

COASTAL ZONE MANAGEMENT WITHIN THE CONTEXT OF LAND USE DEVELOPMENT PLANNING IN MALAYSIA

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abstract: One of the most important components of many coastal zone management efforts is land use planning. This paper examines the role of the land use planning practice in Peninsular Malaysia towards the sound management of its coastal zones. It analyzes the development planning approach employed to date, as well as, other related aspects of the planning legislative and administrative set up in so far as they might influence the planning and management of the coastal zones. General solutions for improving the planning practice with respect to coastal zones are proposed towards the end of the paper.

1. INTRODUCTION

1.1 Rationale and Objective of Study

Many countries have utilized land use planning as a tool for contributing towards managing their coastal zones. Similarly, land use planning in Peninsular Malaysia is also expected to play a crucial role towards enhancing the coastal environment and protecting its resources (e.g. see Ch'ng & Sasekumar, 1990; EPU, 1992). However, it is not readily verifiable if the land use planning practice - through its development plans - have given adequate attention to coastal issues. In this relation, the objective of this study is to determine if the Malaysian land use planning practice can, or, is contributing to the management of Malaysian coastal zones.

1.2 Coastal Zone Management and Its Relation With Land Use Planning

The coastal zone is the transitional band of area between the land and the sea. The coastal system comprises three highly inter-related basic elements: (1) the sea; (2) the coast (foreshore intertidal and beach area); and, (3) the land area. The zone is of high economic and environmental significance, being the provider of a huge range of resources. Ironically, man's attraction to the area has put it under much pressure and environmental degradation.

Coastal zone management (CZM) is the process which aims to balance demands on coastal resources, resolve conflicts in their use, and generally promote their sustainable development. Since the 70s, CZM has evolved, incorporating numerous tools and approaches. An important instrument is land use planning. This has been acknowledged by the 1992 United Nations Conference on Environment and Development (UNCED) when the "preparation and implementation of land and water use and siting policies" was mentioned in the 'Agenda 21' as one of the tools towards integrated management and sustainable development of coastal areas.

Land use planning is the process of reconciling resources - particularly land - between different uses. Its principle aim is to achieve an orderly settlement of land and, generally, towards environmental enhancement and sustainable development. Many developed countries such as US and UK utilize land use policies and programs for the protection and enhancement of their coastal areas. One of the basic tools in a land use planning system are the 'development plans'. These are documents containing policies for future land use and development within a given area. Development plans are supported by other planning instruments like the planning legislation, planning administrative set up, and planning techniques.

1.3 State of the Coastal Zone in Peninsular Malaysia

The Peninsular Malaysia coastline is 1,972 km in length. The working definition of 'coastal zone' as utilized during the National Coastal Resources Management Policy study (EPU, 1992) is: on-shore - inner limit is generally 5 km from the coastline; offshore - seaward limit is 200 nautical miles from coastline to cover the Exclusive Economic Zone. The coastline is composed mainly of high sensitivity, easily erodible coastal systems, i.e., mangrove fringed mudflats and sandy beaches (Figure 1).

