COASTAL ZONE AND FISHERIES MANAGEMENT IN SRI LANKA: PROSPECTS FOR INTEGRATION

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ABSTRACT

Sri Lanka has a Coastal Zone Management Plan and a Coast Conservation Department mandated to protect a strip 300 m wide on land and 2 km seaward. This paper discusses the feasibility of extending this concept to integrate it with the management of fishery and other coastal zone resources which are at present excluded. It is suggested that Special Area Management might provide a means for such integration in areas of particular concern and where a local involvement in management is both desirable and possible.

I. INTRODUCTION

The broad topic of integrated coastal resources management (ICRM) can be approached from different perspectives. Agreement exists among coastal management specialists that ICRM efforts must fit within a comprehensive framework which integrates the range of activities and constitutes sustainable development in coastal areas. In Sri Lanka, most resources management approaches have been sectoral and fragmented. Thus, we will define what we mean by integrated coastal zone (or resources) management in the context of Sri Lanka. First, the existing coastal programme etc. in Sri Lanka is briefly reviewed.

Sri Lanka, unlike other Asian countries with extensive coastlines, has a national coastal zone management programme described in the Coastal Zone Management Plan (Coast Conservation Department, 1990) and by Lowry and Sadacharan (1993). This plan is supported by the Coast Conservation Act of 1981 which mandates the Coast Conservation Department to manage a coastal strip 300 m wide on land and 2 km out to sea. The thrust of the plan is to allow development within this narrow area while preventing unnecessary environmental degradation, pollution and erosion. This is accomplished through a regulatory system which governs most activities in the coastal zone. But, fisheries management is not mandated through the CZM Plan in Sri Lanka.

Thus, although Sri Lanka has a coastal programme which protects the coastal environment, mostly in a physical sense, it does not have an integrated coastal resources management plan which includes the management of coastal resources such as fisheries and forests. And, although the Coast Conservation Department is mandated to coordinate coastal management among all agencies with jurisdiction within the legally defined coastal zone, it does not have the mandate to coordinate agencies and actions to manage coastal resources in a broader and more integrated maimer, for areas outside of the legal coastal zone. Nevertheless, policies which promote a broader and more integrated CRM system for Sri Lanka were adopted by the Cabinet of Ministers in 1994 through the Coastal 2000: Recommendations for a Resource Management Strategy for Sri Lanka's Coastal Region (Olsen *et al.,* 1992).

This paper explores the feasibility of integrating coastal management in Sri Lanka into the broader context of coastal areas and for resources such as fisheries. It discusses the kinds of conflicts which could be addressed by a more integrated system and suggests where cross-sectoral planning and implementation could be effective. Finally, it introduces the concept of Special Area Management as a means of integrated management for coastal resources, including fisheries, for well defined geographical areas of concern where community and local level involvement in management is desired and possible. An important point of discussion is the overriding goal of sustainability, highlighted below.

2. INTEGRATED COASTAL RESOURCES MANAGEMENT

2.1 Sustainable development and use

Since the overriding goal of ICRM is 'sustainable development', this term warrants further definition. Considerable uncertainty exists about how to achieve sustainability, but recent debate has refined the definition. A current consensus is that sustainability constitutes institutional and structural economic changes which allow for current improvement in societal welfare without foreclosing options for similar development for future generations (Fallon and Chua, 1990). Unfortunately, this effort at practical definition provides little in the way of operational guidance.

For the benefit of coastal resources management, however, there is much specific research being conducted to supply information relevant to the sustainable use or carrying capacity of a particular resource such as mangrove forests or coastal land for aquaculture. Coral reef fisheries, for example, have been sufficiently studied so that fish yields around coral reefs under particular environmental conditions and fishing effort can be predicted and set as objectives for management (White and Savina, 1987). Such information can lead to sustainable use of a reef fishery when applied correctly. Indeed, there are site-specific examples of sustainable use of a fishery resource that have benefited from fishery-related research and application (Alcala and Russ, 1990). Nevertheless, such successes constitute neither comprehensive programmes nor examples of sustainable development, both of which are larger and more complicated problems.

