Integrated Planning and Management of Natural Resources

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A Guide to Writing Sustainable Development Plans for Tropical Coastal Areas

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CONTENTS

About the Author

Dr Dwight Watson

Dwight Watson grew up in rural southern Ontario, Canada and obtained his Doctorate, Master's and Bachelor's degrees in the Biological Sciences, all at the University of Guelph. He also earned his MBA degree from the School of Business, Durham University, England.

He has over thirty years of practical experience working in Southeast Asia on the design and implementation of programs to build an effective institutional capacity for the responsible management of natural resources and the environment. He has been a mentor to decision-makers and technical specialists in government, universities and the private sector on integrated planning for sustainable economic and social development, strengthening of tertiary education and research organizations, and the adoption of environmentally-sound technologies and best practices.

Dr Watson has been project leader for several large technical cooperation programs implemented on behalf of bilateral and multilateral donor organizations including Canadian International Development Agency, Asian Development Bank (ADB) and International Development Research Center; and is currently project leader for the ADB-funded Marine and Coastal Resources Management Project in Indonesia.

He has been series editor and author of numerous books, case studies, journal articles and technical reports concerning the sustainable development and management of renewable resources in Southeast Asia.

Dedication

Dr John Boers (1951-2006) and Dr Unggul Aktani (1964-2008).
Educators, colleagues and friends.

Preface

This book is not a review, a compilation or a critique of natural resource management plans from around the world, or the planning processes that were used in their preparation. However, after undertaking a personal study of numerous plan documents from Asia, North America, Western Europe, Australia and New Zealand it became clear that there has been very little consistency across jurisdictions in the naming of documents or in the actual content of plans with similar names. For example, a strategic plan in one jurisdiction may be equivalent in content to a management plan from another jurisdiction. My forays into this no-man's land have not yet identified any comprehensive descriptions of the processes followed by any jurisdiction during the preparation of its plans. The procedures followed must be inferred from the contents of each document.

So why was a systematic description of planning procedures important to me? In 2002 I was appointed project leader of the Marine and Coastal Resources Management Project in Indonesia. This Project was jointly funded by the Asian Development Bank and Ministry of Marine Affairs and Fisheries of Indonesia to strengthen the institutional capacity of provincial and district governments for participatory management of natural resources within their administrative jurisdictions. With the introduction of Indonesian regional autonomy laws in 1999, authority was delegated by the central government to local administrations to manage and coordinate the use of natural resources within their territorial boundaries.

A key objective of MCRMP was to promote the adoption of integrated coastal management (ICM) principles by the local governments and entailed development of detailed procedures for formulating a so-called hierarchy of ICM plans and the training of

government planners in their preparation. The relationship among ICM plans is often presented as a pyramid with a strategic plan forming the base, then ascending through the zoning and management plans, respectively, and finally ending with an action plan at the peak. At the time, few of these plans had ever been prepared in practice and remained largely theoretical concepts.

Although the pyramid has a certain visual appeal in books and presentations, a vertical arrangement for plans tends to disguise both their complementary goals and unique functions. Therefore, clearly defining boundaries for the content of each plan in the hierarchy, as well as the practical procedures to be used in their preparation was needed in order to produce plan prototypes that did not significantly overlap in content, or in the work required to prepare them.

My first task was to develop a comprehensive outline of the functions involved in planning and implementing an ICM program. These functions were then grouped according to the objectives established for each plan, and a logical sequence of steps was developed as a guide to their preparation. Finally, the individual steps were elaborated with methodologies and practical examples of the intended outputs.

Methodologies described in this book represent a synthesis of the different approaches identified from literature reviews and my own experience in the field. These methodologies are intended to provide a recommended set of practices that can be amended to suit local needs and circumstances wherever an ICM program is being implemented.

A growing number of coastal nations have adopted the ICM approach to address their particular situations. Westmacott (2002) reported that in 1993, 142 ICM efforts were being undertaken by about 57 countries. An update on the previous survey now indicates that the current number of ICM efforts at over 380 in 92 nations and semi-foreign states. The growing number of ICM programs may be a more accurate reflection of the perceived need to deal with complex coastal management issues than the actual results achieved so far in resolving these issues through ICM program implementation. The catastrophic impacts of hurricane Katrina on the city of New Orleans serves to highlight the need for systematic planning based on local issues of concern and a commitment to long-term funding for actions that will address those issues.