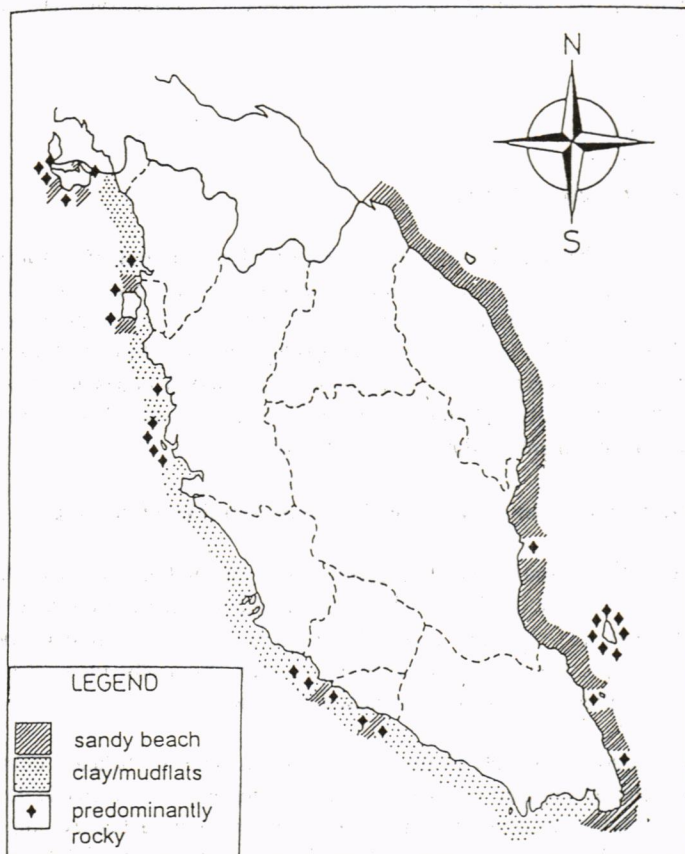


Figure 1: Peninsular Malaysia Shoreline Types. Adapted from EPU, 1993

It is also endowed with a wide range of resources: fisheries, mangrove products, ecological and wildlife, beaches etc., and consequently, is an area of high socio-economic significance for the nation. This is clearly reflected in the increasing concentration of population within the coastal districts of Peninsular Malaysia as shown in Table 1.

Table 1: Population in Districts

Year	Population (mil.)	% out of Peninsular Malaysia's population
1980	6.31	55
1991	7.77	60

Table 2: General Land Use of the Peninsular Malaysia Coastal Zone

Type of land use		Land Use	%
developed	urban	37,389	3.2
	agriculture	398,426	33.7
un-developed	dryland forests	146,029	12.4
	swamp & other wetland forests	538,864	45.6
others		59,820	5.1

Source: Adapted from Darus, 1994

In terms of land use, just slightly more than half (58%) of the coastal land still remain undeveloped in their original natural state (Table 2). The loss of natural coastal zones has been due to the onslaught of human activities and development, particularly, agriculture and urban development. The utilization of coastal resources generally leads to greater human concentration and use of the coastal zone, which in turn, has brought about certain impacts onto the coastal environment and its resources. Many of these are negative impacts (Figure 2).

Major coastal uses and impacts include:

- Growing concentration of coastal population which brings about coastal environmental degradation.
- Increasing coastal tourism investments tend to involve constructions resulting in large scale modification of the coastal natural environment.

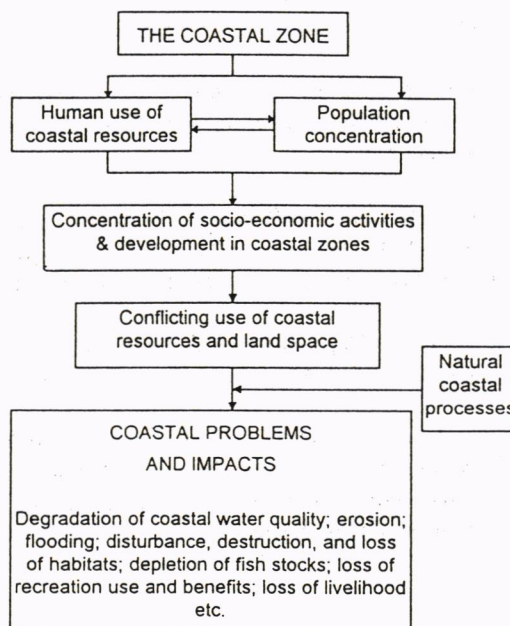


Figure 2: Relationship Between Coastal Use and Coastal Problems

- Aquaculture activities within mangrove areas cause deterioration of mangrove forests and related resources like fisheries.
- Land-fill type of coastal reclamation brings numerous adverse impacts onto the coastal environment.
- The opening of inland forests land for agriculture cause accelerated land erosion which introduce sedimentation, siltation and erosion problems in coastal zones.

1.4 Coastal Problems and The Lack of Planning

Peninsular Malaysia coastal zones face a wide range of problems due to the combination of a complex range of factors. However one salient point which can be observed is the common factor of the coastal land use and the related role of land use planning - or the lack of it - in being the root of numerous coastal problems. The major coastal problems include:

- ***Intense development and high pressure for development within coastal zones*** - This trend looks set to continue signifying a real need to undertake concerted and deliberate planning for development within coastal zones.
- ***Lack of coastal development control*** - Development in coastal areas have been very rapid such that development planning and control have not kept pace. This is a root cause for many other coastal problems.
- ***Declining mangroves*** - This is one of the most severe impacts of development within coastal zones. Major causes are illegal clearance for agriculture, aquaculture and logging.
- ***Coastal erosion*** - This problem is mainly man-induced, i.e., related to human activities and development within coastal zones. This is compounded by the lack of planning/control over coastal developments.
- ***Coastal waters pollution*** - The major cause of pollution are land-based activities (domestic wastes etc.). The is exacerbated by inadequate planning and provision of basic infrastructure to prevent discharge of wastes into rivers and the sea.
- ***Loss of wildlife and their habitats*** - Land development activities which involve reclamation of mangroves and mudflats, as well as, water pollution are the main factors behind this problem.

