

READING INSTRUCTIONS

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**Shoreline Management Plan**  
and 21-27  
Blueprint for Iskandar Malaysia



# Shoreline Management Plan

## Blueprint for Iskandar Malaysia

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**Public Version**

# **Shoreline Management Plan Blueprint for Iskandar Malaysia**



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- Tanjung Puteri – Tourism Development Strategy Framework for Iskandar Malaysia



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List of Agencies/ departments involved in developing SMP blueprint

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 Marine Department (Southern Region)  
 Department of Fisheries (Jabatan Perikanan)  
 Fisheries Development Authority of Malaysia (LKIM)  
 Johor Tourism Department  
 Department of Agriculture (Jabatan Pertanian)  
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 Central JB Municipal Council (MPJB)  
 Kulai Municipal Council (MPKu)  
 Pasir Gudang Municipal Council (MPPG)  
 Pontian District Council (MDP)  
 Johor Corporation  
 Johor National Parks Corporation  
 Local communities

### Others

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 Save Our Seahorses (SOS)  
 Seaport Worldwide Sdn Bhd  
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 Tanjung Langsat Port (TLP) Sdn Bhd  
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## Foreword

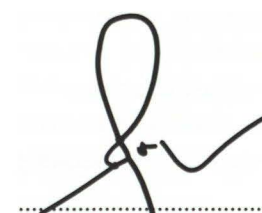
Iskandar Malaysia is a National Project to develop a vibrant new region at the southern gateway of Peninsular Malaysia. A regional authority body Iskandar Regional Development Authority (IRDA) was formed with specific roles to plan, promote and facilitate in which to coordinate the economic, environmental and social planning, infrastructure development and management of Iskandar Malaysia. In fact, blueprints have been developed as subsets or supplementary of Comprehensive Development Plan (CDP) to address the mentioned subjects. Subsequently, IRDA refers to The Comprehensive Development Plan (CDP) as the guiding document in developing Iskandar Malaysia, and subsequent to that, blueprints are prepared as a subset and supplementary document to CDP, which outlines detail findings, strategies, implementation and action plans.

The Shoreline Management Plans (SMP) for Iskandar Malaysia has been prepared to assist the public and private sector and the community to work together in developing and managing the coastline within the Iskandar Malaysia region so that all can benefit in making the region a place to invest, work, live and play.

SMP is developed in order to establish a clear framework of sustainable planning and development policies and programmes for the effective management of Iskandar Malaysia's shoreline to benefit that would benefit the community of Iskandar Malaysia and the nation as a whole. The SMP aims to: conserve, protect and enhance the natural beauty of the shoreline; facilitate and enhance their enjoyment, understanding and appreciation by the public through improving and extending opportunities for recreational, educational, sports and tourism activities; maintain and improve the environmental health of inshore waters affecting the coasts and beaches; protect areas at risk of coastal erosion, marine pollution and other negative environmental impacts and areas with existing settlements; provide opportunities for economic activities; and protect the livelihood and well-being of numerous communities along the shoreline.

Adopting the principles of sustainability, this Plan contains a vision and direction for shoreline management with a strong sense of responsibility to ensure that Iskandar Malaysia's coastline is planned and managed in a good and sensible manner.

Contained in the SMP document are 114 approved policies and programmes to be implemented in the short, medium and long term. It will require the active involvement of all relevant Government agencies, the private sector, Non-Governmental Organisations and the communities to work together to realise these programmes for the benefit of all. Let's work together to proactively manage our shoreline and therefore achieve a region that we want for our future to inherit.

  
 Ismail bin Ibrahim  
 Chief Executive



## Background of IM and IRDA

Launched by the Government in November 2006, Iskandar Malaysia is envisaged to become a "Strong and Sustainable Metropolis of International Standing" set to spur economic developments that actuate Malaysia's global potential.

Iskandar Malaysia is centrally located within South East Asia's new economic zone and a short eight-hour flight radius from Asia's burgeoning growth centres such as Bangalore, Hong Kong, Seoul, Shanghai, Singapore, Taipei and Tokyo.

Besides the strategic location and space for business expansion and quality living, Iskandar Malaysia has a package of good fundamentals and strengths such as existing infrastructure, cultural familiarity, friendly policies and an ease-of-doing business environment based on global best practices.

Driven by nine economic clusters – Electrical and Electronics, Petro and Oleo-chemicals, Food and Agro Processing, Logistics, Tourism, Health Services, Education Services, Financial Services and Creative Industries; Iskandar Malaysia aims to develop a strong, diversified, dynamic and global economy based on the foundations of nation-building; growth and value creation, as well as equitable and fair distribution amongst stakeholders.

There are five key economic zones within Iskandar Malaysia : Zone A – JB City Centre, Zone B – Greenfield of Nusajaya, Zone C – Western Gate Development, Zone D – Eastern Gate Development, and Zone E – Senai-Skudai. In Zone A, the development activities will be focused on : New Financial District, Danga Bay Integrated Waterfront City, Upgrading of Central Business District, Tebrau Plentong mixed development and enhancement of causeway infrastructure connecting Johor Bahru and Singapore. In Zone B, development is centred on the Johor New Administration Centre (JSNAC) at Kota Iskandar, University Park in Edu-city, International Destination resort comprised of outdoor and indoor theme parks, and clean and green factories & warehouses at the Southern Industrial Logistics Clusters area. While in Zone C, the development is focused on the development of Free Trade Zone at Port of Tanjung Pelepas, Petrochemical and Maritime Industrial hub at Tanjung Bin, and Tanjung Bin Power Plants. Zone C also has the three Ramsar sites (Pulau Kukup, Tanjung Piai and Sungai Pulai). With Tanjung Piai being the conservation of RAMSAR called as the Southern-most tip of mainland of Asia, and the good land linkages through Second Link Access to Singapore. Zone D there is a mixed development with City of knowledge in Seri Alam, a Regional Distribution Centre in Kim-Kim, Pasir Gudang Industrial park, Tanjung Langsat Industrial Park, Pasir Gudang Port and Tanjung Langsat Port. The most northern part is Zone E – which included Universiti Teknologi Malaysia at Skudai, Senai International Airport, Senai Cargo Hub and Senai High Technology park and Senai Industrial Parks. Upon completion, the region will boast state-of-the-art facilities, infrastructure that is comprehensive, and toward becoming a one-stop business centre where living, entertainment, environment, and business will converge within a sustainable metropolis of international standing.

Iskandar Malaysia is already attracting an influx of foreign and high level corporate investments without forgetting the domestic investments, through its strategic location and accessibility by land, sea and air. In fact, the Ninth Malaysia Plan (2006- 2010), the Federal government has allocated RM 6.83 billion for infrastructural development for the key success of the vision. The funding has been channelled to develop 30 projects comprising 8 road packages, 12 drainage packages, 6 river cleaning packages, and 4 public housing packages.

The government commissioned a feasibility study on the development of Iskandar Malaysia in July 2005. Then on 30 June 2006 the economic corridor, Iskandar Malaysia (formerly known as South Johor Economic Region – SJER) was established. And a year after the establishment, the Iskandar Regional Development Authority (IRDA) was formed as a statutory Federal government body to execute the Comprehensive Development Plan (CDP) for Iskandar Malaysia, the regional development blueprint.

Iskandar Regional Development Authority (IRDA) is the single authority or single point of reference for coordinating the implementation and approval of development programmes within Iskandar Malaysia. Established by Federal Act of Parliament – IRDA Act 2007 (Act 664), it is a Federal statutory body empowered to plan, promote and facilitate the development implementation of Iskandar Malaysia benchmarking against world standards. IRDA shall put emphasize on the planning for sustainable development, through conservation and equitable distribution of growth while promoting the region to become the preferred place to live, invest, work, and play. IRDA is empowered to :

- Establish national policy directions and strategies that have a direct impact on the development with Iskandar Malaysia.
- Coordinate the performance of development activities carried out by government departments and agencies in Iskandar Malaysia.
- Plan, promote, and facilitate to stimulate and undertake the development in Iskandar Malaysia.
- Act as the principal coordinating agent on behalf of government agencies in relation to receiving, processing and expediting the required approvals.

Three development principles have been the foundation of Iskandar Malaysia : nation building, growth and value creation, and fair distribution among its stakeholders. These principles will blend nicely with IRDA's main role – Planning, Promotion and Facilitation.

