

**INTER-REGIONAL CONFERENCE OF SMALL ISLAND COUNTRIES
ON SUSTAINABLE DEVELOPMENT AND ENVIRONMENT
IN AGRICULTURE, FORESTRY AND FISHERIES**

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**ISSUES AND REQUIREMENTS OF
SMALL ISLAND COUNTRIES FOR
SUSTAINABLE DEVELOPMENT AND ENVIRONMENT
IN AGRICULTURE, FORESTRY AND FISHERIES**



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Abstract

Sustainable development and environment issues cut across most activities of the agriculture, forestry and fisheries sectors of small island countries. In spite of their diversity, these countries share common constraints that impede their efforts to develop these sectors, while conserving their environment. Among the constraints are fragile ecosystems, vulnerability to natural hazards, population problems, poor communication facilities, dependence on external economic factors, and risk of rising sea levels. On the other hand, most islands have a considerable potential for tourism and for exploiting the fisheries resources of their exclusive economic zones. While each island state must define its own sustainable development objectives, it can benefit from improved exchange of information with other islands sharing similar problems. The issues for consideration include economic strategies and trade agreements, the most appropriate approach to sustainable development, efficient use of human resources, government structure and inter-island organization, technical cooperation and international assistance.

Agriculture, forestry and fisheries are the sectors of activity which make the largest use of the renewable resources of the planet, are most dependent upon environmental conditions and, conversely, have caused and can cause further environmental changes.

"Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in the agriculture, forestry and fisheries sectors) conserves land, water, plant and animal genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable." (Definition adopted by the FAO Council in November 1988).

It can be said, therefore, that sustainable development and environment issues cut across most activities of the agriculture, forestry and fisheries sectors.

Strengthening environment and sustainable development activities in the above sectors does not merely imply the introduction of some additional "environmental activities" throughout the programmes and projects of ministries and other national institutions

concerned, or their regrouping under a separate organizational and programmatic structure. The full implications of sustainable development concepts on the whole range of strategies, priorities and programmes should be considered, not only across all sectors but also within each sector, so as to ensure that each sector contributes its share to the attainment of sustainability objectives. The process of change, which started with the Stockholm Conference in 1972 and was broadened as a result of the recommendations of the Brundtland Commission, proceeds further with the preparation of the United Conference on Environment and Development (UNCED) which, in turn, will influence the course of future developments and the role of governmental, non-governmental and inter-governmental institutions at regional and inter-regional levels for both multi-sectoral and sectoral activities.

At the global level, strategies for sustainable development in agriculture, forestry and fisheries address three major challenges:

- i) By the year 2025, an additional 3 billion people will have to be fed from a resource base which is shrinking due to diverse forms of degradation. Already, there are more than 600 million people undernourished and some 50 million are now threatened by food shortages and famine in developing countries. Further intensification of food production is therefore imperative to meet present and future demands and to avoid further encroachment on marginal lands and fragile ecosystems which should be protected. However, intensification as practised at present, particularly in developed countries, carries with it problems of pollution and contamination, waste disposal, degradation and depletion of natural resources and loss of biodiversity which can affect not only the environment, but also human health and well-being. Moreover, the enforcement of environmental protection regulations and standards tends to reduce producers' incomes and create new trade barriers, particularly as regards food contamination.
- ii) In most countries, agriculture, forestry and fisheries do not offer sufficient opportunities for gainful employment. Disparities in the living conditions of rural dwellers and fisherfolk, and between them and urban people tend to grow. In developing countries, it is often poverty which forces rural people either to eke out their livelihood at the expense of the natural resources which are their sole means of survival, or to leave the countryside in search of employment in the cities or abroad. In many developed countries, producers' incomes tend to be increasingly vulnerable to the vagaries of weather and markets (as a result, for example, of reduction in support prices); rural populations decrease leaving large tracts of land insufficiently inhabited and unattended, with growing risks of environmental degradation. Meanwhile, as urban populations grow in both developed and developing countries, more intensive forms of agriculture, forestry and fisheries, and related processing industries, develop to meet the needs of city markets, resulting in growing problems of adjustment of supply and demand, and of disposal of wastes.
- iii) The third challenge in the search for sustainable forms of agriculture, forestry and fisheries is related to the global dimensions of a number of environmental threats such as the depletion of natural resources, climate change, air and water pollution, deforestation, desertification and loss of biological diversity. While local environmental problems caused by, or affecting, agriculture, forestry and fisheries

have long been documented, these global environmental threats and the role of agriculture, forestry and fisheries as culprits or victims of such threats are far from being fully assessed. The gravity of these risks calls for a precautionary approach which places additional constraints on these sectors and, more generally, may call for changes in consumption patterns, particularly those of affluent societies.