In summary, it can be said that coastal problems are inextricably linked to coastal land use. Therefore proper land use planning and control over development should lead to improved coastal land use and development within the area. This, in turn, could prevent - or at least reduce - such aforementioned problems.

2. THE MALAYSIAN DEVELOPMENT AND LAND USE PLANNING SYSTEM

2.1 Development System

Planning for development in Malaysia generally follows a hierarchy of plans as shown in Table 3. At the local level, planning for development is most comprehensively undertaken through the statutory land use 'development plans' of the local authorities prepared within the context of the land use planning system under the provision of the town planning legislation.

Table 3: Hierarchy of Development Plans in Malaysia

Plans	Area of coverage	Prepared by
Malaysia 5-Year Development Plan	whole country	Federal government
State/regional master plan	state/region	State government/Regional development authority
land use development plans (Structure & local plan)	local authority area	Local authority

Source: After Goh, 1988

2.2 Land Use Planning System

Land use planning in Malaysia (or 'town and country planning' as it is referred to locally) is the responsibility of both, the Federal Government and the state authorities. Peculiar to the Malaysian Federal system of government however, 'land matters' is strictly the jurisdiction of the state authorities. This means that land use planning in Peninsular Malaysia is essentially planning at the sub-regional - or more specifically, the local authority level - overseen by the state authorities. This activity is undertaken wholly within the provision of the Town and Country Planning Act of 1976 (Act 172) and its Amendment of 1995 (Act A933). Three basic planning instruments introduced by Act 172 are:

- **Planning administrative system** - Local authorities are entrusted to function as the 'local planning authority' (LPA) regulating, controlling and planning land use and development within their area of jurisdiction. They are overseen by the state authority through the coordinating role of the 'State Planning Committee' (see Figure 3).
- **Development plan system** - Statutory land use 'development plans' are to be prepared by LPAs to indicate and guide land use and development within its jurisdictional area.
- **Development control system** - This is a system for controlling development by the LPAs to ensure they are undertaken in line with the policies of the development plans.

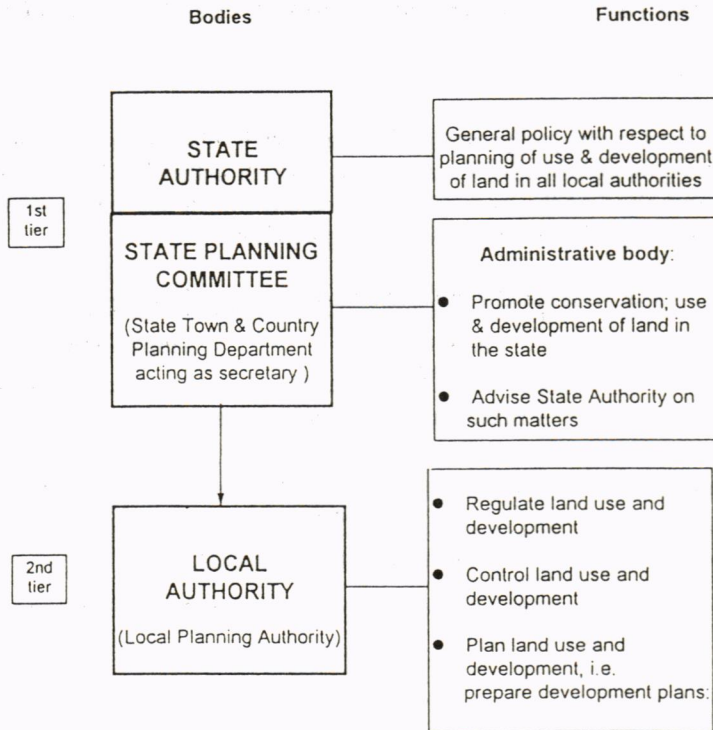


Figure 3: Planning Administration Under the Town and Country Planning Act, 1976

2.3 Significance of the Land Use Planning System Development Plans

The Malaysian planning system's development plans comprise the 'Structure Plans' and 'Local Plans'. These are policy documents in the form of written statements. Structure plans are strategic in nature which spell out broad policies of the LPA in respect of development and use of land in its area. They have vast influence over the whole future outlook of an area. The local plans are more specific. They serve to translate the general structure plan policies into detailed proposals. They also contain specific development guidelines and standards which form the basis for development control process.