### Planning

- To integrate and recommend policies of Federal Government, State Government of Johor and relevant Local Authorities to enhance the well-being of Iskandar Malaysia.
- To identify and develop strategies to enhance infrastructure, skills, science and technology research in the development of Iskandar Malaysia.
- To develop blueprints in order to enhance the current Comprehensive Development Plan (CDP).

### Promotion

- To undertake broad based promotion of Iskandar Malaysia to the general public and potential investors – both local and overseas.
- To drive, coordinate and monitor development of economic sectors, required enablers and social infrastructure.
- To use blueprints as points reference for policies, guidelines, legislations and design instructions for promotional tools.

### Facilitation

- To provide consultation and information on investing in Iskandar Malaysia.
- To act as the principal coordinating agents on behalf of relevant government agencies in relation to receiving, processing and expediting the requisite approvals for investors in Iskandar Malaysia.
- To implement compliance of blueprints in order to fulfil investors' needs and requirement.

IRDA refers to The Comprehensive Development Plan (CDP) as the guiding document in developing Iskandar Malaysia, and subsequent to that, blueprints are prepared as a subset and supplementary document to CDP, which outlines detail findings, strategies, implementation and action plans. IRDA has formulated blueprints to both guide and benchmark the implementation of policies, guidelines, legislations and design instructions as well as strategies on specific subjects such as land use, safety & security, environment and infrastructure to develop Iskandar Malaysia into a strong and sustainable metropolis of international standing.



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## 1.0 Introduction

### 1.1 Background

The 124 kilometres coastline of Iskandar Malaysia from Pulau Kukup to Sungai Johor has diverse natural, man-made and socio-economic features..



Figure 1.1: Iskandar Malaysia strategically located central to Asia Region.

Environmental concerns have often been raised particularly on development taking place along the shoreline that is highly susceptible to damage. Iskandar Regional Development Authority (IRDA) had commissioned Universiti Kebangsaan Malaysia (UKM) to lead a consortium of consultants to address issues relating to conservation, protection and improvement of the environment. The Plan is expected to supplement the proposed initiatives of the coastal area as specified in the Comprehensive Development Plan 2025.

### 1.2 Objectives of SMP

The purpose of the SMP is to establish a clear framework of sustainable policies and strategic programmes for effective management of Iskandar Malaysia's shoreline to benefit the Iskandar Malaysia community and the nation as a whole in the long term. The SMP is to:

- Conserve, protect and enhance the natural beauty of the shoreline.
- Facilitate and enhance people's enjoyment, understanding and appreciation of the coastline through improving and extending opportunities for recreational, educational, sports and tourism activities.
- Maintain and improve the environmental health of inshore waters affecting the coasts and beaches.
- Protect areas at risk of coastal erosion, marine pollution and other negative environmental impacts and areas with existing settlements.
- Provide opportunities for economic activities.
- Protect the livelihood and well-being of numerous communities along the shoreline.

### 1.3 Scope of the SMP

#### 1.3.1 Definition of Shoreline

"Shoreline" is the fringe of land at the edge of a large body of water such as the sea, river or lake. The shoreline of Iskandar Malaysia stretches from Pulau Kukup on the west to Sungai Johor on the east. The management area covers 1 km inland and 1 km offshore from the Mean Sea Level (MSL). The delineation of the boundaries is defined by:



- Administrative boundaries.
- Man-made structures.
- Environmentally Sensitive Area and natural hazards.
- Gazette protection zone such as mangrove forest reserves.
- Coastal processes and maritime influence, viz. bathymetry, Johor Port limit and national boundary.

#### 1.4 Structure and Outline of the SMP

The SMP is structured to capture the specified scopes and tasks defined by IRDA, which comprises three volumes: Volume 1 (Shoreline Management Plan); Volume 2 (Public Education, Awareness Programmes and Campaigns in Environmental Management); and Volume 3 (Pilot Projects). Scope of study is shown in the following table.

Table 1.4: Scope of study

Baseline Reports	Sectoral Reports	Shoreline Management Plan
Data	Coastal Processes	Management Units (MU): <ul style="list-style-type: none"> <li>• Objectives</li> <li>• Strategies</li> <li>• MU Description</li> <li>• GIS maps</li> </ul>
Modelling	Water Quality & Pollution	
Cell by Cell Description	Marine & Intertidal Habitats	
	Legislation and Administration	
	Ports and Harbours	Proposals for public education, awareness-raising and involvement in environmental management.
	Tourism	
	Fisheries and Aquaculture	
	Socio-Economy of Coastal Communities	

## 2.0 Vision

The SMP key policies are set out in line with the three-tier development plans (district, local and action area plans), where it concerns the protection, conservation and improvement of the coastal environment. A number of key strategies defining the vision are conceptualized in terms of social, economy and environment which are represented in zones:

- Protection of the natural mangrove forested coastline along Pulau Kukup, Sungai Pulai and Sungai Johor.
- Preservation and improvement of the waterways of the Straits of Tebrau.
- Conservation of water catchment areas of Sungai Johor.
- Well-protected and enhanced environment for urban uses such as commercial, housing and recreational.

#### Guiding Principles

The sustainability concept as applied for the SMP is to seek to create policies and strategies where the proposals are environmentally sustainable, socially equitable and economically viable. The three elements in the concept of sustainability i.e. environment, social and economy are highly inter-dependent as in Figure 2.1.

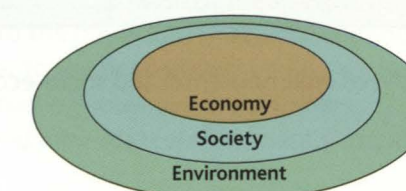


Figure 2.1: Relationship between economy, environment and social development.

The interaction involves built and financial capital; human and social capital; and natural capital that are given consideration in the formulation of policies and strategies (Figures 2.2a and 2.2b).

The evaluation process was then applied to the adjacent land side activities where land was assessed according to its natural, man-made or socio economic environments. Attention was given to legal provisions with particular emphasis being given to the status of local authority land use planning provisions, policy provision and man-made structures. Where applicable, the local communities' use of the land and sea also was given weight in the assessment.

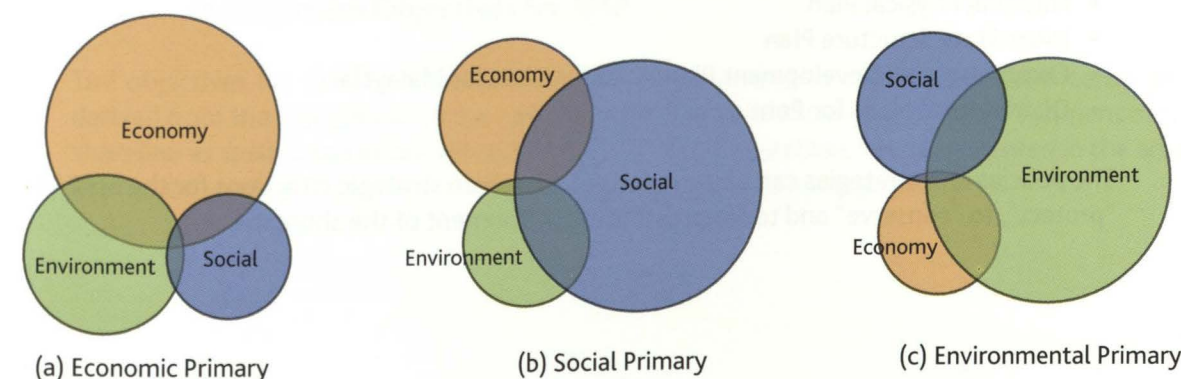


Figure 2.2a: The primaries of economy, social and environment.