Small island countries share some common disadvantages which constrain their efforts to develop and conserve their environments. These problems have been reviewed frequently and need only be outlined here:

- limited prospects for agricultural development and food security; limited natural resources, including scarce arable land and water resources which are easily degraded and need restoration and careful management for optimum use;
- vulnerability to natural hazards, including cyclones (hurricanes and typhoons), volcanic eruptions, earthquakes and climatic extremes (floods and droughts);
- high species endemism, fragility of their often unique ecosystems and high potential for loss of biological diversity;
- risks of serious long-term damage from rising sea levels and other effects of global climate change.
- declining prospects for traditional agricultural export commodities, except where favourable arrangements have been made by importing countries;
- susceptibility to infestations of introduced pests and diseases, and to adverse impacts from soil erosion and pollution;
- population problems ranging from rapid growth to reduction through steady emigration and including total populations too small to support essential services economically;
- difficulty in retaining skilled human resources because of lack of opportunity;
- extreme dependence on, and vulnerability to, external economic factors over which the island countries have no control, coupled with simple, poorly-integrated economies, characterized by dependence on a small number of exports and by a high level of imports;
- high costs of transport and poor communications which make it difficult to be economically competitive on world markets, coupled with small size which prevents many economies of scale;

On the other hand, almost all island states are located where their climate, natural heritage and scenic beauty are assets for tourism. There is often considerable potential in the marine resources of their coastal waters and exclusive economic zones (EEZs). Many islands also have rich and distinctive cultures and considerable traditional knowledge of their

environments and resources. It is through building on these assets, coupled with careful and sustainable development of their renewable resources, that island states have the best chance of providing sustainable livelihoods for their populations.

While islands in general share many of the above features, each island is different, with distinct geographic, geological, biological, social and economic characteristics that define and constrain its path to sustainable development. Indeed, there may be much more in common between, say, two volcanic islands of similar size in different oceans than between an adjacent volcanic island and an atoll. Each small island state must therefore develop the means to define its own sustainable development, but can benefit from improved exchange of information with others sharing similar problems. The further development of an island's database can help identify islands with common characteristics or problems.

The many potential types of development for island states cannot be treated here, such as mineral resources development, tourism, industry, transport, offshore finance/banking, high seas fisheries, retirement communities, military bases, etc. Similarly, the critical issues presented by biodiversity conservation and use, and climate change are being considered in other fora. This Conference focuses on those renewable natural resources of soil, water and coastal zones, and their flora, fauna and productive capacity, which are the critical core of sustainable development of agriculture, forestry and fisheries. These have traditionally been the most important island resources; yet today they are frequently threatened by degradation, over-use and contamination. They must be part of a sustainable future, yet they have not received the attention they deserve in the small island context.

AGRICULTURE

The small land area and the relatively homogeneous climatic conditions and soil resources of small islands offer limited prospects for agricultural development. This has led, especially in island countries with high population rates, to increasing dependence on food imports which, combined with poor transport systems and storage facilities, can lead to expensive food supplies and difficulties with food security.

The advantages of crops which attracted colonial planters are being lost due to social and technical evolution. In almost all small island countries, production of these commodities is stagnating or in decline, except where favourable arrangements have been made with developed countries, such as the European Economic Community (EEC).

Development of livestock production has also been limited, mainly due to lack of adequate production systems and producers' organizations, and scarcity of grazing land and other feed sources.

Agricultural support services (research and extension, input delivery, transport and marketing of output) suffer the disadvantages of all small-scale enterprises.

Prospects for diversification and intensification, although limited, represent an important option. Some small island countries could develop their agricultural and livestock production for import substitution, while meeting the needs of the tourist industry.

Island agriculture is often concentrated on coastal plains, wetlands and lowlands. Many islands are now facing problems of food production and security, as populations grow and land is shifted from subsistence production to export crops. Yet, traditional export crops, such as coconuts, coffee, pineapples, palm oil, bananas, plantains, cocoa, sugar cane, and many other vegetables and fruits face serious problems from falling prices, rising transport costs and inadequate transport, making it difficult to compete with larger-scale, better-placed producers. As agricultural development spreads inland, it replaces natural vegetation and forest areas that have a high value for biodiversity (wildlife, reservoirs) and have traditionally provided many benefits to local people, such as thatching materials, medicinal plants, fuelwood, timber and wildlife food. With present terms of trade, these losses may outweigh the economic benefits.

Inadequate agricultural practices threaten other island resources. Intensive agriculture (for pineapples and bananas, for instance) uses pesticides and fertilizers which can easily be released into rivers, groundwater and coastal waters by flooding and drainage. Poor land management, especially on sloping marginal lands, leads to massive erosion, increased siltation and water turbidity in coastal waters.

