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FAO AND SMALL ISLAND DEVELOPING STATES: CHALLENGES AND EMERGING ISSUES IN AGRICULTURE, FORESTRY AND FISHERIES

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Abstract. Agriculture, fisheries and forestry have, for centuries, provided the main source of livelihood for the population of many small islands. These activities still represents a major source of income for many small island developing states (SIDS) and the sustainable management of such activities remains crucial for the future of these states. The Food and Agriculture Organisation (FAO) enjoys a long history of partnership with SIDS. Since the launching of the Barbados Programme of Action in 1994, FAO has extended considerable technical assistance to SIDS and implemented a large number of regional and interregional projects. This chapter summarises the action taken by FAO in favour of SIDS with regard to the global trading environment, agriculture, fisheries, forestry, the environment in general, and capacity building.

1. Introduction

Agriculture, fisheries and forestry have for centuries provided the main source of livelihood for the population of many small islands. These activities still represent a major source of income for many small island developing states (SIDS), and the sustainable management of such activities remains crucial for the future of these states.

During the preparations for the Earth Summit in 1992, FAO realised that small island countries required a special agro-ecological approach in the pursuit of sustainable development. For this reason, FAO organised the Interregional Conference of Small Island Countries on Sustainable Development and Environment in Agriculture, Forestry and Fisheries in Barbados between 7 and 10 April 1992. The Barbados Declaration issued by this Conference called for an integrated

development approach for this group of countries. The birth, at the Earth Summit, of the Convention on Climate Change, led to the awareness that SIDS needed to face together phenomena, such as sea-level rise, which were directly impacting on their survival. The Alliance of Small Islands States (AOSIS) was formed at that time and since then it has constituted a major pressure group within G77.

Subsequently, the UN General Assembly decided to convene a Global Conference on the Sustainable Development of Small Island Developing States in Barbados in 1994, which launched the Barbados Programme of Action (PBoA) for the Sustainable Development of this group of countries. In 1996, FAO strengthened its focus on SIDS by establishing two sub-regional offices in Samoa in the Pacific and Barbados in the Caribbean.

In March 1999, FAO organised a Special Ministerial Conference on Agriculture in SIDS to better support the adoption of appropriate national policies and the provision of technical and financial assistance. This Conference resulted in a Ministerial Declaration which led to the adoption, by the 116th Session of the Council, of a Plan of Action on Agriculture in SIDS. This Plan constitutes the basis for coherent interventions by FAO on agriculture, fisheries and forestry. The Plan forms an integral part of the UN efforts towards achieving the Millennium Development Goals (MDGs) and fits within the Johannesburg Plan of Implementation (JPoI).

Over the past two decades, FAO has provided technical assistance to SIDS through 1,300 projects for a total of US$300 million. Since the launching of the Barbados Programme of Action in 1994, the technical assistance to SIDS amounted to US$ 90 million with a total of 520 projects in 38 SIDS. In addition, FAO has implemented 83 regional projects and three interregional projects. Fifty percent of this assistance was derived from FAO's regular programme for technical assistance—the rest was derived from trust funds.

In addition to field projects, FAO has assisted SIDS through its normative work including the development of international instruments such as the Code of Conduct for Responsible Fisheries, the International Treaty on Plant Genetic Resources for Food and Agriculture as well as global assessments and information systems such as the First State of the World's Animal Genetic Resources, the Food Insecurity and Vulnerability Information and Mapping Systems, the International Alliance Against Hunger and the Anti-Poverty Programme.

Today, new challenges are emerging which need an integrated approach. Modern tools together with traditional knowledge are required to prepare for the future.

The different priority areas identified in the Plan of Action on Agriculture in SIDS are the following:

- adjusting to changes in the global trading environment;
- towards a more diversified and sustainable agriculture;
- meeting fisheries needs;
- ensuring sustainable management of forestry resources, environmental protection and mitigation of natural hazards;
- capacity building, policies and institutional strengthening.