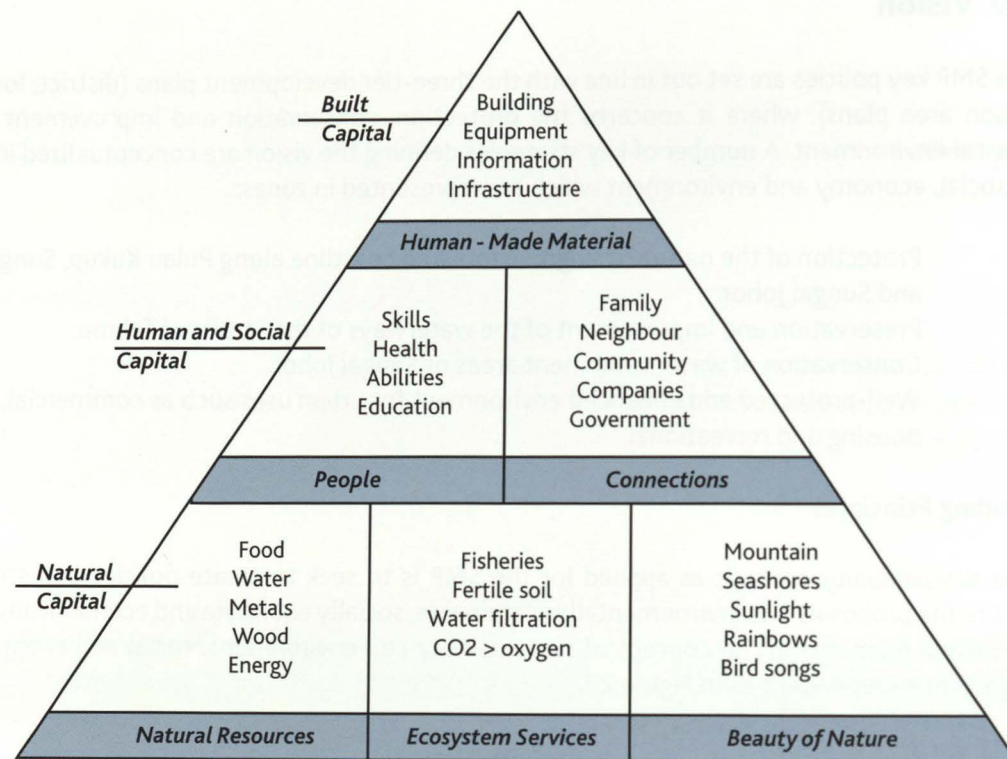


Figure 2.2b: Hierarchy of environmental and socio-economic interactions.

### 3.0 Management Strategies

Early inputs into the Plan included taking into account existing laws, policies, regulations and guidelines. The assessment also included workshops and discussions with relevant stakeholders, government agencies, service providers and local authorities.

#### 3.1 Guiding Policies

Key documents for setting the strategies include:

- National Policy on the Environment
- National Physical Plan
- Johor State Structure Plan
- Comprehensive Development Plan 2025 for Iskandar Malaysia
- District local plans for Pontian and Johor Bahru

The policies and strategies can be summarized into three strategic directions for the SMP i.e. to "protect", to "conserve" and to "improve" the environment of the shoreline.

### 3.2 Selection of Strategic Solution

Strategic planning begins with problem identification, cause determination, defining objectives and concluding with selections of solution. The formulation of the management strategies are:

- To react - Authorities would react to a particular set of circumstances where it is envisaged that a particular issue needs to be addressed.
- To anticipate - Authorities would proactively address an issue to either prevent further deterioration of an environment or to enhance the performance of an existing process.
- Do nothing - The interaction of the various processes are in balance and that there is no requirement by the authorities to respond to a problem nor is there a need to proactively change the existing natural, social or economic environments.

Strategic solutions could include structural and/or non-structural measures. For example, coastal erosion can drastically change land forms, land location, land usage and land ownership. Impacts of such changes can directly or indirectly affect physical, economic and social values. Hence, mitigating coastal erosion problems can include:

a) Structural solutions are measures that:

- Control erosion.
- Make changes to the physical character of the shoreline.
- Provide a barrier to the open waters while clearly defining the shoreline.
- Institute construction-intensive programmes.
- Induce short- and long-term environmental impacts.

b) Non-structural solutions are measures that:

- Control land usage.
- Maintain unchanged the shoreline physical character.
- Do not provide a barrier to the open waters.
- Do not require construction.
- Normally do not induce environmental impacts.

Examples of structural measures are revetments, sea-walls, breakwaters, groins and protective beaches. Non-structural measures include construction setback limit, land use zoning, relocation and 'do-nothing' approach.

### 3.3 Management Objectives for SMP

The objectives for the Shoreline Management Plan respond to the strengths and constraints derived from the assessment of the natural, man-made and socio-economic environment of the shoreline as spelled out in the subsequent part. A set of objectives has been created in the areas of physical, ecological, socio-cultural and economic for each management unit.



These sectors include:

- Physical - Including morphology, coastal processes, development control, landuse and water quality related objectives.
- Ecological - Including marine, inter-tidal and terrestrial habitats and biological resources.
- Socio-cultural - Including welfare of the coastal population.
- Economic - Including commercial objectives.

## 4.0 Management Cells

### 4.1 Boundaries

The managed area covered by the SMP is about 1km inland and 1km offshore from the Mean Sea Level (MSL). The boundaries have been defined by:

- Administrative boundaries such as the local authority boundaries and planning blocks established by the local plans.
- Man-made structures such as roads and railways.
- Environmentally Sensitive Areas and natural hazards.
- Gazetted protection zones that include mangrove forest reserves, permanent forest reserves, water catchment areas and other areas published in the State Gazette.
- Coastal processes and maritime influences.

Based on the above, an area of only 90 hectares has been delineated to form the shore management area.

### 4.2 Main Programme Implementations

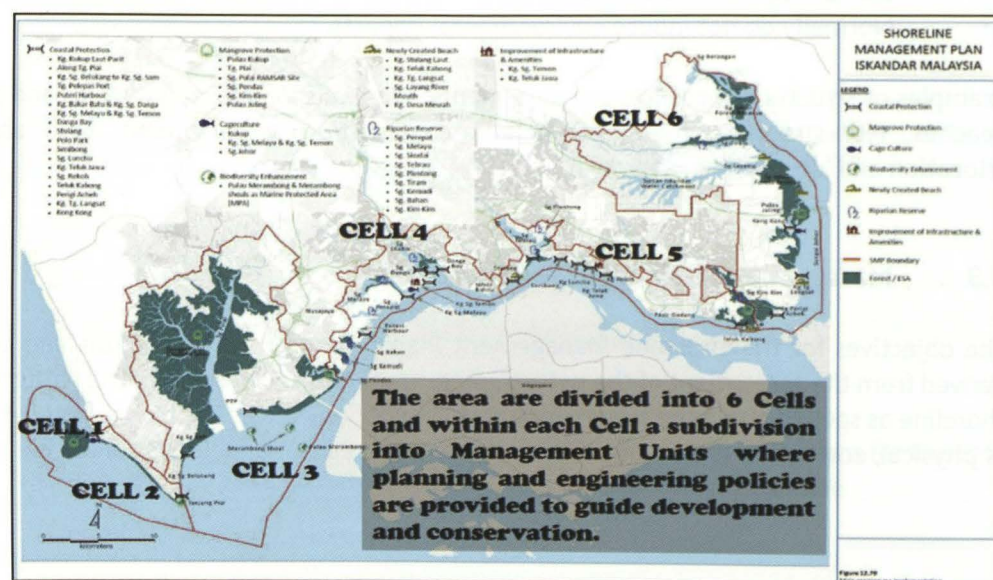


Figure 4.1: Six cells in Iskandar Malaysia Shoreline Management Plan.

### 4.3 Programmes for Management Unit 1 and 2

Below are the detailed programmes for Management Unit 1 and 2 as shown in Figure 4.2. Detailed programme/objectives for Management Unit 3, 4, 5 and 6 are given further in the blueprint.

