ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT IN COASTAL AREAS OF DEVELOPING COUNTRIES

A Sida Initiative in an area of critical importance to sustainable human development

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The world's oceans and coastal areas are critical for the existence of life on earth and for human development. Human societies continue to highly value and directly rely on coastal resources for food, minerals, transportation, and shelter, among other needs. Global food security, alone, requires healthy coastal and marine systems. Over 1 billion people in developing countries rely on fish resources exclusively for their supply of animal protein. Currently two-thirds of the world's population, and an expected 75% in 2020 live in coastal areas. Coastal areas attract the human population because in most regions they are centers for economic growth. However, high population growth combined with increasing poverty and non-recognition of the reliance of economic development on the health of coastal ecosystems has lead to large scale deterioration of the coastal environment, declining economic productivity and conflicts over a failing resource base in many areas of the world. Solutions to the growing coastal and marine issues facing the world will have to tackle a complex set of social, economic, and environmental issues which traditional sectoral approaches to coastal development have proven to be unable to address. Sustainable development in the coastal areas will have to be based on a fundamental shift towards integrated multi-sectoral management approaches that recognize the inter-connections between resources and uses and where poverty alleviation and ecosystem management are central elements. Developing and implementing integrated management will require strong leadership from governments and communities. Without this leadership, the degradation of coastal and marine resources will continue to accelerate and the opportunities still available to proactively address issues before they threaten sustainable development will be lost.

Swedish development cooperation in its various forms is one of Sweden's crucial operational tools in the work of solving or mitigating global environmental and development problems. As one component in the follow-up of UNCED, Sida in its Program for Sustainable Development outlines an initiative to support sustainable development of coastal areas in developing countries with a focus on the South and Eastern Africa and South and Southeast Asia. The program focus on Integrated Coastal Zone Management (ICZM) which represents a viable and proven alternative to traditional methods of planning and management in the coastal areas. ICZM improves the traditional forms of development planning in four distinct ways, namely:

- increases the understanding of the necessary shift towards integrated multi-sectoral and ecosystem management approaches that recognize the interconnections between resources and users,
- optimizes the multiple use of the coastal resources through the integration of social, economic, environmental and cultural information,
- promotes the interdisciplinary approaches and intersectoral cooperation and coordination to address complex development issues and formulate integrated strategies for the expansion and diversification of economic activities, and
- assists local and central authorities to improve the efficiency and effectiveness of capital investment and natural and human resources in achieving economic, social, and environmental objectives as well as meeting international obligations concerning the coastal and marine environment.

Sida is presently developing a program which is designed to enhance marine and coastal management based on the concept of ICZM. The components of the program are selected for their ability to address key emerging trends and issues, as much as possible in a proactive way. Many of the focal areas are at the cutting edge of coastal management solutions, requiring a combination of strategic options to be successful. Examples of such focal areas are:

1 **Demonstration sites**, where the ICZM-concepts are developed for capacity building in the different countries and to function as models for country-wide action programs. Perhaps the most pressing need in coastal zone management for developing countries is simply increased implementation of *integrated coastal zone management site-specific case studies*. Many developing countries are in various stages of developing plans for integrated coastal management and now need assistance to implement them. Demonstration, or pilot, sites are the next major step towards national coastal management programs. Integrated management is still a novel concept to many national, and especially state and district policy-makers. Thus, coastal management efforts face a challenge to prove to policy makers in developing countries that integrated management is both realistic and highly beneficial. Demonstrations projects, in which people can actually view tangible results, are the most effective method for communicating to policy makers the relevance of coastal zone management approaches to their specific resource and development problems and generating support for its expansion. They are also absolutely essential for national capacity building - developing countries cannot launch straight into national coastal management efforts. In addition, coastal management model sites provide the testing ground for developing coastal zone management institutional, planning, regulatory, research, and participatory frameworks for replication at the national level and in other developing countries.

2 **Urban areas**, where the social issues are often dramatic at the same time as the economic growth may provide a sustainable financing mechanism to support viable interventions. *Urbanisation of coastal areas* in developing countries often causes large-scale and dramatic environmental problems. In addition, high levels of poverty are pervasive in urban areas in developing countries. In many developing countries, cities are the only areas with significant economic growth. The availability of infrastructure, such as sewage treatment and access to drinking water, is essential for economic development and quality of life, particularly for the poor urban population. But with figures for population growth in the range of 4 to 8% per year in many developing country cities, environmental problems are growing exponentially, far out pacing infrastructure development. It is therefore urgent to try to channel economic growth towards more sustainable development before environmental and social problems become insurmountable.