One of the principal roles of local authorities in Malaysia is environmental management towards a better quality and habitable living environment for the local community. Seen in this light, the development plans prepared under the town and country planning system also have the crucial role of providing the basis for environmental planning and management at the local level. Indeed, the town and country planning Acts contain numerous provisions stipulating the need to incorporate environmental consideration at the 'development planning' process, i.e. during the preparation of the structure and local plans, as well as, during development control. This emphasis on environmental consideration means that land use planning - via its development plans - are not only concerned with planning and controlling development, but, its is also a tool for environmental protection and enhancement; including the coastal environment.

3. EVALUATION OF THE PLANNING SYSTEM FOR COASTAL ZONE MANAGEMENT

3.1 Introduction

During the development planning process, LPAs with a coastline within their area of jurisdiction incorporate such areas as part of their planning area. From a total of 96 local authorities in the Peninsular, 42 are located in districts with a coastline. From this 42 local authorities, 34 already have some form of development plans prepared for their area. This section of the paper evaluates the land use planning practice with regards to the management of coastal zones in such areas.

3.2 Methodology of Evaluation of the Planning System

The Peninsular Malaysia land use planning practice is evaluated for their relevance in coastal zone management against three fundamental criteria (see Figure 4):

(1) *Development planning approach* - The development planning approach employed should demonstrate an inherent concern for the coastal environment. This should be reflected in the content of the development plans prepared by coastal LPAs. For this, 22 structure plans and 7 local plans with coastlines were analyzed with respect to the following:

- *Whether the development plans have given priority to coastal matters* - to determine this, plans are analyzed to see if they contain 'coastal' chapters or sections.
- *Whether the coastal LPAs do produce 'coastal policies' in their plans* - to determine this, plans are analyzed to see if they contain 'coastal' policies.
- *The nature and significance of the coastal policies towards coastal management* - the coastal policies are analyzed to see if they have the appropriate form or character; and, if their geographical coverage address the coastal zone as a whole, covering all the three basic elements of the zone (i.e., the sea, the coast and the land area).

(2) *Plan formulation and the role of planners* - Wood (1976) contends that, among other factors, ineffective planning control on environmental problems is due to inadequate training and poor information. With regards to coastal planning and management, planners should be attuned to the basic and current issues and policy actions for coastal zone management if the plans they produce are to be anywhere effective in protecting and enhancing the coastal zones.

To gain an aggregate representation of the general exposure and awareness of the planners on the coastal environment and on coastal management, a 'key-person' survey was devised. Survey questionnaires were distributed among land use planners involved in development plan-making and policy formulation who are mostly stationed in the northern region of Peninsular Malaysia.¹ A total of 28 key-persons participated in this survey.

¹ The northern region was selected for the survey in representation of the Peninsular Malaysia as it possesses most of the elements of the coastal problems experienced in the Peninsular

(3) *Influence of planning legislative provisions and administration* - Besides influencing the scope of planning, these factors will also affect the actual success of implementation of development plans themselves. Key aspects considered as relevant to the effort of planning and managing of coastal zones are analyzed.

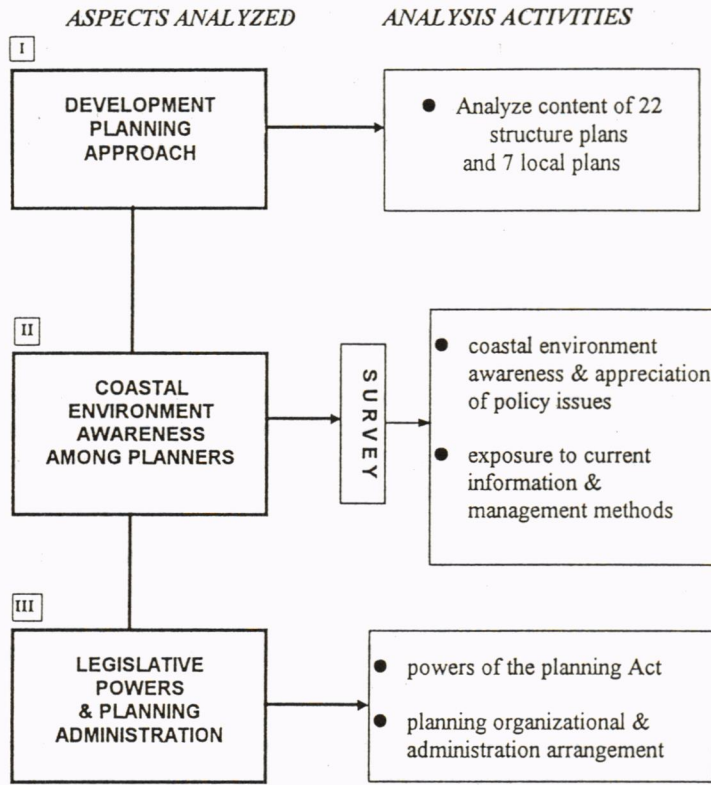


Figure 4: Outline of Analysis on the Land Use Planning Practice

4. STUDY FINDINGS

4.1 Development Planning Approach

The study has found that the development planning approach being employed by coastal LPAs are not conducive to the production of development plans with appropriate policies for contributing to sound planning and management of the coastal zones. More specifically, the result of the evaluation of development plans are as follows:

- *Priority to coastal matters* - Based on the plans reviewed, the priority given to coastal matters during planning - at least up to the present moment - have been very low. Out of the 22 structure plans reviewed, only 1 had an exclusive 'coastal' chapter; and only 7 had 'coastal' sections (Table 4). Similarly, for local plans, 4 of the 7 reviewed had 'coastal' sections, but none had 'coastal' chapters (Table 5). It is interesting to note, however, that the more recent plans show greater tendencies to contain 'coastal' chapter or sections. This suggests that, despite existing shortcoming, there is a trend of increasing priority being given to coastal matters.

Table 4: Coastal Chapters/Sections in Structure Plans

Plan period ¹	plans with coastal chapter	plans with coastal section
4th Malaysia plan	0	0
5th Malaysia plan	0	4
6th Malaysia plan	1	3
total	1	7

Table 5: Coastal Chapters/Sections in Local Plans

Plan period ¹	plans with coastal chapter	plans with coastal section
5th Malaysia plan	0	0
6th Malaysia plan	0	4
total	0	4

Note: ¹ Plan period refers to the period within which preparation of plan commence
 4th Malaysia Plan: 1981-1985
 5th Malaysia plan: 1986-1991
 6th Malaysia plan: 1992-1996

• *Coastal policies in development plans* - The 22 structure plans and 7 local plans are reviewed for their content of coastal policies². The policies are grouped under the following 'policy headings': (1) Landscape habitats and natural areas; (2) Risks and coastal protection; (3) Development within coastal zone; (4) Aquaculture; (5) Coastal land reclamation; (6) Access to the coast; (7) Water quality and the marine environment; (8) Environmental impact assessment; and, (9) Sea level rise. These headings are subdivided further into more detailed 'policy components'.

It is observed that all coastal LPAs have tried to produce some form of coastal policy to effect management of their respective coastal areas. However, their efforts are found to be lacking in the sense that coastal-explicit policy headings like erosion control, coastal land reclamation and so on are still not prominently featured as compared to the common land use-related policy headings.

Consequently, when the frequency of coverage of policy components are analyzed, it is discovered that the most frequently cited policies tend to be the 'universal' type of policies, i.e. policies which are commonly found and applied in most non-coastal areas. Missing, or less-commonly cited, are the truly coastal-explicit policies like erosion control measures, consideration of land instability etc. (Table 6).

² In this study, 'coastal policies' mean policies with some reference to the coast, or, a specifically coastal activity.

Table 6: Frequency of Coverage of Coastal Policy Components by 22 Structure Plans

Policy Ranking	Policy component (<i>selected</i>)
1st RANK (Most frequently cited: frequency of 15-22)	<ul style="list-style-type: none"> • conservation of landscape and natural areas of outstanding beauty • protection of oceanfront land suitable for tourism and recreation • regular monitoring of coastal water quality • minimization of the adverse effects of waste water discharge • the requirement for EIA (environmental impact assessment) report for major coastal project developments.
2nd RANK (Less-frequently cited: frequency of 6-14)	<ul style="list-style-type: none"> • coastal landscape development/improvement policy • identify and preserve wildlife habitats • control of developments within/adjacent to habitats/natural areas • tourism/recreation development to be guided to specifically identified areas
3rd RANK (Least explicit coverage: frequency of 0-5)	<ul style="list-style-type: none"> • erosion control measures • consideration for land instability • allocating the coast to coastal dependent development • the need to minimize alteration of coastal currents, waves and sediment transport when undertaking coastal development • the need to study beach natural erosion/accretion patterns • to guide new developments to existing developed areas • coastal developments need to consider the coast's visual quality and carrying capacity • prohibition/discourage extraction in vulnerable areas • require mitigation or restoration work after mineral extraction activities • policy to create new access to coast for recreation • new developments should not interfere with exiting access to coast • discourage/prohibit dredging/filling of coastal waters, estuaries and wetlands • to give policy consideration to the impact of sea-level rise.

Looking at the trend over time however, it can be noted that the production of coastal policies tend to increase with period of preparation. For example, while those prepared in the 1980s barely contained any coastal policy at all, the ones prepared in the early 1990s, and especially in the late 1990s, had increasing numbers of coastal policies.