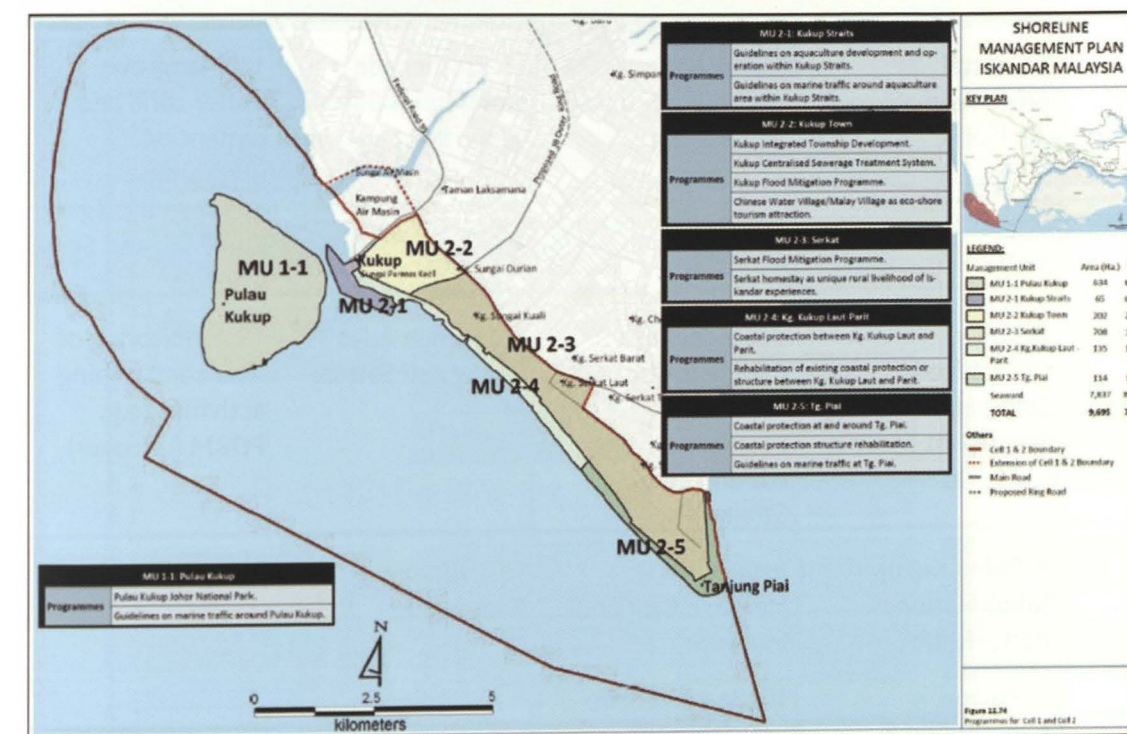


Figure 4.2: Area of the programmes for Management Unit 1 and 2.

The overall Management Unit for Iskandar Malaysia is divided into 32 Management Units, distributed throughout six (6) Cells.

## 5.0 Management Units

The baseline study of Iskandar Malaysia's coastline has highlighted a range of issues expressed in the present document as generic management objectives for the four main environmental sectors:

**Physical/Chemical:** this sector includes morphology, met-ocean conditions, construction and water quality-related objectives.

**Biological/Ecological:** this sector includes objectives relating to the marine, intertidal and terrestrial habitats and biological resources.

**Socio-cultural:** this sector includes objectives relating to the economic and social welfare of the coastal population.

**Economic:** this sector is primarily related to State-wide commercial objectives.



Short, medium and long-term priorities are shown in the following table.

Table 5: Short, Medium and Long-term Priorities.

High (2011-2015)	Medium (2015-2020)	Low (2020-2025)	Quick Wins (Oct 2010-Q2 2011)
1. Coastal protection along Tg. Piai	7. Serkat community- based homestays.	11. Promenade along Johor Bahru Waterfront	14. Mangrove buffer zone and replanting programme between Kg. Sg. Belukang and Sg. Chokoh
2. Kukup Centralized Sewerage Treatment System	8. Guidelines on marine traffic around aquaculture area within Kukup Strait	12. Rumah Adat Orang Asli Seletar	15. Monitoring of river sand mining activities (e.g. PDRM Air cover)
3. Pulau Kukup Johor National Park - RMP	9. Sg. Pulai Heritage Park and Museum	13. Tebrau Boardwalk	
4. Pulau Merambong & Merambong Shoal as a Marine Protected Area	10. Beach rehab/ nourishment fronting Kg. Stulang Laut		
5. Improvement of infrastructures and amenities in traditional villages			
6. Mangrove Heritage Project: Estuary of Sg. Johor, Sg. Kim Kim & Pulau Juling			

## 6.0 Plan Implementation

### 6.1 Role of Iskandar Regional Development Authority (IRDA)

IRDA is the key management agency that oversees the implementation of the policies and proposals for the Iskandar Malaysia region, as described in Figure 6.1.

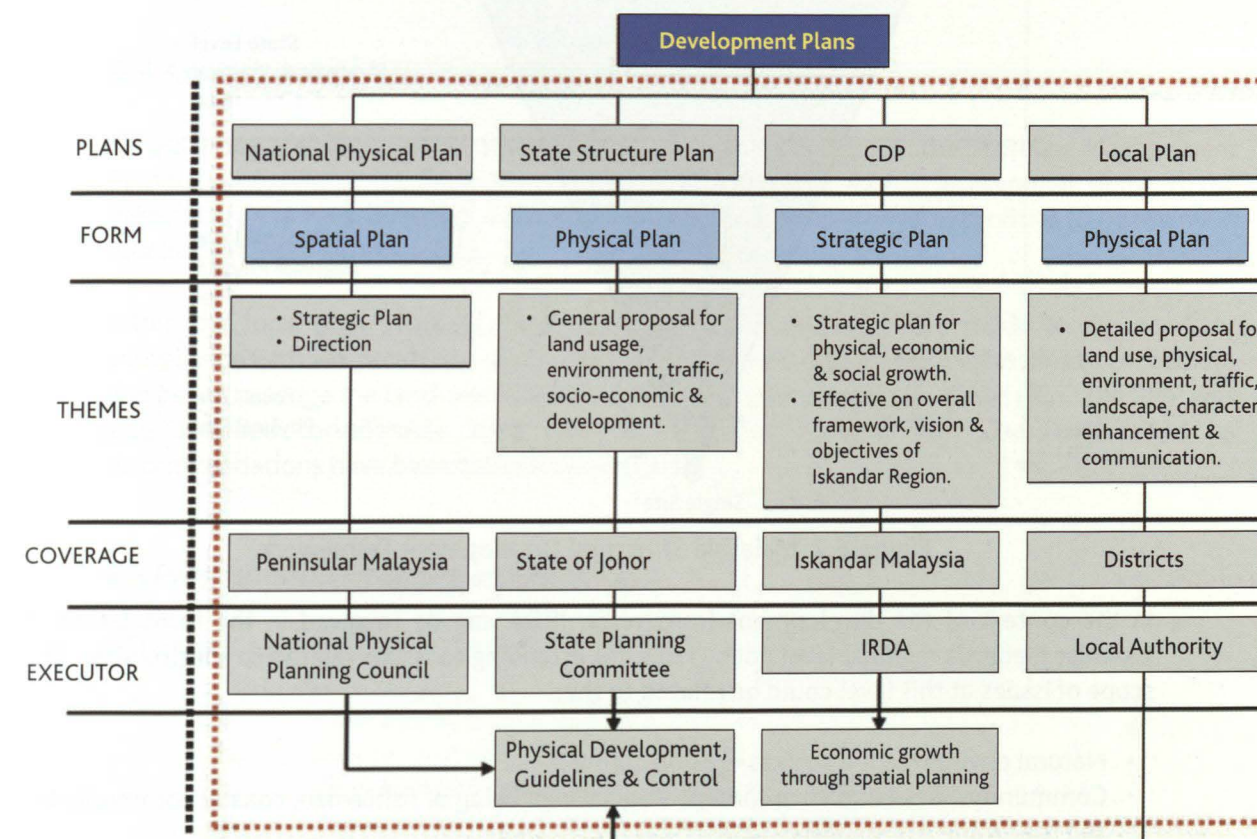


Figure 6.1: Development plans framework in Malaysia.

The powers assigned to IRDA are to plan, promote and facilitate, which require government agencies to cooperate in the management of the development process in Iskandar Malaysia.

### 6.2 Plan Implementation – Role of IRDA

IRDA's charter is to plan, promote and facilitate development and its legislative powers require other government agencies to assist, cooperate and coordinate. These provisions operate within an existing administrative framework of agencies with a multitude of roles and responsibilities. The range and role of national to local level agencies is illustrated in the Figure 6.2.