The widespread phenomenon of overfishing because of open access regimes throughout tropical Asia is less a problem of poor law enforcement than one related to stagnant or declining economies, poverty, and a lack of alternative sources of income. Thus, some fisheries researchers suggest that narrowly defined problems are unlikely to beget solutions to overfishing. This realisation indicates that appropriate solutions include a more holistic and integrated approach to resource and fisheries management than simply dealing with one site-specific fishery without considering the site's social, economic, cultural and other environmental aspects. Thus, based on increasing failures in the management of fisheries (Emerson, 1994, as an example), a strong argument can be made for integrated and multidisciplinary management of the resource. This assertion can be carried even further when an assortment of related resources such as mangroves, lagoons, coral reefs and beaches, typical of the coastal zone in Sri Lanka, is the subject of management and sustainable use (or development) (Tobin and White, 1992).

Drawing on poor nearshore fisheries (and access) management as an issue, the relative lack of successful management in Sri Lanka indicates a focus on the relief of symptoms rather than addressing underlying causes. For example, banning the use of certain types of gear such as 'light purse seining' or use of explosives have been ineffective because the incidence of their use is increasing in some areas. Although the government policy is to support fishermen's cooperatives at the village level to promote a self regulatory approach to management and conservation, there are few examples of successful community-based or collaborative fisheries management (Atapattu and Dayaratne, 1992). This situation exists because of the 'common property' nature of fisheries resources.

This general failure in fisheries management highlights the need for integrated coastal resources management where all facets of the problem can be addressed within a comprehensive framework. Any strategy for integrating CRM in Sri Lanka should address:

a) control of coastal environmental degradation caused by past development;

b) restoration, enhancement and sustainable use of coastal resources to achieve specific development goals.

2.2 What constitutes an integrated CRM Programme

"Integrated coastal resources management (ICRM) comprises those activities which sustainable use and management of the economically and ecologically valuable resources in coastal areas and which are considerate of interactions among and within resource systems and those of humans and their environment" (White and Lopez, 1991). Although the word 'integration' is sometimes dropped from ICRM to CRM, integration is a key ingredient for effective coastal management, although it is rarely being applied in practice. As stated by Scura (1994):

> "Integrated management refers to management of sectoral components as parts of a functional whole with explicit recognition that human behaviour, not physical stocks of natural resources such as fish, land or water, is typically the focus of management... ICRM employs a multisectoral, strategic approach to efficient allocation of scarce resources among competing uses, and minimisation of unintended natural resource and enviromnental effects. The policy options and management strategies developed and adopted within the framework of ICRM should be based on the status of the natural resources and the environment, the linkages and tradeoffs among activities, the incentives faced by resource users, and ways and means to intercede to bring private behaviour in line with social goals".

Within these broad definitions, ICRM programmes vary considerably in approach, scope, focus and degree of integration as indicated in Figure 1. There is no single model for how they should manifest themselves (Scura, 1993). But, in general, practical and implementable statements on CRM are represented in plans where issues are crisply analysed, objectives clearly stated, and implementable actions specified. A CRM programme must take a practical approach which generates tangible results in terms of sustainable uses and ecosystem condition within two or three years. The programme must focus on issues important to the users of coastal resources to maintain local interest and support and concentrate planning and policy on resolving selected issues, rather than on diluting efforts by attempting to cover every conceivable problem (Robadue *etal.,* 1994).

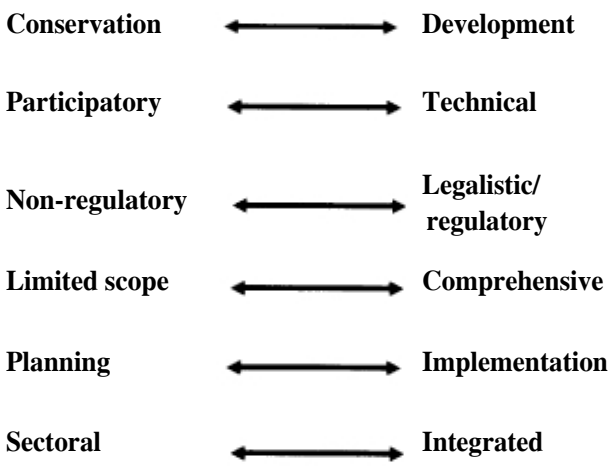

Fig. 1. Range of orientation of Coastal Management Programmes (Adapted from Scura, 1993).

A CRM programme must find efficient ways for planning, decision making and implementation, and address the question of what will happen after an initial intervention. Community organising, education, awareness raising, constituency building and training of staff can give large returns but these efforts must be focused on the problems at hand and be adequately supported to be effective within the limited time frame.