- *The nature of policies and extent of policies coverage* - The 'nature of policies' refer to the form and character which the policies take, e.g., whether they are long-term and preventive, or, short-term and curative in nature and so on. Analysis of the nature of coastal policies has reinforced the finding that most of the development plan coastal policies are biased towards land allocation matters and control of development or activities. For example, under the tourism and recreation policy heading, a typical policy would be for the "identification and incorporation of potential sites for tourism in the land use plan". Less prominent are policies with measures for coastal environment protection and enhancement, or, preventive measures against erosion or pollution.

In terms of policy coverage, the analyses reveal that in most occasions the policies address or relate to the landward element of the coastal zone. Rarely do they consider and deliberately address the issues or problems on the seaward of the coastal zone even when the relationship between activities within the landward area clearly affects that of the sea area, as in the case of land based pollution of coastal waters.

4.2 Coastal Environment and Management Awareness Among Planners

Major findings from the survey undertaken are:

- *Environmental awareness* - Almost all of the planners have the opinion that the coastal zone is a unique planning environment warranting peculiar considerations when undertaking planning or development control. This opinion seems to be linked to ecological or natural environment-related reasons as can be seen from Table 7. Despite of this, however, truly coastal explicit reasons like consideration of physical coastal processes; the linkage between the three basic coastal systems; and so on were not very prominent. This suggests their lack of exposure to current coastal zone management issues and problems.

Table 7: Reasons for the Need of Special Consideration During Coastal Planning

Reasons	No. of times cited	Ranking
Ecological reasons	12	1
Coastal erosion	9	2
Need to protect coastal resources/assets	9	2
Need to protect habitats/natural area	8	3

Table 8: Special Planning Considerations Needed During Coastal Planning

Special considerations needed	No. of times cited	Ranking
Preservation/conservation of habitats, natural areas, resources	16	1
Formulation of special planning guidelines for coastal development	12	2
Coastal protection from erosion	6	3
Control of land-based pollution	6	3
Incorporation of engineering input and other related expertise	6	3

- *Exposure to coastal zone management methods* - The survey revealed that none of the planners have had any training (including short courses or seminars) related to coastal management. This seems to explain their apparent lack of awareness of detailed and state-of-art coastal management methods, approaches and related issues. For example, when requested to list down and elaborate the type of special considerations required during coastal planning, while "preservation and conservation of habitats and natural areas" featured prominently (see Table 8 above), not much elaboration was offered as to the means for achieving this within

coastal zones. Similarly, in terms of “special planning guidelines”, except for one respondent, none of the other planners were able to offer coastal explicit planning guidelines.

When the respondents were requested to list down the methods that they have utilized in addressing coastal issues and problems encountered during the course of their work, the answers given point towards the land-oriented, non-specific type of policies (see Table 9). For example, a prominently featured method is in the form of “land use and development guidelines” which is often typified by building set-backs, building height control and so on. Less prominent are the more specific and coastal-explicit methods like the use of the concept of environmental zoning; the concept of carrying capacity; control of water quality draining from watershed inland into estuaries and the sea etc.

Table 9: Methods Utilized by Respondents for Addressing Coastal Problems/Issues

Methods utilized	No. of times cited	Ranking
Land use and development guidelines	8	1
Use EIA	8	1
Prepare Structure/Local plans	6	2
Other land related policies	6	2
Development control procedures	5	3
Undertake special coastal studies	5	3

In summary, it can be said that while the planners are aware of the coastal environment, the same could not be said of their awareness of coastal management issues as well as methods and practices. Among other factors, this is due to their lack of exposure to coastal zone management related training, which has limited their access to current and relevant information on coastal planning and.

4.3 The Influence of Planning Legislative Provisions and Administration Set Up

While the development plans and the ensuing development control activity are the main planning tools towards environmental protection and enhancement, other provisions of the planning Acts will no doubt also have an influence on the outcome of planning practice undertaken within the coastal zones. Important provisions of the planning Acts, as well as, the related administrative set up which are deemed to have influence on coastal planning and management are as follows.

Planning Legislative Provisions

Advantageous provisions:

- *Power for comprehensive planning* - Unlike other coastal-related legislation, the concern here is with the long-term planning, management and preventive measures. Moreover, the planning power is not just restricted to certain type of resource(s), but is concerned to the wider environment and applicable to a wide range of developments and activities.