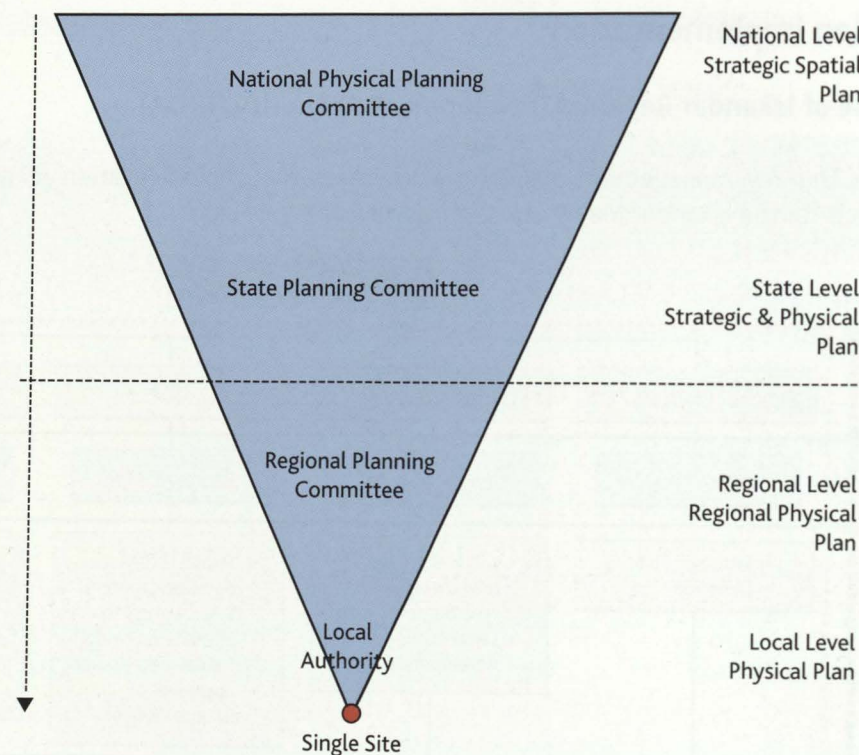


Figure 6.2: Malaysia Structural Development Framework.

In the context of the development framework, IRDA can be involved in the formulation of Iskandar Malaysia regional level policy issues to attending to issues related to specific sites. The scope of issues at this level could be related to the:

- Natural environment – such as erosion control.
- Community-Social and environment – Social well being of fishermen, coastal communities and the Orang Asli villagers.
- Economic matters – the operation of the ports, provision of infrastructure or assessing development applications.

### 6.3 Shoreline Management Plan Legal Status

The SMP is a document that is intended to be used to assist in the evaluation of either private sector or government-initiated development proposals in the shoreline zone. The document also designates areas for protection and reiterates the protection and preservation of existing gazetted areas such as Ramsar, Forest Reserves and ESAs.

#### 6.3.1 Statutory Document

This process would require IRDA to identify which act (the enabling legislation) would best meet the administrative needs of the plan.

#### 6.3.2 Quasi Statutory Document

This process requires the document to be assessed and adopted as policy for the State Planning Committee and the State Exco Committee. The SMP has been adopted by the State Planning Committee in early 2011 and therefore carries considerable weight in the determination of planning proposals.

### 6.3.3 Guidelines

The process requires presentation to and adoption by the management of IRDA. Its administrative status relies substantially upon voluntary compliance with the provisions of the document. Its endorsement by SPC therefore means that the SMP must be referred to when planning and other relevant proposals are being considered.

### 6.4 Assessment of Administrative Framework

An assessment of the possible administrative arrangement suggests the Shoreline Management Plan to be adopted by the State Government as policy and for IRDA to be in conjunction with the departments of town planning, environment, infrastructure and local authorities to be the main administrators of the proposals.

When the local plan proposals were revised, specific reference was made to the need for compliance with the provisions of Shoreline Management Plan for the authorities to coordinate and better manage the land-sea interface and the sea side component of the plan. The SMP was also provided considerable input into the National Physical Plan, 2nd Review and its recommendations have been taken into account.

### 6.5 Programmes: Ordering and Ranking

IRDA needs to recompile the programmes according to the following strategies:

- a. Core administrative agency.
- b. Degree of inter-agency cooperation required.
- c. Programmes presently part of an agency programme.
- d. The need for and size of funds required to execute.
- e. Prioritising programmes by time-frame.

#### Ranking

The programmes apart from being 'ordered' ranked according to impact on the natural, social or economic environments. The process would be carried out using tools such as enhanced cost-benefit assessment or other project assessment arrangements.

To implement the planned programmes, the options available to IRDA include the following roles:

- IRDA as Project Manager/Leader.
- IRDA as Coordinator/Facilitator.
- IRDA as Participant.

### 6.6 Key Performance Indices

The implementation of the Shoreline Management Plan and execution of the programmes should be subject to performance evaluation. This evaluation process should be carried out by IRDA and should encompass all the agencies charged with leadership or participation in the programmes.



## 6.7 Plan Review

The review process is multi-tiered. The lowest level tier would be linked to annual assessment of performance using the Key Performance Indices. The second level would be say biannual review of the plan content and relevance where the intent would be to fine-tune policy proposals. The third level review would be to carry out an extensive review of the Shoreline Management Plan.

## Volume 2: Public Education, Awareness Programmes and Campaigns Environmental Management

The implementation of Shoreline Management Plan for Iskandar Malaysia requires the participation of related technical agencies, Local Authorities or State/Federal Governments and local residents.

Residents residing along the coastline and designated buffer for coastal zone protection play an important role in pollution and erosion control through awareness campaigns, aimed at increasing their knowledge about the importance of protecting the coastal zone as part of the ecosystem.



**Figure 1.0:** Fishery activities along the coast of Pontian. Fishery is the major lifeline for coastal communities in Johor.

## 1.1 Background

The coastal communities are made known of the impact of the programme on their livelihood in order to shore up support for the proposed programmes for the coastal zone. In order to gauge the level of support for the Shoreline Management Plan, a survey was carried out, targeted at a selected group of coastal communities.

The scope of public education, awareness programmes and campaigns in disseminating the message of coastal covers various modes of information gathering, dispersal and utilization. Instruments such as the Internet, printed and electronic media play an integral part of the awareness programmes for the Shoreline Management Plan.

## 1.2 Objectives

The proposal objectives are:

- Identifying issues affecting coastal communities within the cells.
- Providing platforms for engagements with the coastal communities in disseminating information about coastal conservation and protection.
- Proposing educational programmes for the public on the importance of conserving the coastal area.
- Incorporating more robust public participation in determining policy and programme implementation through awareness programmes and campaigns in environmental management.

## 1.3 Methodology

Public participation as a process is embedded in the project implementation flowchart. There are three stages of programme implementation identified, namely:

- Pre-development.
- Development.
- Post-development.

## 1.4 Stakeholders



The stakeholders within the coastal communities need to be identified. The awareness and public participation programmes are tailored to cater for the following types of stakeholders:

- Coastal communities
- Government agencies
- Local Authorities
- Non-governmental organizations
- Private Entities

## 2.0 Findings from the Survey

### 2.1 Background

The survey and needs assessment study carried out has identified the main communities that reside along the coastal areas of Iskandar Malaysia. Several pertinent environmental related issues have been identified. The communities identified are Malay villagers, Orang Asli, Chinese and Indians.





## 2.2 Main Issues

### Waste Effluent

Poor management of waste output especially from the seafood restaurants, private homes and backyard fish processing centre in Cell 2 Sungai Permas Kechil - Tanjung Piai, Cell 4 Sungai Penda River Mouth - Causeway and Cell 5 Causeway - Sungai Kim Kim.

### Social and Public Space

Social and public spaces are poorly managed. The social and public spaces are not people-friendly.

### Villagers Relocation

Uncertainty over future relocation of Kampung Skudai Kiri villagers due to scarcity of information disseminated to the people and conflicting information received by people from various sources pertaining to the relocation plan.

## 2.3 Recommendation

The 4E (Engineering, Enforcement, Education and Engagement) approach is recommended in tackling the issues in the region. It is also important to incorporate the participation and involvement of stakeholders such as local council/government agencies, private sectors, non-governmental organizations and coastal communities with IRDA as the lead body and coordinator.

### 2.3.1 Engineering Approach

This approach uses technology in tackling issues of waste effluent management and environmental pollution:

- Install proper wastewater processing unit.
- Build additional modern sewerage treatment plants.
- Provision of facilities and public amenities in the targeted areas.
- Providing shelters, benches and public toilets along the stretches of beaches frequented by members of the public.

### 2.3.2 Enforcement

The laws strictly enforced and the maintenance culture of social and public spaces promoted:

- Local council enforces fines on litterbugs.
- Device a reward programme for catching litterbugs.
- Erect multilingual signages at village settlements, public beaches and idle lands.

- Local council monitors regular scheduling of solid waste collection in the targeted areas especially the Orang Asli settlement in Cell 4 and Cell 5.
- Local council replaces rubbish chutes at the flat area in Stulang near The Zon Free Duty Complex in Cell 5.
- Plan with the local council for regular maintenance of cleanliness along the shoreline through planned programmes with the cooperation of private sector and coastal communities.

### 2.3.3 Education

Activities in campaigns used various forms of written, verbal and audio visual messages. Among the campaigns that can be planned and implemented are:

- Anti-litter campaign for general public with the aim of increasing awareness on cleanliness of the public and social spaces;
- Use garbage bin campaign to educate the public on proper disposal through the usage of garbage bins. The targeted group is the Orang Asli community in Cell 4 and 5; and
- 'Healthy Children, Healthier Family' campaigns at villages, Orang Asli settlements and schools.