A CRM programme must be monitored and be measurable. The ultimate test of policy is whether coastal ecosystems are improving or are continuing to degrade and whether the quality of life of resource users is being maintained. Thus, a practical CRM programme can be held accountable for the status of the resources and the socio-economic situation of coastal communities where it is implemented. A well designed CRM programme for Sri Lanka, in broad terms, must address various needs and will require the following five components, or some variation thereof, to be successful.

i. Selection and support of field implementation and intervention sites which will serve as testing grounds for strategic interventions, as potential models for replication and as rich testing grounds to inform and test national or international policy.

ii. Build capacity of individuals and institutions through 'learning by doing' and through short term and long term training.

iii. Emphasise programme documentation, monitoring and lesson drawing at all levels to extend the benefits of the results from field intervention sites.

iv. Promote CRM-related national policy dialogue and reform by providing papers and discussion venues on major lessons and output from the project sites.

v. Adopt a programme management structure and style that is integrated, efficient and adaptive, while also promoting internal programme learning.

3. LESSONS FROM PAST AND CURRENT CRM EFFORTS

One lesson which is emerging from all the CRM-related activities in Sri Lanka is that one or more successful area models are needed which produce tangible field results through sustainable management of coastal resources in one site. This is now being attempted through the 'Special Area Management' (SAM) project of the Coastal Resources Management Project, USAID in collaboration with the CCD and other national and local agencies. Although described below, first it is useful to review some lessons from a large CRM project attempting site-specific management in six Southeast Asia countries. These, as summarised by Scura *et al* (1992) are:

i. management should be viewed as a long-term, iterative and continuous process;

ii. it should be perceived as originating from within rather than from outside;

iii. integration with local, regional and national development agendas should be pursued;

iv. local participation by government and communities in policy-making, monitoring and enforcement should be encouraged;

v. existing institutional and organisational arrangements must be fully considered;

vi. research should be oriented toward improved information and analysis useful for the identification of management priorities and formulation of management strategies;

vii. management actions must be matched with issues and goals.

The centre piece of a CRM programme should be field interventions with tangible results. There are certain key features which make up the field level intervention portion of an integrated effort. Those generally accepted for countries with large coastal and mostly rural populations such as Thailand, Indonesia or Philippines are:

i. development of a coastal environmental, socio-economic and legal-institutional profile;

ii. development of a draft management plan for the site which is accomplished early in the programme through community and non-government sector participation so that there is plenty of time for learning and refinement and so the plan becomes a living document;

iii. collection of strategic information for management will be ongoing and focused on supplying the management plan with required supporting data;

iv. continuing consultation with local government, communities and other relevant institutions during the course of the management programme is the basis for sustainability;

v. feasibility studies and training of personnel for community projects and economic development alternatives;

vi, plan and pilot project implementation;

vii. expansion of pilot projects and plan refinement;

viii. evaluation and full community/local and/or national government assumption of responsibilities for continuous management efforts and replication in new sites.

A framework for field level interventions and the roles and responsibilities of various participants is shown in Figure 2, which is derived from the CRM component of the Fishery Sector Programme for the Philippines. This framework highlights the need for total participation at the community level which is essential for long-term adoption of any natural resources management plan. Figure 3 shows the pattern of information flow for an integrated CRM programme which is designed to learn by doing and to refine the management plan through a monitoring and evaluation mechanism.

3.1 Community and participation-based initiatives in CRM

It is useful to emphasise the role of community projects in providing lessons for larger, more integrated and comprehensive CRM programmes. The Philippines has benefited from several, well publicised projects in the 1980s which showed that small fishing communities can and will maintain sustainable use programmes for coral reef resources if they derive tangible benefits from their efforts (White, 1989). Three or more such projects are now totally supported and continued by the communities involved without any long-term outside financial or institutional support (White and Calumpong, 1992). The incentive for this sustainable situation is the continued supply of fish, improved condition of coral reefs, increasing numbers of tourists who come to scuba dive and swim, and the pride derived from sharing the management techniques and successes with neighbouring communities with similar interests.

In Indonesia, management for the Bunaken Marine Park in Manado has been built upon lessons learned from community involvement in the Philippines. Bunaken now has a management plan which has been derived by a long process of participation and consultation among island communities, tourist operators, local and national government officials and several non- governmental organisations concerned with the park. It is reported that the effective protection of the coral reefs and island shorelines has been much improved over the past several years. It is also noteworthy that the Bunaken management project does not have any large external funding and is mostly being implemented through Indonesian government and NGO support and one outside expert.