2. Adjusting to Changes in the Global Trading Environment

Facts and Figures on the Global Trading Environment

SIDS are very different in their economic profile and in their level of development, ranging from the most vulnerable to the most developed islands. An analysis of the different level of development of SIDS shows that the majority of SIDS are located in the extreme groups - either the poorer group with a significant agriculture sector, or the richer group with a limited agriculture sector.

The exports of many SIDS tend to be concentrated on a small number of commodities such as sugar cane, banana, tuna fish, tropical beverages and forest products, many of which have experienced a long-run decline market prices and slow growth in demand. SIDS face a number of challenges, many of which are shared by other developing countries, in achieving and retaining competitiveness in international markets for agricultural products. The small size and geographic isolation of many SIDS present particular challenges in terms of achieving sufficient economies of scale to enable producers to compete in international markets or, in many cases, to compete with imported commodities in the domestic market.

Many SIDS depend on a single export commodity and/or preferential access to a single market for a high proportion of their export earnings, making them particularly vulnerable to changes affecting that market. Inadequate transportation and communications infrastructure and weak institutional capacity pose additional challenges for many SIDS in responding to the changing international trade environment.

Most SIDS receive preferential access to the major developed country markets through special arrangements such as the EU's Lomé Convention for the African, Caribbean, and Pacific (ACP) countries, the USA's Caribbean Basin Initiative (CBI) and the World Trade Organisation's (WTO) Generalised System of Preferences (GSP) for developing countries. Benefits accruing from the various preferential trading schemes are concentrated among a few countries and a few commodities, and in many cases the beneficiaries, including SIDS, have not been able to fully exploit the opportunities available to them.

Twenty-four SIDS are members of the WTO. Tonga, Samoa and Cape Verde applied for WTO membership in 1995, 1998 and 1999 respectively and are in the process of accession. Vanuatu has experienced a long tedious accession process to become a member of the WTO which has ended in putting the accession on hold by the Vanuatu Government. SIDS that are members of WTO have a representation in Geneva looking after their concerns in WTO. The Committee on Trade and Development which has been mandated to look after the needs of "small economies", is the forum for discussion of all cross-cutting matters of special interest to SIDS. The Committee on Trade and Development serves as a focal point for consideration and coordination of technical assistance in the WTO and its relationship to development-related activities in other multilateral agencies.

FAO Action in SIDS regarding the Global Trading Environment

Having to adapt rapidly to this evolving international context with sometimes dramatic repercussions at country level, SIDS have strengthened their collaboration and requested assistance for capacity building in order to be better prepared for the trade negotiations and to be better represented at the WTO.

The objectives and proposed actions by the FAO Plan of Action on Agriculture in SIDS in the field of the global trading environment are the following:

- to respond to the new challenges by conducting an assessment of the implications of the Uruguay Round, formulating policy responses to emerging challenges, analysing new opportunities for agriculture and exploiting provisions for technical assistance under preferential arrangements;
- to undertake short-term adjustments by taking full advantage of Uruguay Round openings, seeking to capture a greater share of the preferential margins, and negotiating better access terms;

- to raise competitiveness in agricultural exports by undertaking studies in higher value products for exports, promoting non-traditional agricultural commodities, diversifying exports and establishing market and trade information systems.

In accordance with the above objectives, and in order to assist SIDS meet their capacity-building needs to mitigate the effects of globalisation, FAO has undertaken training activities in relevant agreements and their implications for agriculture and trade e.g., sanitary and phytosanitary measures (SPS), technical barriers to trade (TBT), trade-related aspects of intellectual property rights (TRIPS), as well as in emerging issues and topics relevant to future negotiations and in special issues of regional and sub-regional concern.

Besides training, projects to assist SIDS in the areas of global trading environment have mainly focused on the strengthening national capacity in trade negotiation, phytosanitary capabilities, food security and early warning, market information and institutional development, support in food insecurity and vulnerability information and mapping system, food control system and safety, capacity building in *Codex Alimentarius* food standards and agricultural census and statistics.

Under the umbrella "Training Programme on the Uruguay Round Follow-Up and Multilateral Trade Negotiations on Agriculture" which was launched in 1999, FAO conducted a series of 15 one-week workshops on a regional basis. Thirty-four SIDS attended at least one workshop. Ratings assigned to the achievement of the objectives of the Programme, the coverage and quality of the presentations, background material and discussions of the various topics were consistently high.