### 2.3.4 Engagement

IRDA needs to establish itself as a household brand name among the public through regular engagements with the communities either directly or via mass media and new media. Among the recommended strategies are:

- Adoption of selected villages by private sectors and educational establishments.
- Developing a website (other than the present IRDA's web site) as an interactive cyber space platform for IRDA to interact with the public.
- Plan a special feature on relevant topics to be published in mainstream and vernacular newspapers. Some guidelines to be followed:
  - o Participate in 'Jom Heboh' event organised by TV3 and other events by RTM; and by having exhibitions about Iskandar Malaysia region and its communities.
  - o Special appearance on popular television talk shows in Astro Awani and RTM to reach out to the public.
- Frequent group meetings and dialogues with the communities on issues concerning both sides.
- Organise outreach programmes with the communities:
  - o Mobile clinics which operate from a modified van that offer e.g. free health checks for residents in the targeted areas.
  - o Programme 'Jelajah Kesihatan', which offers health inspections to detect diseases and its symptoms among the local residents.
  - o Monthly gotong-royong event involving residents cleaning their coastal surroundings for better visual environment.
  - o Study tour to give direct exposure to the local leaders on the roles of IRDA in the development of Iskandar Malaysia.
  - o Open house event during Hari Raya Aidilfitri, Chinese New Year, Deepavali and Christmas within the targeted communities. This programme is important in fostering closer ties and helping to build a united family, community and IRDA - One Iskandar One Malaysia.



### 3.0 Details of Awareness Programmes

#### 3.1 Iskandar Malaysia in Media

##### 3.1.1 Objectives

- To provide a platform for IRDA to share issues of mutual concern with the public;
- To serve as a bridge to foster good image of IRDA among the public; and
- To position IRDA as a household brand among the public.

##### 3.1.2 Partners

- Community leaders e.g. JKKK.
- Members of Parliament.
- Representatives from the community.
- Media organisations.

##### 3.1.3 Type of Media

- Printed media
  - a. Mainstream and vernacular newspapers.
  - b. Targeting educated segment of the general public.
  - c. Action plan:
    - i. Write topics on issues faced by the communities.
    - ii. Solutions by IRDA to solve the issues.
    - iii. Highlight the success stories of communities.
    - iv. Do feature writings or special feature editions.
    - v. Hire a competent writer in media writings.
    - vi. Timeframe: Weekly for the first year and once a month thereafter.
- Electronic media
  - a. TV1 and TV3 (Bahasa Malaysia) and Astro Awani (English).
  - b. General public from lower to higher educated segment.
  - c. Type of programmes: Current issues talk show on TV1, Majalah 3 on TV3 and special feature in Astro Awani.
  - d. Action plan: Topic covered in these television talk shows include:
    - i. Roles and action plans adopted by IRDA to preserve the environment.
    - ii. Roles of the communities in maintaining cleanliness from Islamic perspectives.
    - iii. Special feature on some unique and interesting places.
    - iv. Timeframe: The schedule of this special appearance on television talk show should be once a month over a particular television station.

##### 3.1.4 Expected Outcome

- Continuous projection of IRDA's image to the public.
- Minimizing public negative perception on IRDA.

### 3.2 Iskandar Malaysia in Community

#### 3.2.1 Kampung Skudai Kiri Dialogue Session

- Objectives
  - a. As a forum to discuss relocation plan.
  - b. To clear any misunderstanding among the community.
  - c. To find consensus on the solutions.
- Partners
  - a. Community leaders e.g. JKKK and local opinion leaders.
  - b. Members of parliament/local assemblymen.
  - c. Representatives from the community.
- Timeframe

The first dialogue should be held immediately and subsequently followed by another dialogue if the need arises.

- Action plan
  - a. Establish a committee in IRDA to plan for the dialogue.
  - b. Contact the participants.
  - c. Schedule the dialogue in terms of date and venue.
  - d. Prepare the agenda.
  - e. Implement the dialogue.
  - f. Follow up.
- Expected outcome
  - a. Public trust towards IRDA.
  - b. Mutual understanding.

#### 3.2.2 Gotong-royong

- Objectives
  - a. To engage the communities in shared responsibility.
  - b. To foster closer rapport between IRDA and local community.
  - c. To cultivate the culture of mutual cooperation.





- Partners

- Local communities.
- Local council.
- Non-governmental organisations.

- Location

- Orang Asli settlement areas of Kampung Sungai Temon Baru in Cell 4 and Kampung Teluk Jawa and Kampung Sungai Masai in Cell 5.
- Kampung Skudai Kiri in Cell 4.

- Timeframe

Every two months but the first gotong-royong should be held immediately as these places are littered with rubbish.

- Action Plan:

- Form a committee comprising of IRDA, local council and local communities.
- Wide publicity on the event.
- Provide tools and services for the event.

- Expected Outcome

Active involvement of the communities in maintaining cleanliness.

### 3.3 Iskandar Malaysia and Environment

IRDA focuses attention on maintaining cleanliness, which may lead to a healthier community and region.

"Our Environment, Our Responsibility" Carnival

- Objectives

- To increase awareness on cleanliness of the public and social spaces.
- To educate the public in proper use of garbage bin.
- To enlighten the public on their role in keeping the public and social spaces clean and beautiful.

- Partners

- Local council.
- Orang Asli Affairs Department.
- Members of parliament/assemblymen.
- Private entities.
- Non-governmental organization.
- Local community.

- Location

- Flats at Stulang.
- Kampung Senibong in Cell 5.
- Orang Asli Settlement areas of Kampung Teluk Jawa and Kampung Sungai Masai in Cell 5.

- Action Plan

- Seek cooperation and participation from the programme partners.
- Wide publicity to attract participation from programme partners.
- Activities:
  - Talks by local council/government agencies on proper ways of solid waste disposal.
  - Discussion on hygiene, clean water and air.
  - Educational session with children on how important and simple it is to maintain clean environment.
  - Exhibition on pollution and deteriorating environment through posters/pamphlets.
  - Treasure hunt on environmental theme.
  - Sale of flowers/tree and food.

- Timeframe

2-day event conducted annual.

- Expected Output

- Cleaner environment.
- More responsible citizen.
- More united family, community and IRDA.

### 3.4 Iskandar Malaysia for Health

A collaborative effort between IRDA, private pharmaceutical companies, private medical centres and health-based non-governmental organizations will take the form of mobile clinic which operates from modified vans that offer free health and dental checks for residents in the targeted areas.

- Objectives

This 'Jelajah Kesihatan' programme will offer free health screening and dental examination. It will also offer guidance and support for terminally ill residents through input from non-governmental organisations.

- Partners

- Pharmaceutical companies.
- Dental care products manufacturers.
- Government/Private medical centres.
- Non-governmental organisations.



• Action Plan

- Get sponsor for the vehicle from automotive companies.
- Modify the vehicle to accommodate storage for medical supplies, folding chairs and beds for check-up, wash basin and ample space to carry out the minimum a nurse, doctor and a driver.
- Get medical supplies sponsorship from pharmaceutical companies.
- Get volunteer doctors and nurses from medical centres and schools as well as health counsellors and therapists from non-governmental organizations.
- Arrange with local community leaders for best sites mobile health vehicles to operate.
- Disseminate information on visit schedules through local radio, newspapers, JKKK and places of worship.

• Expected Outcome

- These mobile health vehicles complement the Healthy Lifestyle talks.
- A free medical care that comes to the community will be in favour of IRDA.
- Local community members benefit from these health and dental care visits to their areas.
- Healthier residents of Iskandar Malaysia.

### 3.5 Iskandar Malaysia Online

Develop a website, other than the present IRDA's website as an interactive cyber space platform for IRDA to interact with the public.

## Volume 3: Pilot Project

### 1.0 Pulau Merambong and Merambong Shoals (MU 3-9)

#### 1.1 Introduction

Pulau Merambong, located at the southern part of the overall Shoreline Management Plan (SMP) for Iskandar Malaysia (IM) demarcates the Malaysia-Singapore border near Tuas. This uninhabited island is only vegetated by patches of mangroves and shrubs.

There are two sandy shoals found closer to the mainland; Merambong and Tanjung Adang Shoals, which are located about 2 km adjacent to the Port of Tanjung Pelepas and about 100 m from the mouth of Sungai Pendas as shown in Figure 1.1. The island is covered by different types of soil material; marine clay in the coastline area, fine-grained sediment at littoral area, and sandy material within the Western Johor Strait.