FORESTS

The large-scale exploitation of forest resources is an important ecological issue facing some island countries, especially in the Pacific region. For these countries, returns from forestry are important for their economies, but the dominant pressure is for short-term economic gains in the absence of adequate procedures or resources to address the long-term economic and environmental costs. There is evidence of contracts being made where timber has been grossly under-valued. Procedures for sustained yield management are often neither adhered to nor enforced. Reforestation programmes are minimal in most areas, resulting in serious forest loss in many countries.

Associated problems of soil erosion lead to loss of valuable land, siltation of rivers and lagoons, contamination of water supplies, and damage to coral reefs, other marine ecosystems and fisheries. Changing patterns of shifting cultivation due to population pressure have added to the problem, as fallow periods become shorter.

Mangrove forests occur along sheltered coastlines of many sub-tropical and tropical islands. Their multiple uses may conflict. The over-exploitation (or destruction) of mangroves and other lowland and wetland forests threatens plants and animals which provide an important contribution to food supplies, reduces the availability of wood (for posts, poles and charcoal) and affects the breeding, hatching and feeding grounds of marine and estuarine animals important for the productivity of coastal and off-shore fisheries.

The removal of forest cover in watersheds, among other effects, increases sediment loading of rivers and direct freshwater runoff to coastal seas, smothering sedentary estuarine and coastal organisms such as those on coral reefs and in seagrass and seaweed beds of key importance as fish habitats.

MARINE AND COASTAL RESOURCES

Fish is an important source of food and commerce for small islands. On some Pacific islands, food sources from the reefs are estimated to provide up to 70 percent of the calorie intake of local people. Commercial fishing is also important for many small island countries.

The capital- and energy-intensive nature of modern deep-water fisheries, as well as the sophisticated technical skills required, have restricted the participation of most small island countries in this sector. Some have opted for the leasing of parts of their EEZs, either individually or collectively.

There are increasing indications that the intensity of the fishing operations and techniques of the distant-water fishing fleets - particularly driftnet fishing - are unsustainable. Island countries of the Pacific region have been heavily involved in efforts to halt large-scale pelagic driftnetting in the South Pacific. The achievements on the driftnet issue show that small island countries and other countries can work together in a speedy and cooperative manner where common economic interests are at stake. Nevertheless, there is a need to establish management approaches based on the ecosystem as a whole, and not just on the sustainable management of a particular fish species, such as *albacore* tuna.

Coral reefs are a vital part of many small island countries in tropical areas, providing protection from the sea and a habitat for numerous fish vital for island food supplies. The biggest threat to coral reefs is from people: collecting coral as construction material or souvenirs, damaging coral by anchoring, walking or landing boats on reefs, overfishing, blasting and pollution. Damage to reefs can lead to *ciguatera* fish poisoning.

The sea provides an important part of islanders' protein. Fisheries also provide a livelihood for fishermen and their families and for others in the related industries (boat-builders, gear-makers, packers, distributors and retailers). They enhance social, cultural, economic and political stability in coastal areas, promote self-sufficiency and may help in reducing the outflow of foreign exchange and the emigration of island populations. For many island villages, simple gleaning activities in mangrove, reef and lagoon areas provide a cheap source of food.

When developing fisheries in small island countries, problems of appropriate scale should be taken into consideration. For instance, the construction of larger vessel harbours and freezer plants should take into account the limitations of stocks, the high seasonality of pelagic resources and the resulting need for alternative uses when these resources are not available.

Fisheries affect the resources and their environment. Selective fishing can change species abundance and dominance, reducing resilience and increasing seasonal and long-term variability. If not properly controlled, fishing can threaten species already under pressure from coastal degradation (e.g. turtles, coral shells, ornamental fish). Use of damaging techniques, such as dynamite and chemicals, is usually prohibited but still common in island fisheries.

Fisheries management has been the major concern of national and regional fisheries administrations for half a century and the UN Convention on the Law of the Sea (UNCLOS) provides for its framework. Most resources are fully utilized or even over-exploited, and the sustainability of many species is threatened by the loss or degradation of estuarine and coastal seas habitats. Maintenance of seafood production and further enhancement, through improved fishing or aquaculture, will be difficult in the absence of environmental management of coastal and enclosed seas. A balance is required in the planning process between the need to conserve marine resources and environments for present and future generations, and the need to achieve the optimum yield from fisheries over the long term.

Aquaculture

Marine species aquaculture uses either the land, including wetlands and mangroves (for pond culture), or the sea (fish cages or artificial reefs). It represents one of the faster growing sectors of the coastal zone and is seen not only as a valuable supplement to local diets, but as a means of earning foreign currency through export. However, many attempts at aquaculture development on small islands have failed because of difficulties including competition from larger and better-placed countries, lack of local foodstocks, vulnerability to storm damage, competition for desirable coastal areas and shortage of technical expertise. Aquaculture for import substitution, especially to supply the tourist industry, may have more promise. Uncontrolled aquaculture expansion and resulting habitat conversion (especially wetlands and mangroves) can have serious environmental impacts which can be minimized through careful planning.