- *Power for development control* - Through this, the local authorities can protect the coastal zone and its resources, for example by restricting development in areas requiring protection, and, by the use of planning conditions when giving planning permission.
- *Power to undertake special subject local plan* - Where necessary, local plans can be specially prepared to cover a particular coastal zone with the aim of improving its planning and management.
- *Power to request Development Proposal Report* - The local authority can request an applicant for a planning permission to submit a 'development proposal report' which should contain descriptions of the development's surrounding physical environment features and planning principles utilized during plan preparation. Through this, the authority can ensure that the natural physical environment of coastal zones are well protected.

Potentially disadvantageous provisions:

- *Incomplete coverage of the coastal zone by local authorities* - Not all parts of the Peninsula's coastal zones are located within the boundary of local authorities. This means that some coastal zones are beyond the scope of planning control and guidance by development plans.

Planning Organization and Administrative Set Up

- *Weakness of the local planning institution* - If management of the coastal zones is to be achieved via land use planning, executed at the local level by the local authorities, then local planning institutions should have the capability to undertake this role. Currently however, such institutions do not have the capacity in terms of organizational set up nor technical expertise.
- *Positive potential role of the State Planning Committee* - By virtue of its statutory role in promoting and advising the conservation, use, and development of land in a given state, the State Planning Committee possesses tremendous potential for improving the contribution of the land use planning practice towards the management of coastal zones.

4.4 Summary of Findings

The land use planning system has much to offer towards the planning and management of the coastal zones. However, the system is being restrained from realizing its full potential by the approach of its planning process.

- The existing development planning approach is narrow in scope, i.e., very much concerned with resolving pure land use allocation issues, but less to do with the wider environmental planning concerns. This approach is non-conducive to the production of coastal planning policies appropriate for the sound management of the coastal zones.
- Existing planning approach also demonstrated inadequate appreciation for the inter-relationship between the land and the sea elements of the coastal zone.
- Prevalence of the non-conducive planning approach is partly due to the lack of training, exposure and access to current information on coastal management on the part of the land use planners.

- The existing planning legislative provisions and organizational and administrative set up presents a combination of opportunities and potential set-backs for planning within coastal zones. They need to be taken into account when attempting to improve the planning practice.

5. GENERAL SOLUTIONS

The key towards a better land use planning practice for the coastal zones lies in the adoption of a wider planning approach; i.e., one which gives:

- (1) Greater emphasis and consideration to coastal environmental matters and coastal resources
- (2) Greater concern to the linkage between all the basic coastal elements
- (3) Greater consideration of the coastal processes.

The move towards improving the planning approach should involve the following basic activities (see Figure 5):

- *The clarification of coastal planning philosophies and principles* - this should be clarified right at the beginning of the development planning process as it would influence the whole orientation of the development planning approach. The concept of 'ecological sustainable development' should be taken as the underlying and guiding philosophy for planning within coastal zones.
- *Identification of planning objectives for a coastal area* - based on coastal and resource values information for the area, the desired outcome and priority of planning should be set out to guide the next stages of the development planning process.
- *Preparation of better development plans* - this entails the formulation of appropriate coastal policies for the development plans. Key coastal policy headings relevant to a particular area should be covered, following which, appropriate coastal policy components formulated and supported by relevant planning techniques, guidelines and standards.
- *Application of development plan coastal policies to a coastal environment* - this entails improvements in the existing systems of development control, particularly in relation to the use of planning conditions, development proposal reports, and the formulation of local plans to provide the detail basis for development control.

In addition to improved development plans, improvements to the planning practice could also be realized by better utilization of existing planning legislative provisions and administrative set up. This is by:

- Strengthening the role of the State Planning Committee for coastal planning
- Strengthening the role and capability of the local planning authorities for coastal planning
- Extension of the local authority jurisdictional boundary seaward
- Complete coverage of all coastal land area by local authorities.