This book is intended to contribute to the growing wealth of knowledge and experience on the practice of integrated coastal management by outlining systematic planning procedures that can be adapted to any ICM program, and to realization of the social, economic and environmental benefits that can be derived from spatially allocating, developing and regulating the use of coastal areas and their diverse natural resources.

Selected References

Westmacott, S. 2002. Where Should the Focus be in Tropical Integrated Coastal Management? Coastal Management 30: 67-84.

1

INTRODUCTION

Integrated coastal management (ICM) is a process of good governance that involves the formulation of legal instruments such as laws, regulations and standards that guide government decision-making on the equitable allocation and sustainable use of natural resources, and the establishment of plans that direct the spatial and temporal activities of resource users.

The ICM process enhances the legal and institutional framework necessary to ensure that public decisions will result in improved environmental, social and economic conditions within a planning area. ICM, like all forms of public sector planning, should be done with full participation of those stakeholders who will most likely be affected by government decisions in order to increase their voluntary compliance with government policies and standards.

ICM plans have their roots in the planning of parks and conservation areas but can be adapted for any level of spatial coverage – a province, a municipality or a priority area. Although internationally there is little consistency in the use of document nomenclature, coastal planning information and policy direction for most administrative jurisdictions in western countries may be compiled into one document that is called a Management Plan. However, in Indonesia, ICM planning involves establishment of at least four separate documents in a hierarchy of Strategic, Zoning, Management and Action plans. Although divided into four complementary documents, the total content is similar to that of coastal management plans from western countries.

The ICM hierarchy creates a convenient phased approach to resource planning; but logical boundaries for the content of each document need to be clearly identified to avoid significant gaps and overlaps in the work required for their preparation.

However, the importance of preceding and follow-up planning activities must also be recognized and systematically undertaken. A revised ICM hierarchy that involves six separate documents is provided in Figure 1-1, where an Atlas has been added to the beginning of the process and Zone Development Plans have been added to the end. The inverted pyramid arrangement represents the increasing focus of spatial coverage for plan detail.

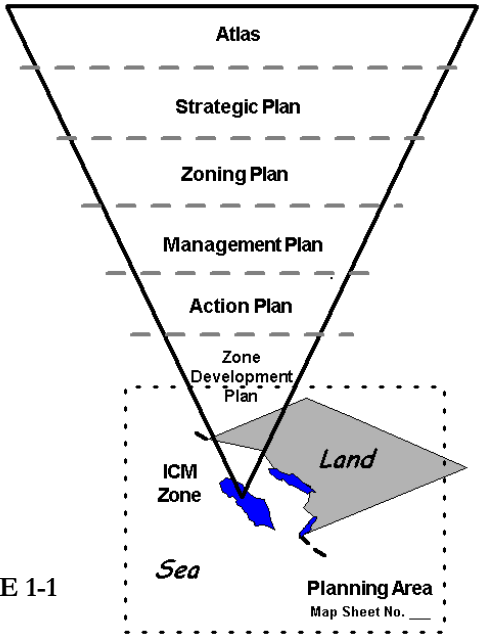


FIGURE 1-1

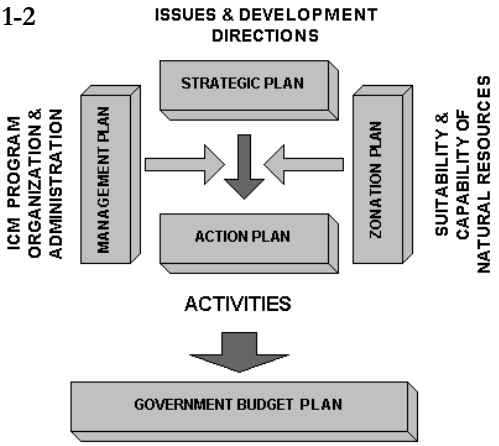
The inverted pyramid also reflects a descending sequence in the logical order of ICM plan preparation for any designated planning area. Planning areas may be established according to ecosystem or watershed boundaries, by administrative jurisdiction, by defining an area of interest according to longitude and latitude or by arbitrarily designating a strip of land & water that is within specified inland and offshore distances as measured from the shoreline. A land and sea boundary for what geographic area should be included in the definition of "coastal" is highly flexible.