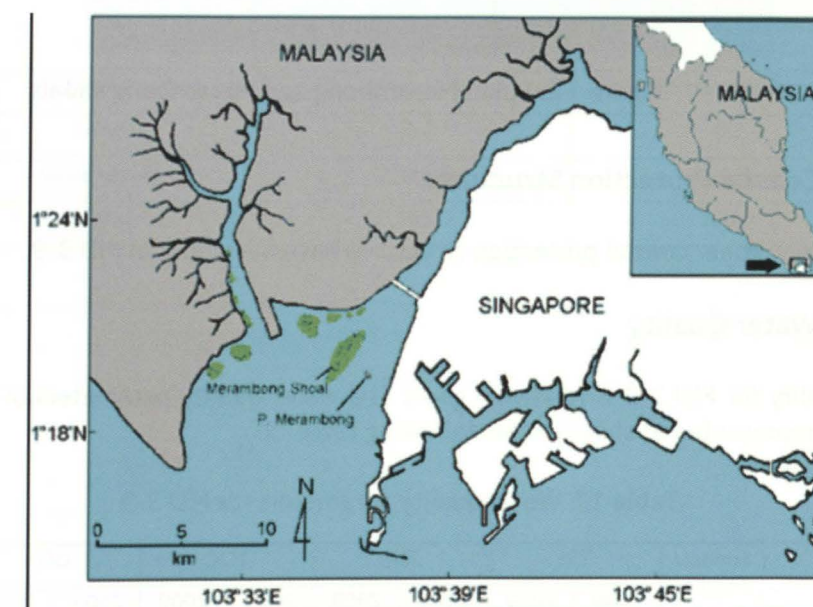


Figure 1.1: Map of the proposed Marine Protected Area

Designated under Management Unit (MU 3-9) Merambong, the area comprises the following attributes:

- It covers an area of 1,110.6 hectares (approximately 2,733 acres).
- It holds a lighthouse at the south-eastern tip of the island.
- It is designated to protect marine flora and fauna, especially seagrass bed.
- It is classified as ESA Rank 1, which disallows any development except for low impact nature tourism, research and education.
- It functions as a feeding ground for various animal species and an aid in stabilization of the near shore sediments.
- It is also a landing ground for migratory birds and local species.



## 1.2 Description of MU 3-9

### 1.2.1 Site Location

Pulau Merambong is situated in the southwest of Johor, about 8.4 km from Pendas jetty and 5.5 km from the port of Tanjung Pelepas. Merambong shoal is approximately 3.9 km from the Port of Tanjung Pelepas and 2.2 km from Pulau Merambong as shown in Figure 1.2.

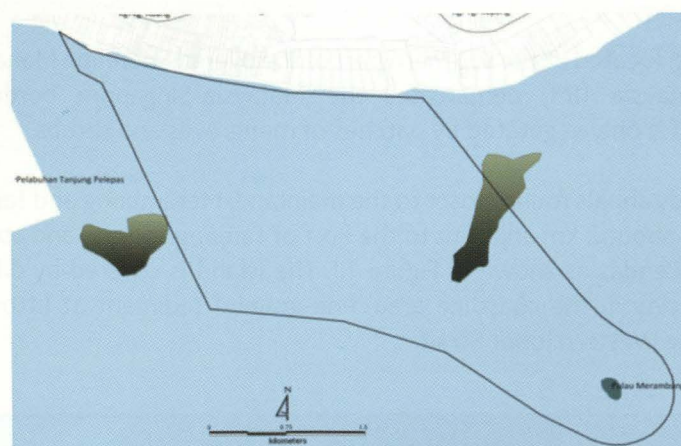


Figure 1.2: Pulau Merambong and Merambong shoals

### 1.2.2 Coastal Protection Structures

Currently, no proper coastal protection structures have been built in MU 3-9.

### 1.2.3 Water Quality

Water quality for MU 3-9 is relatively good. The water quality parameters of the surrounding water are represented as shown in the following Table 1.1.

Table 1.1: Water quality parameters for MU 3-9

Station	Surface/ Middle/ Bottom	TSS		TUR		TOC		DO	
		2008	2009	2008	2009	2008	2009	2008	2009
W6	S	17.50	52.42	2.03	2.24	1.00	1.25	5.83	6.10
	M	26.17	47.25	2.01	2.30	1.00	1.50	5.83	5.93
	B	19.50	44.92	2.10	3.43	1.83	1.17	5.59	5.75
W7	S	17.17	47.42	2.01	2.54	1.00	1.42	5.97	6.00
	M	14.69	41.00	2.28	2.53	1.00	1.25	5.97	5.67
	B	22.65	37.42	2.58	2.86	1.00	1.42	5.84	5.76
W8	S	20.62	47.82	2.08	2.20	1.08	1.27	5.95	5.80
	M	17.18	49.64	2.13	2.55	1.00	1.82	5.95	5.61
	B	20.36	60.45	2.10	2.73	1.00	2.00	5.66	5.47
W9	S	21.92	43.20	2.00	2.28	1.08	1.36	5.81	5.84
	M	19.88	58.90	2.08	2.51	1.08	1.73	5.81	5.72
	B	23.40	54.60	2.53	3.32	1.08	1.09	5.62	5.59

### 1.2.4 Human Environment

There is no human settlement in MU 3-9.

### 1.2.5 Proposed Development

No major proposed development has been initiated in this area, but a small platform is to be built near Merambong shoal under the Ministry of Natural Resources and Environment Research grant, to observe the dugong's presence and monitoring of seagrass bed.

### 1.2.6 Conflicting Issues

The operation of Port of Tanjung Pelepas seems to be the main threat to the environment of this area, especially in preserving the seagrass bed of Merambong.

### 1.2.7 Land Use

99.7% of the overall area which comprises 1,110.6 hectares is covered by water bodies. Refer to the Table 1.2 as below.

Table 1.2: Landuse for MU 3-9

Landuse	Area (ha)	Percentage (%)
Forest	3.4	0.2
Water bodies	2,185.6	99.8
Total	2,189.0	100.0



### 1.3 Management Strategy for MU 3-9

Management Unit Identification	MU 3-9: Merambong	
District	Johor Bahru	
Area	1,106 hectares	
Major Issues/Concerns	<ul style="list-style-type: none"> <li>Island to remain a natural entity.</li> <li>Conflicting rapid adjacent development.</li> <li>Need to preserve seagrass bed of Merambong.</li> <li>PTP is the main threat to sensitive seagrass habitat.</li> <li>Shipping routes as well as ship parking and maintenance sites present risk of pollution from ship collision or damage, as well as discharge of ship wastes such as bilge water.</li> <li>Need to ensure minimum and controlled human encroachment.</li> </ul>	
Local Plan Requirement	Not applicable (outside Johor Bahru District Local Plan Boundary)	
a)Corresponding local plan planning back	Not applicable	
b)Existing landuse	Not applicable	
c)Permitted use	Not applicable	
d)Permitted use with condition	Not applicable	
e)Prohibited use	Not applicable	
Conditions for Approval: To demonstrate compliance to the following management objectives and guidelines	Management Objectives: Physical PCM6, PCWQ3 and PCWQ4 Biological BEIT2, BEM1 and BEM2	
	Specific Guidelines	Monitoring Agency
	-	-
Public/Private Sector Initiatives	Programmes	Implementing Agency
	<ul style="list-style-type: none"> <li>Pulau Merambong and Merambong shoal as a Marine Protected Area (MPA)</li> </ul>	<ul style="list-style-type: none"> <li>IRDA</li> <li>Forestry Department</li> <li>Marine Department</li> <li>Johor Port Authority</li> </ul>

### 1.4 Programme

#### 1.4.1 Title

"Pulau Merambong and Merambong Shoals as a Marine Protected Area"

#### 1.4.2 Mission Statement

- To promote research and data gathering on seagrass, mangrove and associated ecosystems.
- To work collectively with all stakeholders (managers, scientists, NGOs, public) for the sustainable conservation and management.
- Utilisation of mangrove and seagrass ecosystems.
- To enrich the biodiversity of Merambong via proactive green intervention programmes.
- To serve as a national data bank on the success of the enrichment programme.
- To promote education and awareness on the importance of the island ecosystem.