These examples indicate possible directions for future ICRM programmes which will encompass increasingly large geographic areas for management. Lessons from the above projects also indicate what types of information are important for coastal resources management planning and implementation. These are:

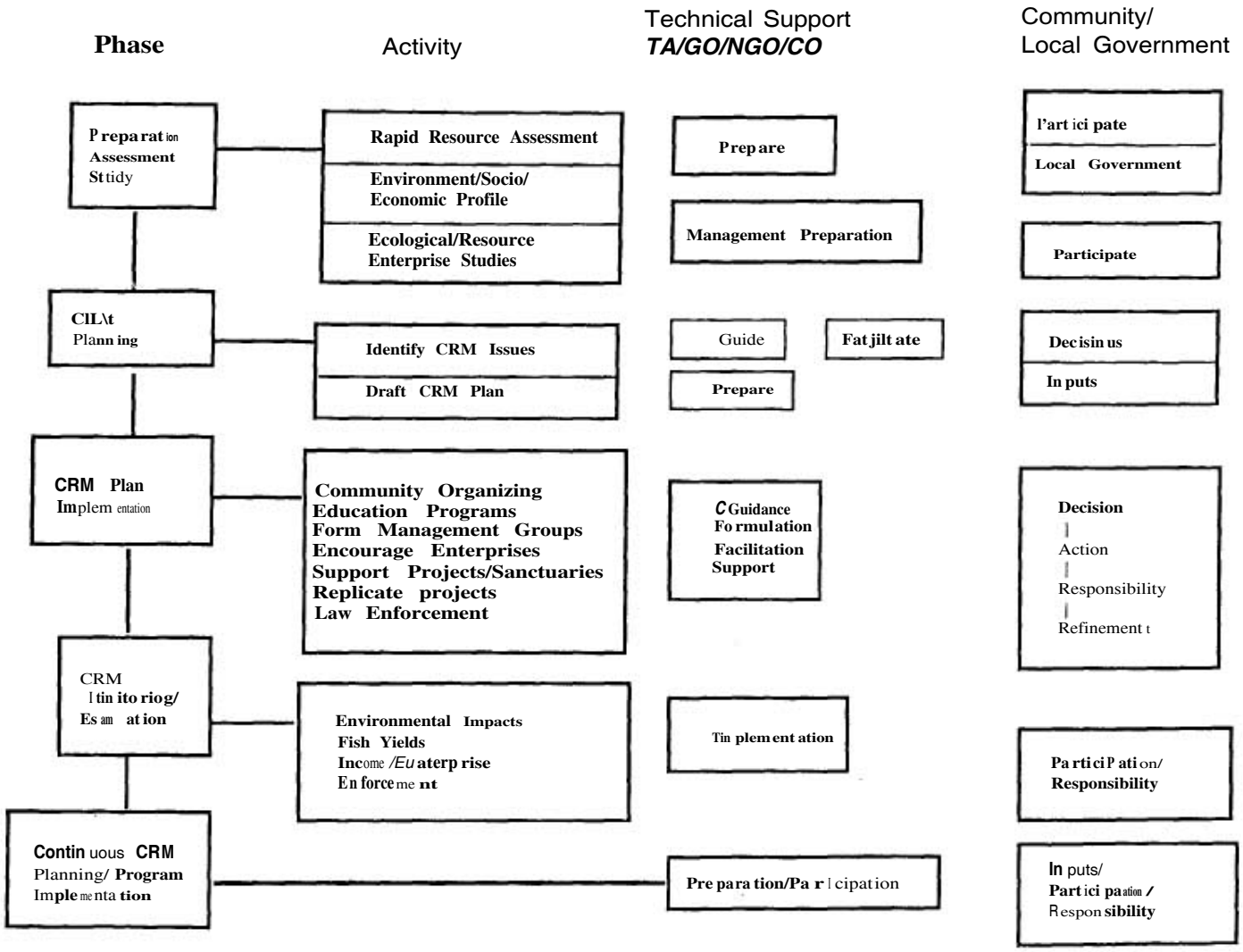

Fig. 2. Phases, activities and responsibilities in a CRM management process (Adapted from White and Lopez, 1991)