In practice, the geographic boundaries of a large planning area will correspond to one or more topographic map sheets of scale 1:50,000 that have been issued by the authorized government mapping agency. This large geographic area may often be designated as a marine and coastal management area (MCMA).

MCMA may be further divided into smaller units of scale 1:10,000 or higher for more detailed planning purposes. Planning units that are selected for detailed planning and development are commonly referred to as priority areas. Priority areas are selected based on specified criteria. In the case of MCRMP, the selection criteria included the incidence of poverty below the provincial average in coastal communities; ecosystem degradation from loss of vegetative cover, erosion, or urban and industrial impacts; destruction of coral reef and mangrove habitat; loss of endemic biodiversity; and susceptibility to natural disasters such as tidal waves and floods.

The four key documents within the ICM planning hierarchy are strategic, zoning, management and action plans. However, the functional relationships are best represented by a combination of vertical and horizontal linkages (Figure 1-2) where the zoning and management plans complement the direct link between strategic issues and the actions (inputs) that address them.

FIGURE 1-2



Content of ICM Plans

Based on their functional relationships, I have defined the scope for content of each plan noted in Figure 1-1 as follows:

Atlas: The Atlas is a product of the initial data compilation and analysis phase of strategic planning, and should cover the entire MCMA. In general, most Atlases present tabular data compiled from secondary sources such as research and sector agency reports. The most important contribution of the Atlas to the strategic planning process is the analysis and interpretation of trends from time-series data.

Strategic Plan (SP): A Strategic Plan should broadly address the entire coastal area of the jurisdiction that is preparing it (e.g. province, district) or at least the MCMA. As a high-level plan, the SP should set cross-sector policy directions on important issues through the establishment of goals, objectives and strategies; as well as performance targets and indicators that are appropriate to monitoring a high-level plan. While specific actions should not be included in the SP, the fundable activities described in the Action Plan should relate directly to achieving at least one objective that has been identified in the SP.

The time-series data and analysis provided in the Atlas are intended to assist with identification of important problems and issues that should be addressed as part of the SP. However, other sources and methods for obtaining both objective and subjective information for issue identification should be used such as expert panels and contact groups. The SP should be consistent with relevant national and provincial legislation and cognizant of any official policies and programs established for the sector agencies.

Zoning Plan (ZP): The Zoning Plan supports the strategic plan by directing future activities to suitable geographic locations. It should not repeat work already done during preparation of the Atlas or Strategic Plan although important aspects of the SP can be summarized as an appendix to the ZP if they will add clarity or provide justification for the zoning scheme being proposed. In a data-rich situation, a top-down analytical approach for defining

planning units and zoning designations could be used for initial drafting of the ZP.

However, alternative methods that are less data-dependent and more participatory in nature also need to be used if the ZP is to be meaningful to and accepted by resource users and other interested stakeholders. These alternative methods rely heavily on consensus-building techniques such as participatory rural/rapid appraisals, expert groups, concordance mapping, and small focus group discussions. Since zoning designations are not fixed in perpetuity, the initial zoning decisions can be changed through due process. This process for making revisions to plans should be described in the Management Plan.

Management Plan (MP): The Management Plan establishes a framework of policies, procedures and responsibilities that are necessary to coordinate management decision-making by the sector agencies on appropriate resource allocation and use. Most importantly, it should identify the government agencies that are responsible and accountable for ICM program implementation, and the structure and composition of any program management bodies, or committees that are to be created. The MP supports realization of the resource management objectives established for individual zones (or sub-zones) under the ZP through a system of approvals for resource use (e.g. permits and licenses) that are issued and supervised by the relevant sector agency.

Action Plan (AP): The Action Plan is a means for obtaining resources (e.g. money, manpower, equipment) that are required to fulfill the commitments made in the other ICM plans. For example, if a sub-zone has been targeted primarily for commercial aquaculture development in the ZP, then a Zone Development Plan (ZDP) ought to be prepared. In the AP, the cost of preparing the ZDP should be allocated from the budget resources of the sector agency responsible for coastal aquaculture.