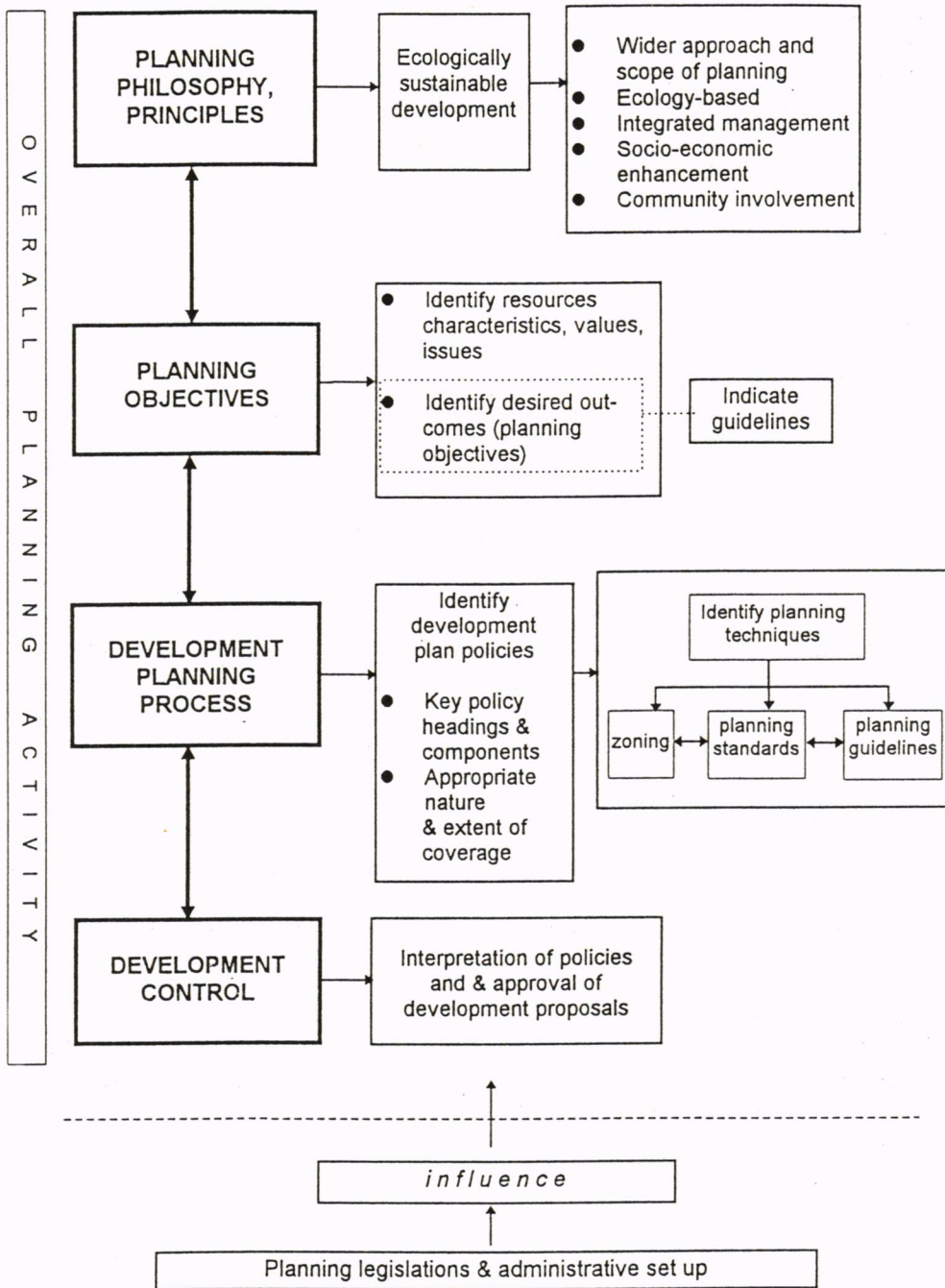


Figure 5: Basic Elements Towards A More Desirable Development Planning Practice

Other necessary solutions are:

- The need for capacity building of land use planners to enhance their skills and expertise for producing better plans and their coastal policy contents
- The need for better coastal planning and management information.
- The need for central, nationwide coastal planning guidance and overview.

6. CONCLUDING REMARKS

The coastal zone is a valuable national asset. At the same time it is a highly dynamic and fragile system, and thus, needs to be protected. The land use planning practice in Peninsular Malaysia offers itself as a viable means for planning and managing this area. It constitutes an opportunity for comprehensive management of coastal zones, their environment, and resources. Moreover, the incorporation of coastal policies into the statutory development plans will give the coastal management policies the force of law which it cannot derive from other source at the moment.

But, for all its potential, planning can only contribute towards the implementation of coastal management objectives provided that the coastal zone is given due consideration during the development planning process. This study has shown that, through the current development planning approach, the contribution of land use planning to coastal zone management tend to be limited mainly because of its lack of consideration for the coastal zone environment. This is compounded by the lack of awareness among planners on coastal management issues and relevant management methods.

Although still small, there are evidence of increasing emphasis being given to the coastal zone during the preparation of the land use development plans. This study has identified the means to enhance this situation further and improve planning within coastal zones. A principal and basic step towards this, is the need for a planning process with an inherent concern for the environment - more specifically, the coastal environment.

It is recognized that the surest means for managing the coastal zone towards its sustainable development is through the integrated coastal zone management (ICZM) approach. This study clearly illustrates that land use planning and management shall need to form one of the basic elements of this approach. Further research shall be necessary to ascertain just how exactly the land use planning process could be effectively amalgamated with the overall ICZM activity.

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