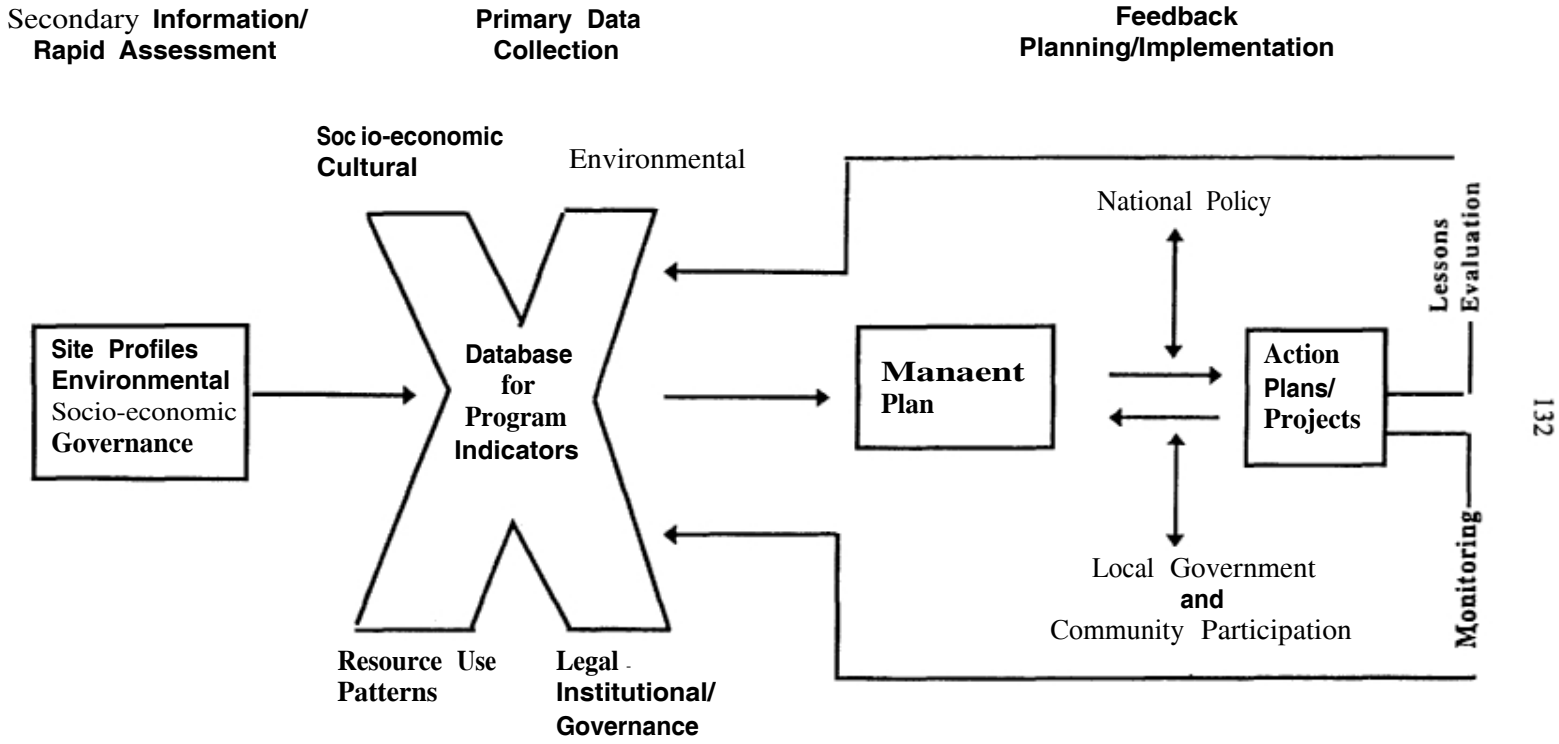

Fig. 3. Cyclical CRM data collection, monitoring, planning and implementation process. (Adapted from White and Lopez, 1991.)

- Biophysical and environmental
- Social, economic, resource use patterns, markets
- Institutional, legal and organisational
- Opportunities for management interventions

Biophysical type information needs to be complemented with more socio-economic, human use patterns, cultural and legal/institutional types of information. Collection needs to allow participation in information gathering by community groups and non-scientists in appropriate instances. These international lessons in coastal management are now being applied in Sri Lanka through two Special Area Management (SAM) sites on the south coast which have implications for ICRM which includes nearshore fisheries management in the country as a whole.