FAO, in partnership with the Government of New Zealand and the Commonwealth Secretariat, has also convened an annual Round Table for the Pacific Islands Countries on WTO for six years in a row; the sixth one being held in Wellington, New Zealand in August 2003. The primary focus of the series is to assess the implications of WTO Multilateral Trading System on Agriculture Sector in the Pacific countries. In addition, during the period since 1994, FAO has assisted 19 SIDS through regular funds, in agricultural census and agricultural statistics.

Examples of recent projects in this field include: assistance in strengthening the food control system in Malta; strengthening of the food control system in Suriname; agricultural census and statistics

in the Cook Islands; formulation assistance on trade facilitation in Jamaica; strengthening phytosanitary capabilities in Grenada; strengthening national capacity in agricultural trade negotiations in Guyana; strengthening food analytical capabilities in the Pacific region; food security in Cariforum: market information and institution development strengthening.

Issues and Challenges regarding the Global Trading Environment

The challenge faced by SIDS has several facets including adapting to the potential erosion of tariff preferences currently available under preferential trade arrangements—and responding to the new challenges and opportunities as world trade in agricultural products becomes increasingly free and competitive.

While some of the problems leading to the under-utilisation of trade preferences are of a more structural nature related to supply constraints, they are in part also due to problems in implementing the various provisions of the preferential arrangements. Many of them can be solved through better understanding of the rules and through consultations with the preference granting countries. An in-depth review of the implications of the WTO negotiations for agriculture and food security at the individual country level can help SIDS formulate more appropriate policy responses to the emerging challenges.

In the area of agriculture and food policy, FAO is being asked for assistance in capacity building for agricultural policy analysis concerning trade issues. More detailed advice is being sought about specific policies, analytical methodologies and ways in which policies might be implemented so that countries can take advantage of trade opportunities and make the necessary adjustments to domestic food and agricultural policies.

Some FAO members that are not members of WTO have been assisted in policy preparation before formal entry negotiations have taken place. The obligations of WTO members associated with the SPS measures and TBT Agreements have resulted in a significant increase in requests for FAO technical assistance, including legal assistance for the drafting/revision of the legislative instruments necessary to comply with the Uruguay Round Agreements.

Given the position of many SIDS as net food importers, the importance of creating an environment in which domestic producers can increase food production where this is economically justified, could be emphasised.

The adverse impacts of trade rules that are being forced upon SIDS should not be underestimated. Following the outcome of the WTO meeting in Cancun in September 2003, demands are being put forward for new trade scenarios. Ideas are being developed for a trade organisation based on new principles and practices—an international World Cooperation Organisation (WCO) putting trade at the service of societies with the objective of reducing poverty, and weighing trade rights against social and environmental rights.

In this scenario, the WCO would preserve institutional plurality and supports equal rights between North and South, SIDS ability to adapt to the new context and to propose new routes which suits their needs will reinforce their group representation. The need for SIDS to be organised as a strong negotiating entity, specially in relation to commodities of high relevance (such as sugar, banana and fish) and to be well represented in a Trade Institution is being strongly emphasised.

3. Towards a More Diversified and Sustainable Agriculture

Facts and Figures on Agriculture

Subsistence agricultural production is vital to the economies, nutritional status, and social well-being of small islands—particularly the small, low-lying, atoll states where food security is a major concern. The main subsistence crops include taro, sweet potato, yam, breadfruit, banana, coconut, and a variety of vegetables. Production of cash crops such as sugar cane, copra, coffee, cocoa, rubber, and tea (grown at higher elevations on high islands) also is important because export of these products earns valuable foreign exchange.

In recent years, there has been a tendency to the development of cash crops, and increased land fragmentation. Growing individualism has resulted in increasing land and resources conflict as this is inconsistent with community mechanisms where communal sharing, reciprocation and community status is linked to agriculture and food production, and consensus decisions are the norm. Sustainable land management in many SIDS involves communal tenure systems, traditional land-use practices, cultural values and the integration of environmental and development decision-making. The importance of local knowledge and management systems has been increasingly recognised by FAO and research that has focused on indigenous knowledge and natural resource management practices is receiving growing attention in SIDS.