The AP should consolidate ICM-related activities from all government agencies in a coordinated multi-year schedule and budget. At the provincial level, these actions may be mainly "non-physical" activities like public education; training and extension; surveys and research; and drafting of plans, regulations, codes of

practice and other similar management tools that are required to direct and control economic development over a wide area.

At the district/municipal level, physical activities involving provision of public infrastructure, ecosystem maintenance and rehabilitation, and poverty alleviation or income-generating projects will be undertaken in priority areas, in addition to the broader non-physical activities. Since sector agencies are only responsible for funding of gazetted public programs and services, the AP would not normally include activities that invest public funds in private commercial enterprises in order to achieve the objectives outlined in the ICM plans.

Zone Development Plan (ZDP): A Zone Development Plan should be eventually prepared for each zone (or sub-zone) established under the ZP. ZDP preparation undertakes more detailed planning for a zone based on its management objectives or statement of management intent. Environmental impact assessments and economic valuation of social and environmental effects will be important tools for identifying the technical alternatives and formulating development scenarios for the area.

The ZDP will decide technical issues such as environmental carrying capacity, acceptable aquaculture species and technology, and spatial distribution of installations. This information will be important for determining the number and conditions of permits that may be issued for the zone. Preparation of ZDP for the designated zones in high-priority areas may be programmed as part of the multi-year Action Plan.

What's in This Book

While the content for all six ICM plans has been summarized above, only procedures for preparing the four key documents in the planning hierarchy are described in this book. These procedures are based mainly on my work with the Marine and Coastal Resources Management Project in Indonesia (MCRMP) from 2002 to 2008, and represent my synthesis of best practices from the field of natural resources management.

2

STRATEGIC PLANNING

Strategic planning is a tool for setting priorities and making informed decisions concerning future actions. It was first developed in the private sector, but governments have widely adopted it as a means to help them use their resources more effectively and efficiently. Strategic planning for the public sector is a systematic and value-based process for solving perceived social, economic and environmental issues. It involves analyzing the underlying problems related to each issue; verifying their causes; agreeing on the desired results and how they should be accomplished; and assigning accountability for their achievement.

Reasons for Strategic Planning

The main reason for doing strategic planning is to provide a "sense of purpose" that directs the individual actions of numerous government agencies toward achieving common goals. More specifically, a Strategic Plan (SP) should identify important issues concerning access to and use of common-property resources within a specified planning area; and establish the broad goals, objectives and strategies to be pursued for overcoming these issues. It should also describe the performance indicators and targets that will be used to monitor achievement of those goals and objectives over time.

Regardless of the planning level, specifying goals, objectives and strategies is useful for communicating management direction about large and often complex issues. If there are no major issues, then there is generally no need to formulate elaborate plans. However, in most situations, government agencies will benefit from strategic planning by uncovering important changes that are occurring in their operating environment, clarifying their future

directions and immediate priorities, building external partnerships (often across jurisdictional boundaries), increasing interagency coordination, and gaining trust and credibility from improvements in their organizational management and performance.

Integrated coastal management (ICM) is a system of good governance that provides for the use, enjoyment, development, maintenance, conservation and protection of natural resources. The hierarchy of ICM plans that are established by government should provide a comprehensive framework for regulating the operational plans and on-the-ground practices of resource users in order to achieve the desired results. When ratified by the legislative council and Chief Executive, the ICM plans become official government policy. Therefore, these plans must be technically, financially and administratively achievable; as well as socially, environmentally and economically appropriate. When given legal force, they must be considered in all subsequent decisions made by sector agency administrators and resource managers.

Achievement of the goals, objectives and strategies contained in the Strategic Plan is the responsibility of government agencies that are required to implement public policy and formulate social and economic development activities for their sectors. In general, the SP should also define the performance measures that will be used for monitoring progress toward achieving the goals and objectives described in the SP. However, the benefits of preparing a Strategic Plan can only be realized if the institutional will and capacity exits to implement it.