4. SPECIAL AREA MANAGEMENT FOR SRI LANKAN COASTAL RESOURCES

4.1 Introduction

The main reason coastal resources management initiatives in Sri Lanka have not been able to achieve the desired results has been the inability to mobilise the support and commitment of the local community for implementation (White and Samarakoon, 1994). Factors contributing to this situation are as stated by Wickremeratne and White (1992):

i. There has been inadequate participation by local communities in the planning decisions and implementation processes. Local communities therefore feel that the formulation and implementation are being done by outsiders who do not understand the site realities. They are therefore antagonistic or uninterested.

ii. The benefits of improved resource management are not immediately perceived or understood. Equally, the impact of resources management on current livelihoods based on unsustainable use practices are against those people affected and cause them to react negatively.

iii. The means to cushion economic dislocations caused by implementation of improved resource management have not been specified and put in place as a prelude to such implementation. This creates social tensions which are articulated as political objections to implementation.

iv. The financial and social benefits of sustainable resource use practices have not been adequately demonstrated. Hence, local communities do not perceive themselves as beneficiaries.

v. Implementation is by state officials who do not communicate well with local leaders, hence the programme is viewed as interference by outsiders.

These problems can be equally applied to the failures of coastal zone management or coastal fisheries management and can possibly be solved by a more integrated and locally based management approach.

4.2 Special Area Management (SAM)

Special Area Management (SAM) is being tested in two project sites, Hikkaduwa and Tangalle, and includes a lagoon fishery in the case of Tangalle. Similar projects are also ongoing for management of Negombo and Muthuwarjawela lagoons and their surrounding areas. The SAM planning process is based on the recognition that existing planning, legislation and institutional implementation mechanisms alone are insufficient. It accepts the need to integrate the local community at the centre of the planning and implementation effort, thereby making them the custodian of the resources being managed (Wickremeratne and White, 1992).

As stated by White and Samarakoon (1994):

> "**SAM** is a means to achieve resource management within a defined geographical setting. It can resolve user conflicts and provide predictability for decisions affecting conservation and development interests. The limited geographic area of concern focuses management strategies and makes them effective relative to application in a broader area with more variability. It allows integrated management which includes complex ecological and institutional settings not possible to deal with a larger context. SAM planning can use and apply criteria for management of resources which are sustainable because the cause and effect factors can be understood within the geographical, ecological and institutional scope of concern.
>
> The basic premise of the SAM process is that it is possible to organise local communities to manage their natural resources and that they will continue to do so if they perceive that they derive tangible benefits from better management. The planner, the planning agency or the organisation group play only a catalytic **role** in organising the local community. They can provide technical and financial support for the management effort which is formulated and implemented as a local community and/or local government effort. Hence, the planning agency takes on the role of facilitator rather than that of a superior authority that imposes its will on the local community. Important aspects of such facilitation are technical inputs which provide a sound scientific understanding of the nature, scope and potential of the resource when managed sustainable and fmancial support for project activities...
>
> Community participation is possible in SAM planning and implementation to a degree not possible in broader area planning. Whether SAM planning is initiated by an outside national or local government or private organisation it must inherently involve people living within the SAM site. It looks at and considers the total ecosystem including the human elements and communities and their potential role in the process of planning and implementation. For successful management of natural resources within the context of a SAM site, implementation and monitoring becomes a local responsibility and reduces the need for outside support in the long term".

4.3 Implications of SAM projects for coastal management

The SAM planning and implementation process is ongoing for the coastal resources and areas of Hikkaduwa Town and Marine Sanctuary and Rekawa Lagoon, Tangalle. The process focuses on the collaboration of the local communities and government with national government agencies in the formulation of a management plan for the area with short-term implementation projects deemed desirable by all participants. The purpose of SAM in both sites is to resolve competing demands on resources by planning for optimal and sustainable use. The process is to mediate amongst the competing users and to build a consensus on what use or uses can be harmonious and in accordance with national policies for coastal management. It is becoming apparent that the SAM plan requires an intimate knowledge and good understanding of the social and political structure of the community, the special interest groups and stakehoiders, and an identification of