ISSUES FOR CONSIDERATION

The background documents summarize the issues in each sector (agriculture, forestry and fisheries) and the need for integrated management of the whole island system. In considering these core questions of sustainable development of renewable island resources, the Conference may wish to address the following issues as a basis for elaborating recommendations for action and international cooperation.

Information

What are the information needs for managing resources and ensuring sustainability and how can these needs be met? A resource manager cannot work effectively without data on the status of and trends in resources, any more than a financial manager can, without knowledge of income, expenditure and balances. The technologies for collecting, storing and analyzing such data are evolving rapidly and becoming more cost-effective and accessible. This is a logical area for cooperative island efforts with the assistance of international and regional organizations. The need for scientific research on islands and island problems would also benefit from a regional approach.

Economic strategies

Should island economy aim at self-reliance, import substitution or export markets? What are the possibilities and prospects for diversification and intensification of production? The overall form of island economy needs careful consideration in the light of internal potential, scales of operation and external constraints. In the present world climate

for primary commodities, export potential needs to be examined with care, particularly since most islands' primary industries require considerable investments and long lead-times.

Marketing advice

Where islands are producing a commodity for the world market, or where there appears to be new export potential, what can be done to improve the analyses and advice available to islands on global market conditions and trends for each commodity, and the long-term possibilities for competitiveness of island products? Should island countries join together regionally or globally to improve marketing strategies, to achieve economies of scale, or to identify specialized markets where they can be competitive?

Trade agreements

The vulnerability of island economies can be reduced by the negotiation of special trade agreements, which should include compensation for periods of reduction in their export markets. How can island countries best organize themselves to achieve the most favourable terms in such agreements?

Appropriate development

What new approaches to development may be most appropriate to islands? There is a frequent tendency to copy what is being done elsewhere, where conditions may be very different. Yet some species, varieties or technologies may be unsuitable for an island scale of activity, and some chemicals may be too toxic to risk using them in a limited island environment. Other new technologies may be desirable for islands and can help to compensate for island limits. A whole range of new crops or technologies may need to be developed to replace unsuitable ones, or to solve special island problems, but the development costs may not be justified unless spread over many islands. What mechanisms can be set up for this purpose?

Human resources

How should human resources be used more efficiently on islands? Small communities may not need specialists so much as generalists able to deal with a wide variety of situations and to draw on outside expertise when needed. It may even be appropriate to structure employment differently, with islanders dividing their time between part-time jobs in, say government or tourism, and activities in agriculture, forestry and fisheries. Special training programmes may be needed to meet small island requirements, and could be developed at regional centres, such as the University of the West Indies and the University of the South Pacific.

Government structure

What forms should government structures and institutions take to better respond to island needs? Too often, island governments follow colonial patterns inherited from large continental countries. Yet traditional island societies relied more on consultation, participation and decentralization, without much sectoral specialization, and these features may be more appropriate to the nature of island communities. These approaches are also receiving emphasis in Agenda 21 as ways of achieving more sustainable development. The small size of island governments may also require different ways of functioning.

Inter-island organization

How can island states organize themselves to achieve their aims? There is strength in numbers and it is possible to resolve some island problems by working together. The accomplishments of organizations such as the Forum Fisheries Agency, the South Pacific Regional Environment Programme and the Alliance of Small Island States, demonstrate some of the possibilities for better regional or global organization of islands. Are there other needs that could be met in this way?

Technical cooperation

How can improved technical cooperation between developing countries (TCDC) help the island states? There are many possibilities for sharing common services, exchanging experts and pooling requirements for research and training. How can specific requirements be identified, and through what structures can these needs be met? The exchange of experience between different regions (Africa, Mediterranean, Caribbean, Pacific, Indian Ocean) has been particularly weak. What can be done to strengthen it?

International assistance

What do small island countries want from the international system and the United Nations family of agencies? There have been a few programmes in some agencies addressing islands as a special group, but not nearly as many as desirable. What specific international and regional activities or programmes should be developed to respond to island needs? What message does the group of small island states want to communicate to the world leaders assembled at UNCED? How can island countries express their determination to achieve sustainable development through the implementation of Agenda 21, and what supporting measures do they require from the international community? What can the international non-governmental organizations do to help resolve island problems?

This Conference has been arranged and structured to assist policy-makers from the small island countries to explore answers to the above questions. Representatives of international and non-governmental organizations are present to discuss how they can respond to island needs. The resulting recommendations and the Small Island States Declaration, to be presented to UNCED, should fall on fertile ground because of the widespread recognition that major changes are needed in the global system and in approaches to development. The island countries are sufficiently numerous to be heard in global fora. What is needed now is to formulate the requirements as clearly as possible.