The procedures described in this chapter are intended to establish key benchmarks for assessing the quality of a Strategic Plan, and to guide the drafting team in preparing the document. Planning processes that involve large regions are expensive to undertake in both financial terms and in the commitment of people who participate. Therefore, these investments should result in planning products that can be readily implemented and that effectively address important resource management issues.

For broad regional plans, resource management direction may be written in relatively general terms to allow for flexibility and

discretion in their application. For smaller planning units, the management direction may be quite specific.

In all cases, the objectives of a SP should be to:

- Provide a rational basis for directing public resources toward overcoming current and future issues;
- Link government budget and policy-making processes with priority issues;
- Make government more accountable for effective use of public funds by improving results (performance) without increasing workloads;
- Highlight important issues for communication with citizens and for discussion among decision-makers; and
- Build intergovernmental, interagency and public-private-NGO partnerships around solving priority issues.

The strategic planning process itself should ensure that:

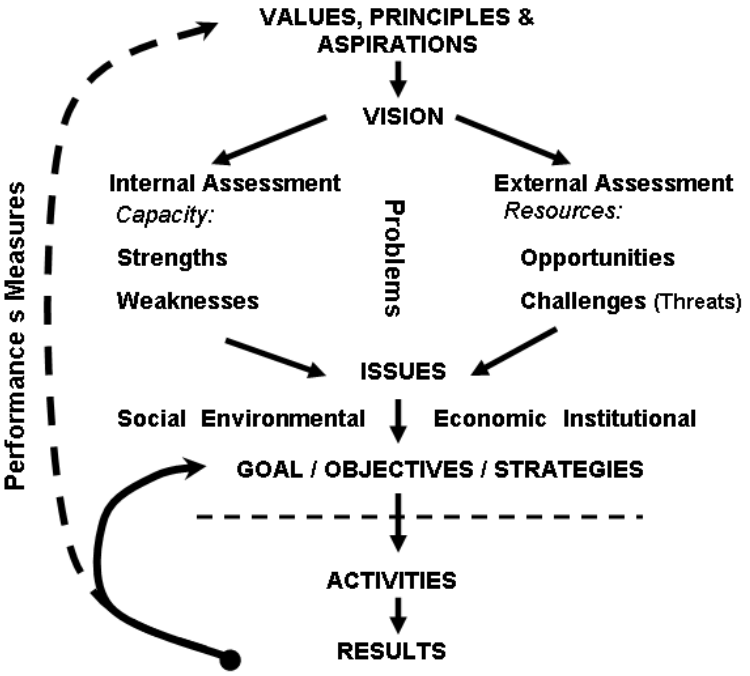
- The structure and details of the planning process are agreed in advance;
- Key stakeholders support it and have opportunities for meaningful participation;
- A process leader is accountable for maintaining forward momentum;
- Process facilitators can build consensus among the key stakeholders and decision-makers;
- The process is conducted openly, honestly and with integrity; and
- Training is provided to all participants on the process to be followed, the terminology involved, and the art of teamwork and group decision-making.

Strategic planning is a management technique that encourages government to take a long-term perspective (up to 25 years into the future) on what results it should achieve by identifying the core values and aspirations of society for its future; the assets available (opportunities) and emerging challenges (threats) that it faces; and the capacity of government to deal with these concerns

and to meet public expectations for their development (internal strengths and weaknesses).

As illustrated in Figure 2-1, the values and aspirations of a society will shape its vision for the future, mainly in terms of broad policy areas such as level of human welfare, environmental quality, economic prosperity and public sector governance that affect their quality of life.

FIGURE 2-1



The nature of specific issues under each of these categories can be defined using a modified SWOT analysis. This analysis involves specifying the mandate and objectives established for a government organization and identifying its internal capacity and the external factors (opportunities and threats) that are favorable or unfavorable to pursuing those objectives (Figure 2-2).

Strengths such as strong leadership, good human resource capabilities, adequate funding, modern technology, and accurate data sets are helpful in achieving its objectives. Weaknesses in these same areas can be harmful if not corrected and may hinder its ability to achieve its objectives.