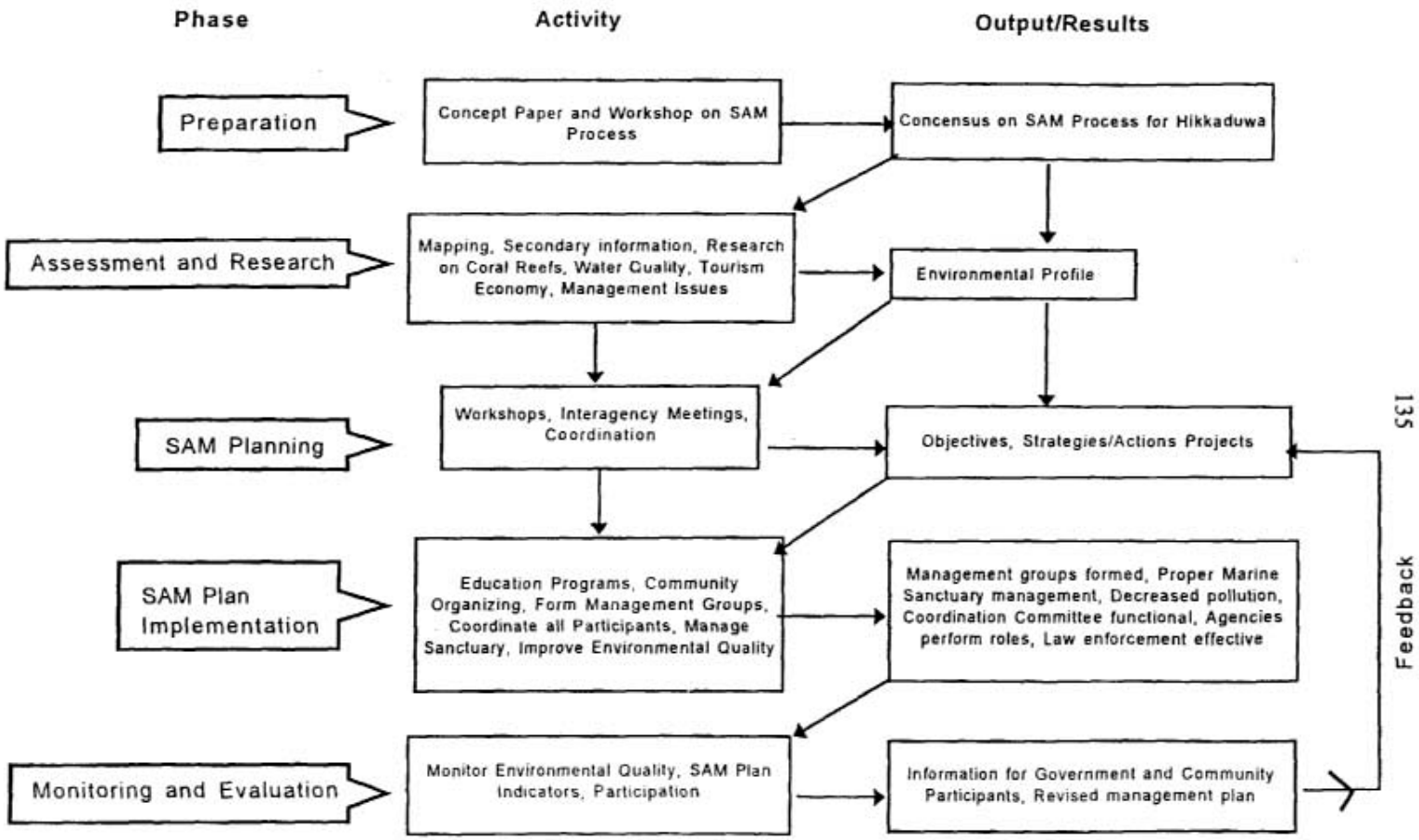

Fig. 4. Special Area Management process for Hikkaduwa.

local leaders and core groups who can become stewards for management. Steps in the process of the ongoing SAM project in Rekawa and Hikkaduwa are described below and summarised for the Hikkaduwa SAM site in Figure 4 (White and Samarakoon, 1994):

(a) Agreement on the need for a SAM process at national level. National agencies must participate in the design and ultimately accept the SAM process before it can be endorsed for use as a planning and management tool.

(b) Compile an environmental profile of the area and determine the priority management issues. The first step in developing a management plan is to compile all the relevant existing information on the area and the status of its resources and human communities. This information can be used as a baseline for management and serve to unify the participants as to what are the needs or priorities of management. An example profile has been recently completed for the Hikkaduwa project site (Nakatani et al., 1994).

(c) Enter the community with full-time professional facilitators and community organisers. The primary task of these field personnel is to liaise with community stakeholders, organise education programmes, facilitate the planning process with these interest groups and to organise core coastal resource management groups on a case-by-case basis.