3 **Watersheds**, where coastal management programs integrate watershed management approaches. Coastal managers in developing countries are coming to the realization that effective coastal zone management requires an *integrated approach* not only for coastal area, but also the catchment areas which impact the coast. Upstream agricultural runoff, deforestation and sewage, as well as dam construction and irrigation schemes, can severely impact coastal water quality and resources. Experts also recognize the difficulty of trying to change agricultural and forestry practices over large watersheds. However, the need for improved watershed management remains and can be initiated through, as examples, supplying alternative energy sources to reduce demand for fuelwood, practicing soil conservation at the local level, and establishing community awareness programs. A watershed management approach can also assist in reducing immigration pressure on the coast. Initiatives that foster development in inland 'feeder' communities, such as agricultural extension and social infrastructure development, improve the scope for sustainable development in both inland and coastal regions. Local managers in coastal districts in Asia are acutely aware that migration to the coast is negating some of their coastal management advances and foreclosing on long-term development options.

4 **Community-level economic development**, which are based on broad-based community participation and ownership of coastal area management programs. Such programs will focus on the reduction of the pressure on heavily exploited resources and alleviation of poverty by emphasizing alternative livelihood activities such as the development of sustainable mariculture, ecotourism, and sustainable fisheries management. Tourism development is expanding rapidly, with little planning and management in East Africa and Southeast Asia. An immediate need exists to *develop socially and environmentally sustainable tourism*. Currently, local people are losing land and water rights to tourism operators with very little compensation in the form of increased employment and community development. Government intervention is required to protect the coral and beach ecosystems that the tourist industry is based on from the industry

itself. The most pressing need is to assist local governments together with communities and stakeholders to implement coastal land use planning and zoning to manage beach construction and development.

The destruction of vast areas of coastal wetlands by prawn farming in Southeast Asia and its continued expansion in the region, as well growing interest in East Africa, has created a pressing need for *sustainable aquaculture*. The tremendous growth of shrimp farming is driven by very strong financial incentives - no other coastal economic activity can match it. In Thailand, the shrimp boom began in the upper Gulf in 1988, but by 1992 productivity in that area dropped dramatically. Farmers abandoned their ponds and moved down the Gulf leaving highly degraded areas. The concept behind sustainable prawn farming is to change the prevailing 'slash and burn' approach into *environmentally responsible methods* in suitable areas while keeping it out of the most ecologically sensitive sites and away from areas of importance to the traditional fishery. Many experts recommend that countries just developing shrimp mariculture learn from the mistakes of Taiwan, Thailand, and now China by emphasizing intensive prawn farming in designated areas rather than the more common and much more destructive extensive method.

The state of the world's fisheries is a global concern. It dramatically illustrates the result of a growing demand for a valuable resource in combination with open access to the resource. The situation is especially desperate in countries with rapidly growing populations and a tradition of high fish consumption. Sound conservation and management strategies are central to ensuring fair access and sustainable use of fish resources. The catches must be limited to the carrying capacity of the stocks. This will require improved scientific assessments of maximum sustainable yields and, more importantly, matching fishing effort to these levels. However, one important reason for the poor state of the fisheries is that managers and policy makers have disregarded the results of previous stock assessments. Therefore new ways of managing fisheries are required, such as the introduction of tradable quotas for individuals, firms, communities or fishing cooperatives. In addition governments must eliminate chronic subsidies that stimulate the overcapitalization of the fishing sector. In parallel vigorous programs are needed to develop alternative livelihood programs for fishermen. On the technical level, it is important to develop fishing techniques that do not cause damage to the environment and reduce the bycatch of non-target species.

5 **Ecosystem focus**, mainly focusing on coastal forests and coral reefs. Such environments are directly and indirectly supporting a number of economic activities and are at the same time highly threatened. The conservation and management may focus on determining critical areas and development of systems for sustainable use including silviculture. Coral reefs are under tremendous pressure in both Southeast Asia and East Africa from overexploitation and habitat degradation. Their ability to support high concentrations of biodiversity, important commercial fish resources, and international tourism operations as well as their function to protect the coast from erosion is being increasingly lost. What appears to be lacking in many instances is the actual enforcement of existing rules and regulations. Reef rehabilitation and restoration projects have so far not been implemented systematically. However, results from SAREC supported research programs in East Africa indicate that this might be a viable option to complement the conservation and management, including enforcement, of existing reefs. Any new donor initiatives to conserve coral reefs should be based on selected support to the strongest existing programs or the development of a new program with a clear comparative advantage that does not simply add to the multitude of ongoing initiatives.

Coral reefs, sea grasses and mangroves are often located and closely linked in coastal and estuarine ecosystems. Consequently, they are a natural geographic focus for coastal management efforts. Estuaries face greater anthropogenic disturbance than most other coastal systems because of the concentration of population centers and human activities in their immediate environment. Since estuaries are the discharge points for upstream areas, an estuarine focus also necessarily incorporates a watershed approach. The large number of competing resource uses for estuaries, coral formations and mangroves mean that comprehensive management of any of them would represent a clear example of integrated coastal zone management.