Another evolution of growing concern in SIDS is the pressure on water resulting from increasing levels of pollution, increasing demands for water from competing sectors, and decline in water resources. Increases in population and urbanisation have increased both solid and liquid wastes. Industrial waste and agrochemicals are a source of pollution in surface and groundwater systems. Tourism promotion has placed further pressures on the water supply. The increased demand for water contributes to over extraction from aquifers, and increased salt-water intrusion.

In terms of genetic resources for food and agriculture, underutilisation of traditional resources, and the consequent loss of diversity, has resulted in concentration on a reduced number of crops and animals. These are becoming a growing concern in many SIDS. Genetic resources represent the most important raw material for farmers and breeders. They also serve as a repository of genetic adaptability and resilience and thus as a safety net in the event of environmental change.

Research by Ximena Flores Palacios (1998), presented in the FAO study on degrees of dependence has shown relatively uniform food consumption patterns that are strongly determined by a few crops. Four crops alone, namely rice, wheat, sugar, and maize, account for over 60 percent of human calorie intake from plants. This sheds light on the low level of consumption of products from so-called secondary or neglected species, which are those cultivated or semi-cultivated species that in other times and under different circumstances played an important role in traditional agriculture and in the supply of food for indigenous populations and local communities such as taro, sweet potato and yam.

SIDS' biodiversity has a limited number and taxa but is highly endemic due to isolation and typical topographic characteristics (especially volcanic islands). For example, in Mauritius, 70 percent of flowering plants, 80 percent of bird and 90 percent of reptile species are endemic. This makes SIDS ecosystems especially highly sensitive to disturbance and species vulnerable to extinction. The globalisation of trade, travel and transport is greatly increasing the number of invasive alien species. Also, change in climate and land use are rendering habitats more susceptible to biological invasion. Sometimes, plants and their associated organisms introduced to enhance agriculture production or provide forage for livestock also introduce invasive alien species.

Invasive alien species are now the most significant driver of population declines and species extinction in SIDS, with direct and/or indirect

harm on the environment (e.g., invasive cut throat coal in the reef system of Hawai), human health (e.g., fire ants in the Caribbean, from Bahamas to Trinidad, and golden apple snail invasions in Asia-Pacific islands) and the economy (e.g., the yellow crazy ant which displaced 60,000 pairs of sooty terns, a main tourist attraction and economic mainstay of Seychelles Bird Island; and the pink hibiscus mealy bug which is a plant pest that caused US$18.3 million in losses to agriculture in Grenada).

FAO Action in SIDS regarding Agriculture

Faced with the challenge of international competitiveness, SIDS are looking for opportunities to diversify their economies, especially the agricultural sector, in order to increase their degree of food security and self-reliance. Limited land area, the paucity of soils suitable for agriculture, the expansion of tourism, increasing urbanisation and the availability of convenience foods have adversely affected the production of traditional food and led to increases in food imports.

A more holistic approach is needed to which FAO's normative and operational activities can make substantive contributions. This would include, inter alia, interdisciplinary studies of ecosystem conservation and management, optimisation of mixed crop, tree and animal production systems, including assessment of indigenous knowledge and traditional production systems. Many SIDS have a potential for the production of tropical fruits, tuber/root crops, nuts and spices, vegetables and cut flowers. The potential for diversification and intensification of these new crops, possibly under organic farming for international and domestic (especially tourist) markets remains largely to be exploited.