(d) Conduct planning-cum-training workshops in the SAM site. Such workshops are ongoing as a means of involving the community and local government leaders in the planning process.

(e) Organise resource management core groups. Resource management core groups are defined according to their dependence on different resources such as a lagoon fishery, small-scale beach tourism or agriculture. Such groups are the potential stabilising and institutional forces which can make the SAM plan implementation sustainable.

(f) Draft a management plan through community involvement and determine indicators for monitoring. A draft plan reflects the management objectives of community groups, local government and key national agencies. The process of generating the plans is open and flexible so that all interested parties can have a role and express their views, which would be reflected in a plan.

(g) Implement pilot projects while planning continues. It is important that small pilot implementation projects be started early which provide and show real results to the participants. An example could be improved management of a small lagoon fishery which shows results within one year.

(h) Refine the management plan from experience and broaden its implementation. Plan refinement from the experience of management attempts is crucial to the long-term acceptance of the plan. The refinement process involving all stakeholders and government lets the plan constituency know that it is responsive to management needs and is effective.

i. Review and refine institutional arrangements for implementation. The most difficult question to solve for successful coastal resources or special area management is which institutions will

ensure implementation and sustainability. This knowledge about institutional arrangements can only evolve as part of the SAM process because it will be closely tied to the local and national situation for a given place and time. In the case of Rekawa Lagoon, Tangalle, the Divisional Secretariat is playing a key role in the local coordination of the SAM plan along with the CCD.

Lessons learned from the SAM process in the two sites on the south coast, although preliminary because the project is only two years old, are substantial. They indicate that the SAM process has potential for wider application for integrated CRM in the country and that with some refinements, fisheries management could easily be accommodated. Lessons of particular relevance as highlighted by White and Samarakoon (1994) are:

- The SAM process must be open, participatory and work towards consensus. The government and non-government groups must work together and continue to have open dialogue during the planning and implementation process.
- Decisions must be clear and well documented. Any binding decisions must be very clearly communicated and abided by. Otherwise mistrust will grow and goodwill will be lost.
- National government agencies must understand and accept the process.
- Stakeholder groups must be equally represented in the management process.
- Implementation results should be apparent within three years. If results are not forthcoming within a reasonable time, all concerned lose interest in the process.
- Monitoring and feedback of results makes the programme tangible. Monitoring ensures that changes over time are recorded and understood by all concerned. In this manner, positive results will reinforce participation and further change efforts.
- In Sri Lanka, collaborative management is a more appropriate concept than community-based management for coastal resources.
- Community groups can make the difference between success or failure.

Special area management in Sri Lanka is only beginning and offers no one recipe for success. It will require much more experimentation before it can be generally applied as a management approach to fisheries and other coastal resources. Yet, it holds tremendous potential for promoting an agenda of sustainable development in coastal areas and offers a means of involving all stakeholders in a participatory process which is inherently democratic. On the down side, the SAM process is vulnerable to those who, in the facilitation role, are not sensitive about the needs and perceptions of all stakeholders concerned. Political and special interest biases must be dealt with in a manner which does not alienate people in the process (White and Samrakoon, 1994).

5. CONCLUSIONS

The theme of this paper is that linkages between sustainable development, integrated coastal resources management and the practical application of these concepts need to be strengthened in Sri Lanka. The challenge is not to advocate broadly based strategies, but rather to identify institutional barriers and to provide viable frameworks for action while recognising the diversity and the considerable different political, cultural and economic circumstances that exist in the country. We need to focus more on what works to practically maintain the natural coastal resources we still enjoy in Sri Lanka. This will mean finding out what is appropriate for site specific situations through the process of Special Area Management. We need to measure and monitor our gains so that lessons can be drawn and be used to refine our efforts. Most importantly, all lessons learned and information generated must be with and through local communities and local government personnel as partners in the process.

The potential of SAM and ICRM is that they manage complex situations and consider the whole ecosystem including its human participants and political forces. The ICRM or SAM plan can grapple with management concerns for a given geographical area in a systemic manner while maintaining a focus. When considering a whole range of potential problems, a SAM plan organises itself around a core set of issues which encourage participation and management of natural resources. Although new to Sri Lanka, the SAM process of joint efforts by national and local government working collaboratively with community groups may hold a large potential for improved coastal resources management.

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