Opportunities and threats are external conditions that affect how objectives are to be pursued. For example, declining water quality can reduce attractiveness of coastal resorts and beaches as recreation and tourism destinations. Alternatively, large expanses of pristine beach environments may be present in the planning area but supporting infrastructure (e.g. access roads, electricity supply) is inadequate to attract hotel and tourist resort operators.

FIGURE 2-2 Examples of criteria for a SWOT analysis.

	FAVORABLE	UNFAVORABLE
INTERNAL FACTORS	**Strengths**	**Weaknesses**
	People, Capabilities? Facilities, Assets? Experience, Knowledge, Data? Financial Resources? Public Awareness? Innovation? Core Activities? Accreditations, Certifications? Processes, Systems? IT, Communications? Culture, Attitudes, Behavior? Leadership, Management? Philosophy and Values?	Gaps in Capabilities? Asset Vulnerabilities? Education and Training? Continuity, Reliability? Reputation, Presence? Plans, Reach, Staffing? Performance Quality? Morale, Commitment? Deadlines, Pressures? IT Maintenance and Renewal? HR Practices? Leadership, Management? Motivation?
EXTERNAL FACTORS	**Opportunities**	**Threats**
	Resource Quantity, Quality? Geography, Location? Infrastructure? Market Developments? Industry or Lifestyle Trends? Technology and Product Innovation? Global Influence? Education and Research? Partnerships? Workforce and Economies? Season and Weather Influences?	Resource Sustainability? Political Stability, Policies? Legislative, Budget Priorities? Environmental Concerns? New Competitors? New Materials, Technology? Workforce Migration? Investment Finance and Credit? Global Economy? Energy Supply? Geographic Hazards, Risks?

The SWOT technique uses elements of the future vision as benchmarks to identify where problems exist for development in

each sector, determine how they may influence realization of the vision, and set priorities.

The relationship patterns among problems identified from different government sectors create the basis for formulating broad issue statements. When issues have been articulated and prioritized, the goals, objectives and strategies for dealing with each issue can be established. The specific activities to be undertaken to achieve these goals and objectives will be described later in the Action Plan. The performance measures (indicators) that will be used to monitor progress in achieving the agreed goals and objectives may be included in the Strategic Plan, or described in a separate document.

It should be noted that ICM plans do not alter the statutory authority or responsibility of national, provincial or local government agencies, nor affect the rights associated with legally-established resource uses or private property within the planning area. They are intended to supplement existing plans and legislation by focusing on the unique ecosystems and resources of coastal areas, on the needs of local communities, and on the equitable allocation and sustainable use of common-property resources.

Also, ICM plans are intended to be living documents and therefore should be revised periodically as experience is gained through their implementation. A designated lead agency should undertake the responsibility to coordinate all proposed plan changes including revisions, additions and deletions to material contained in those documents.

Structure of a Strategic Plan

When preparing a Strategic Plan, as well as the other ICM plans, good governance practices based on the principles of transparency, accountability, predictability and participation should be observed. Adherence to these principles will ensure that public policy on management of coastal resources will obtain the highest level of stakeholder support and compliance.

The suggested structure and contents for a SP document is outlined in Figure 2-3. The document should be a concise and readable reference; therefore, any supplementary technical data and information, or examples from other jurisdictions, should only be cited in the text and listed in the bibliography.

FIGURE 2-3 General outline for writing a Strategic Plan.

I. INTRODUCTION
   1. Background and Purpose
   2. Geographic Area
   3. Planning Process
   4. Participation
   5. Relationship to other Plans & Legislation

II. PROFILE OF PLANNING AREA
   1. General Description
   2. Key Natural Resources
   3. Spatial Use Patterns
   4. Socio-economic Characteristics

III. STRATEGIC FRAMEWORK
   1. Vision for Development
   2. Development Issues
   3. Development Directions

IV. PERFORMANCE MEASUREMENT

V. IMPLEMENTATION & MONITORING

VI. PLAN REVIEW & AMENDMENT

VII. CONTACTS

VIII. BIBLIOGRAPHY

Description of Plan Contents

Each of the main sections and sub-sections from the model table of contents in Figure 2-3 is explained below under the named heading. Useful appendices to the SP would include maps of the planning area and summaries of the mandate, goals and objectives for the government organizations concerned.