#### 1.4.3 Objectives

- To converse and manage the seagrass beds and associated ecosystems.
- To promote sustainable utilization of the resources.
- To provide future renewable resources for education, research and sustainable commercialisation.

#### 1.4.4 Habitat Description

##### Existing Flora

The SMP study reveals that only two species, *Enhalus acorodes* and *Halophila ovalis* dominated the seagrass meadow at Merambong shoal and Tanjung Adang Laut. There are comparisons on the density of seagrass at both sites, where the seagrass at Merambong is highly dense compared to Tanjung Adang Laut's seagrass. Patches of seagrass are also present within the Sungai Pulai estuary.

##### Existing Fauna

A total of 60 species has been recorded from the Merambong shoal, and 48 species from the Tanjung Adang shoal. The molluscs (bivalves and gastropods are the most diverse and most abundant taxa, followed by crustaceans).

#### 1.4.5 Plan and Policy

##### Database

A database will be established to gather all the information pertaining to the ecosystem of Pulau Merambong and its shoals.

##### Education Programme

Educational programme on conservation of environment among government institutions, media, private sectors, NGOs and the general public shall be carried out. Also, a special module on Merambong ecosystem will be drafted.

##### Scientific/Research Programme

Experimentation on the biodiversity enrichment of Pulau Merambong and its shoals will be carried out without undermining the purpose of protection through:

- Replanting of mangroves.



- Setting up artificial reefs.
- Setting up permanent monitoring stations to monitor water quality and biodiversity.
- Introduction of local species through active implementation.

#### Guided Tour Programme

A well-trained guide should be employed for effective guided tour programmes around the sites such as bird watching, snorkelling and low-tide shore walking.

#### Possible Funding

Funding will be sourced out by technical support and relevant agencies in promoting Ecosystems Adoption Programme.

#### Commercial Opportunities

There will be commercial opportunities in the form of island cruise and local handicrafts based on the surrounding resources, managed by private business or concessions, aiming at the development of ecotourism with marine conservation.

#### Number and Type of Potential Visitors

An island cruise is expected to cater for local and international tourists especially from neighbouring countries.

### 1.4.6 Management and Staff

#### Public Participation and Likely Stakeholders

The Marine Protected Area, once established, will have a centre where the public can visit and acquire more information about the objectives of the MPA. It is proposed that the MPA Centre will be a collaboration between the authorities, the stakeholders and the public. A multi-layer dialogue will be held to ensure that the nation's interests in the conservation of marine resources are preserved.

#### Local Influence and Benefits

Employment and business opportunities will be offered for the local people as guides, tour operators, sales personnel etc.

#### Governance

Pulau Merambong is located within Johor Port jurisdiction, therefore the Johor Port Authority and the Marine Department are important agencies to allow the island to be administratively declared as a designated marine protected area. The MPA will also cover 1000 m of buffer surrounding the island as well as the nearby shoals.

#### Staffing

The proposed staffing shall comprise a manager, an education officer, supporting staff, licensed boat operators, and Green Badge Guides.

#### Volunteer Involvement

Volunteers from NGOs, research institutes and universities are required to help manage the operation and conduct research. These agencies will have an important role to play in looking after the MPA. For example, they can be the champions in helping the authorities manage and act as ambassadors for making people more aware of the conservation efforts.

#### Staff Training and Development

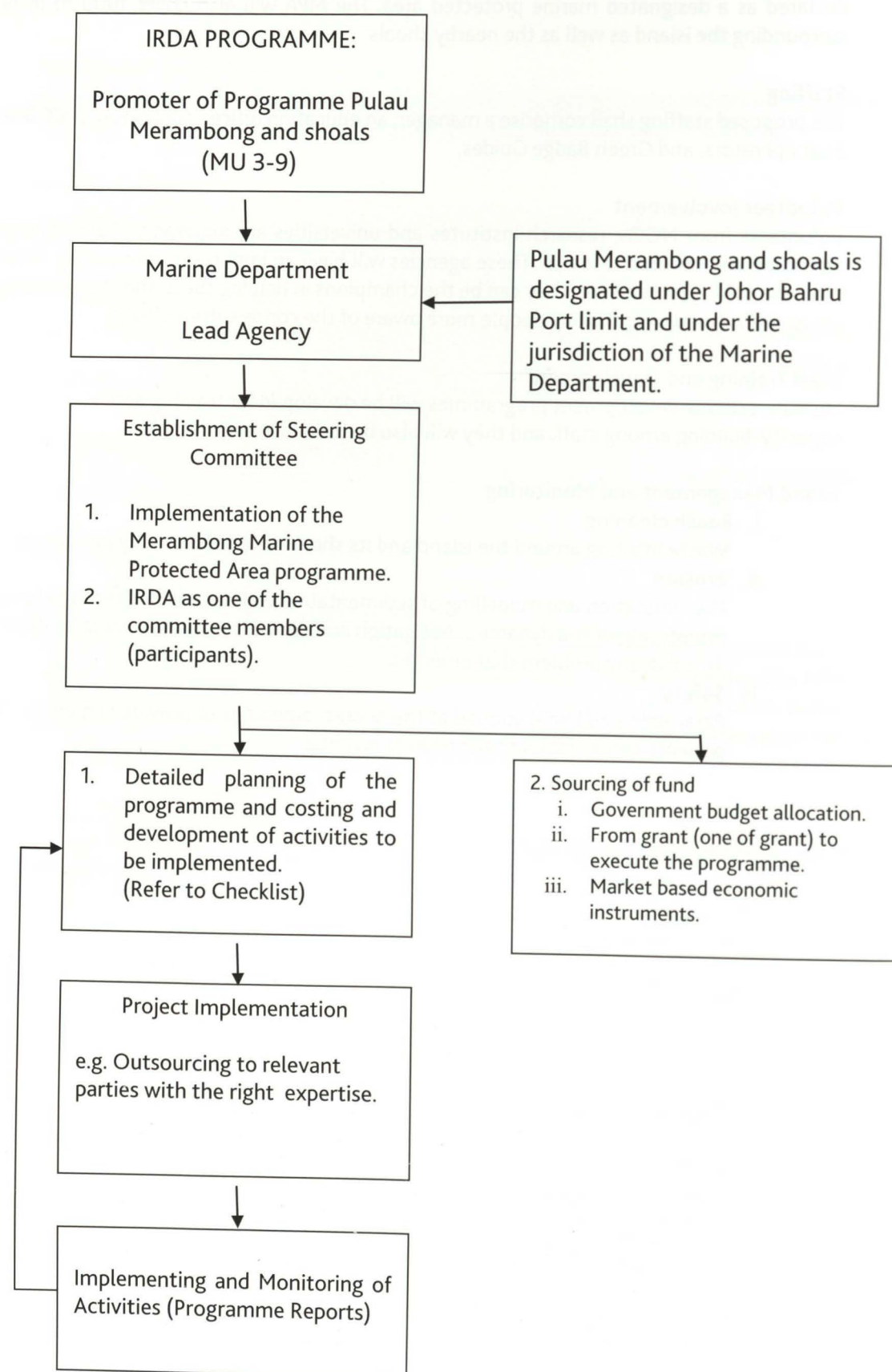
Human resource development programmes will be developed for training and capacity-building among staff, and they will also be trained in specific skills.

#### Island Management and Monitoring

- Beach cleaning**  
Waste littering around the island and its shoals should be strictly prohibited.
- Erosion**  
The simulation and modelling of sedimentation will be provided through long-term monitoring of the dynamics. Mitigation and control measures should be deployed to solve any problem that emerges.
- Safety**  
Paramedics will be stationed at the nearest amenities to provide first aid to the patients before taken to the nearest hospital.



#### 1.4.7 Implementation of Programme



## 2.0 Beach Nourishment fronting Kampung Stulang Laut (MU 5-1)

### 2.1 Introduction

Management Unit 5-1 (MU 5-1) Senibong covers an area of 1,936 hectares (approximately 4,784 acres) which is located at Mukim Plentong and lies under the jurisdiction of Majlis Bandaraya Johor Bahru (MBJB). As an urban area, the land uses of MU 5-1 are for residential and commercial development.

### 2.2 Site Description

Detailed site description for Beach Nourishment Fronting Kampung Stulang Laut is expounded further in the blueprint.

### 2.3 Management Strategy for MU 5-1

Detailed management strategy for Beach Nourishment Fronting Kampung Stulang Laut is given further in the blueprint.

### 2.4 Programme

Detailed programmes for Beach Nourishment Fronting Kampung Stulang Laut could be referred in the blueprint.





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