The main objectives and proposed actions of the FAO Plan of Action on Agriculture in SIDS in this field are the following:

- to create an enabling environment for agricultural intensification and diversification by supporting existing services, providing legal and regulatory framework for the private sector, pursuing policies to improve production and to improve productivity, developing trade and marketing policy frameworks, reviewing research and extension programmes, strengthening normative and management activities and recognising the roles of women-supported farm households;
- to remove production constraints by building a strong seed programme, reviewing pest control strategies with a view to shift to Integrated Pest Management, developing agroforestry, organic

agriculture, promoting the use of alternative energy sources, promoting irrigation environmentally viable as well as water harvesting and runoff farming techniques, assessing appropriate levels of mechanisation, improving small-scale animal production and animal health and strengthening existing farming systems;
- to improve marketing and processing by establishing food quality control, developing data on world market conditions and trends for SIDS exports, reviewing roles of marketing boards and strategic alliances and reviewing domestic marketing, encouraging the use of under-utilised food crops and fish resources and reducing post-harvest losses.

In line with these objectives, FAO has provided technical assistance to SIDS in the field of veterinary support, farm-scale milk preservation and cheese making, goat industry, meat processing, fertilizer use, water/groundwater management and low-cost irrigation, water supply and catchment protection, land-use planning, emergency assistance, horticultural development, biological control/integrated pest management, crop production (banana, tropical fruits, taro), seed production (hot pepper), mechanisation, post harvest and cottage industry (coconut).

Examples of recent projects in agriculture include re-establishing Samoa's traditional staple food "taro" through rapid propagation of tolerant leaf blight varieties, strengthening banana production in the Maldives, development of an integrated pest management policy and assistance for the management of sugar cane froghopper in Trinidad and Tobago, developing agriculture-tourism linkages in Antigua and Barbuda, strengthening ecologically-based management of "rat" in coconut plantations in the Republic of Kiribati and biological control of the Pink Hibiscus mealy bug in Barbados.

Issues and Challenges regarding Agriculture

"FAO believes in a future in which both rural and urban people have secure livelihoods and adequate nutrition. Agriculture and other activities would be carried out in harmony with the environment, with clean water in streams, lakes and aquifers, surrounded by and integrated with healthy natural ecosystems. Water would be managed efficiently and on a sustainable basis. Access to water and other agricultural resources would be available on an equitable basis and in a fair economic environment that provided opportunities for all. Such a future will not come about automatically: it requires that people be given access to their human, political and economic rights" (FAO, 2000a).

Efforts to develop a more diversified and sustainable agriculture implies the recognition of a people-centred development, and an integrated agriculture which reconciles knowledge of the past and tools of the future—an agriculture that encourages partnerships and alliances.

Recently, governments have been invited by FAO to participate in the preparation of the First State of the World's Animal Genetic Resources through an assessment of national animal genetic resources in the form of country reports. The invitation, sent to 190 countries, has been accepted by several SIDS: Bahamas, Barbados, Cape Verde, Cook Islands, Dominica, Fiji, Jamaica, Kiribati, Mauritius, Samoa, São Tomé and Principe, the Solomon Islands, Cuba, Haiti and Papua New Guinea. The Cook Islands have finalised their country report, the others will respond by the end of 2005.

The widespread adoption of a small number of modern cultivars has led to a very rapid loss of diversity. The International Treaty on Plant Genetic Resources for Food and Agriculture, adopted by the FAO Conference in November 2001, is expected to come into force in 2004 (after the deposition of the fortieth instrument of ratification or accession). Through the Treaty, countries must ensure the survival of the planet's plant genetic resources. Keeping diversity and ensuring diversified production systems are essential components to ensure sustainable conservation and use of biodiversity, the basis for an improved nutrition and enhanced self-reliance. To date, nine SIDS (i.e., Cape Verde, Cuba, Cyprus, Dominican Republic, Haiti, Malta, Marshall Islands, Mauritius, and St Lucia) have signed it and one (Cyprus) has ratified it. As of November 2003, 33 instruments of ratification, acceptance, approval or accession have been deposited with the Director-General of FAO.

The International Plant Protection Convention (IPPC) is a multilateral treaty for plant protection to which 125 governments adhere, of which, 21 (16.8 percent) are SIDS. The purpose of the IPPC is to secure common and effective action to prevent the spread and introduction of pests on plants and plant products, and to promote measures for their control. The Convention provides a framework and forum for international cooperation, harmonisation and technical exchange in collaboration with regional and national plant protection organisations. The IPPC also plays a vital role in trade. It is the organisation recognised by the World Trade Organisation in the Agreement on the Application of Sanitary and Phytosanitary Measures as the source for international standards for the phytosanitary measures affecting trade. The IPPC application to plants is not limited only to the protection of cultivated plants but

also to direct and indirect damage by pests and to natural flora. The IPPC Standards Committee considers, among others, pest risk analysis for living modified organisms.

