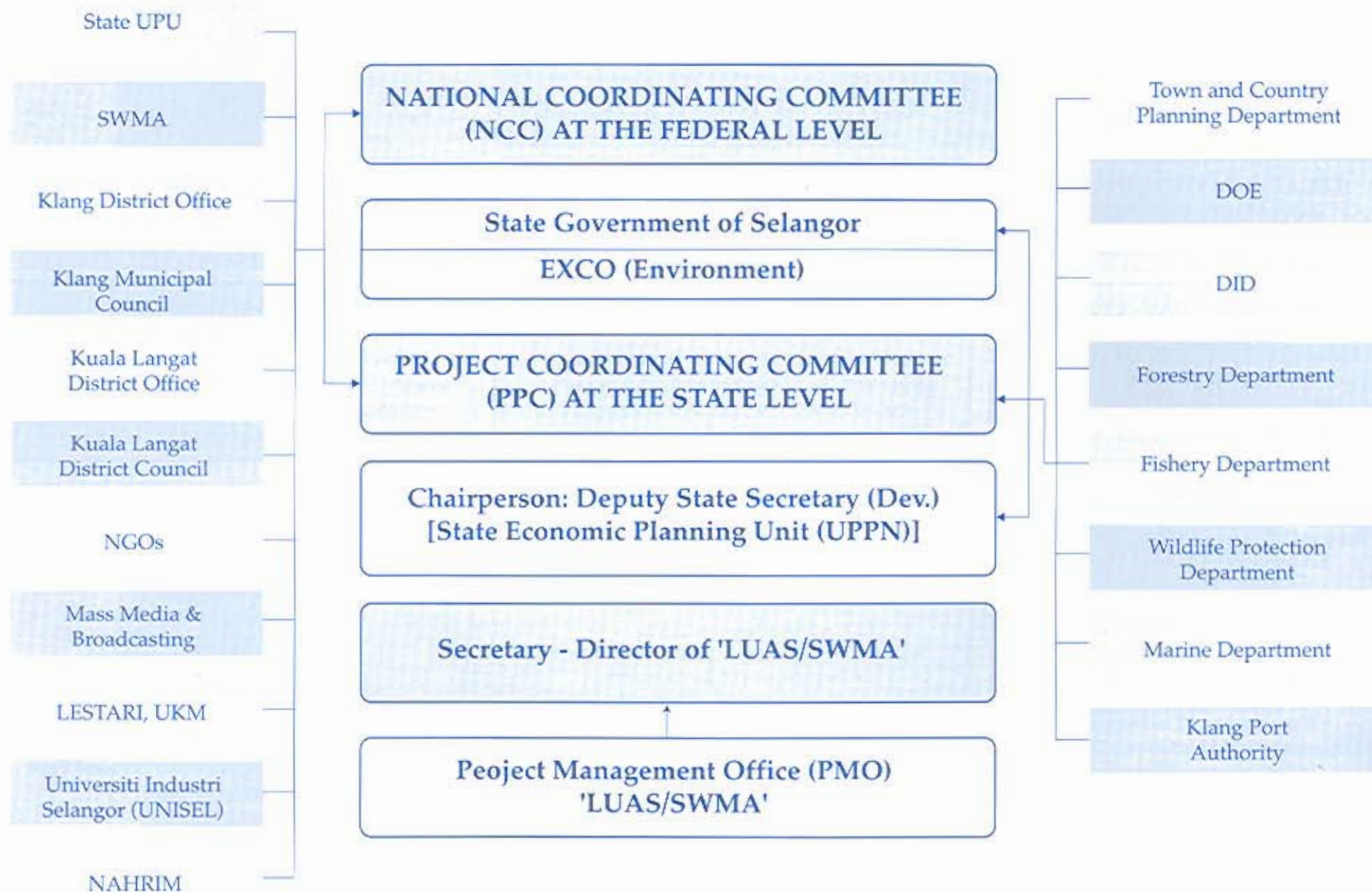


FIGURE 6.4 ORGANIZING COMMITTEE FOR THE ICM PROJECT MANAGEMENT OFFICE (PMO)

FIGURE 6.5 PROPOSAL FOR A STATUTORY ICM MANAGEMENT COMMITTEE FOR PORT KLANG

MAIN STATUTORY MANAGEMENT COMMITTEE FOR ICM PORT KLANG

(A SUB-COMMITTEE OF LUAS'S MAIN TECHNICAL COMMITTEE)

During the inception stage, the Working Committee will be formed according to the arrangements as indicated below. However upon attaining operational stage, additional Working Committees will be established. Committees/Sub-committees for regulating the navigational rules and regulations, developing the fishery industries and fishing community, managing biological diversity and wildlife, regulating the eco-tourism industries and others will be formed according to the needs of the time.

WORKING COMMITTEE

REGULATING POINT SOURCES
POLLUTION & WATER QUALITY

CHAIRMAN: DOE
SECRETARIAT: DOE-LUAS

WORKING COMMITTEE

REGULATING NON-POINT SOURCES
POLLUTION, URBAN DRAINAGE, RIVERS
& COASTAL WATERS MANAGEMENT

CHAIRMAN: LUAS/SWMA
SECRETARIAT: LUAS-LOCAL AUTHORITIES
- DISTRICT OFFICES

WORKING COMMITTEE

REGULATING FLOOD MITIGATION,
IRRIGATION, DRAINAGE AND
COASTAL EROSION

CHAIRMAN: DID
SECRETARIAT: DID-LUAS

MEMBERS OF WORKING COMMITTEES

• State EPU (UPPN) • Klang Municipal Council • Klang District Office • Kuala Langat District Office • Kuala Langat District Council • Port Klang Authority • Town and Country Planning Department • Department of Environment • Department of Agriculture • Department of Irrigation and Drainage • Department of Forestry • Department of Fisheries • Department of Wildlife Protection and National Parks • Marine Department • Non-Government Organization • LESTARI (UKM) • UNISEL, NAHRIM • Print / Broadcasting Media • and others as needed.

STAKEHOLDERS PARTICIPATION COMMITTEE

PRIVATE SECTORS (TRADING & MANUFACTURING ASSOCIATIONS
• SHIPPING & PORT OPERATORS • UTILITY SERVICES CONCESSIONAIRES,
AND OTHERS) • NGOs • CBOs • FISHERMEN ASSOCIATIONS, AND OTHER
MEMBERS OF CIVIL SOCIETIES.