4. Meeting Fisheries Needs

Facts and Figures regarding Fisheries

The long-term sustainability of fisheries in SIDS has been threatened by over-exploitation of living marine resources, land-based pollution, as well as inadequate fisheries monitoring control and surveillance systems at both the national and regional levels.

In general, inshore capture fisheries adjacent to centres of urban population are heavily fished, if not over-fished. Offshore capture fisheries and associated processing activities provide major economic benefits for some SIDS. Management of inshore fisheries in SIDS is now increasingly taking into account traditional resource use practices, which served to regulate the exploitation and conserve these resources in the past. For some SIDS, exports of tuna, pearls, shrimp and deepwater species are important sources of revenue. However, over the last decade, prices for some of these species, and notably tuna, have stagnated. Despite some increases in export volumes, the total revenue received by SIDS from these exports has showed only marginal change.

The licensing of foreign fishing vessels in exclusive economic zones (EEZs) is particularly important for some SIDS that lack the capacity to harvest the resources themselves. In some instances, revenue from access fees forms a significant proportion of national income. In cases where fees are linked to current world fish prices, the fluctuations in prices creates instability in national revenue and in turn increases the vulnerability of SIDS and dependence on external support.

The main factors that constrain the development and management of the fisheries sector in island states include a lack of institutional and human capacity in both the public and private sectors, complexities of inshore fisheries management, post-harvest losses, poorly developed safety regulations for fishing vessels and fledging, and underdeveloped national fishing industries for the harvesting and processing of offshore resources.

Recognising the need to cooperate regionally on fisheries matters of common concern, some SIDS groupings have put in place effective

regional mechanisms to facilitate collaboration and joint activities concerning the development and management of fisheries. Such cooperation should focus on ensuring that resources are sustainably utilised and that SIDS derive benefit from the exploitation of their stocks by foreign fishers.

FAO Action in SIDS regarding Fisheries

The objectives and proposed actions of the FAO Plan of Action for SIDS in this field are as follows:

- to improve EEZ fisheries conservation and management by promoting traditional institutions and community-based fishery management, by coordinating a set of policies, relocating inshore fisheries effort for the offshore, promoting private investment, implementing the Code of Conduct for Responsible Fisheries, and strengthening effective surveillance of fisheries activities;
- to enhance aquaculture development and inland fisheries by introducing or strengthening aquaculture, by ensuring compatibility with ecosystems, and by establishing information networks;
- to improve post-harvest fish management, marketing and processing by assessing domestic market and export potentials, assessing requirements for marketing installations, and identifying investment needs.

In line with these objectives, FAO has supported the development of fisheries of SIDS in the fields of fisheries statistics and information systems, utilisation of fish waste, policy framework and strategic planning for fisheries and aquaculture, alternative fish feeding, fisheries management, aquaculture development, customary marine fishery tenure, monitoring, control and surveillance, safety standards for small fishing vessels, quality insurance/HACCP-based fish inspection systems, health management in shrimp aquaculture, seaweed farming, participation in MEDFISIS (Mediterranean information) and ecosystem-based management.

More specifically, FAO fisheries programme for Caribbean SIDS contains the following six components: institutional strengthening and national capacity-building; enhanced conservation and management of EEZ fisheries; improved post-harvest fisheries management and marketing; safety at sea; strengthening the economic role of national fisheries industries and the privatisation of fisheries investments; aquaculture development and inland fisheries conservation, and management and development.

The Western Central Atlantic Fishery Commission (WECAFC), based in Barbados, promotes international cooperation for the conservation, development and sustainable utilisation of the living marine resources of the Western Central Atlantic Ocean Area. WECAFC activities are implemented through *ad hoc* working groups based on geography/ecosystem (e.g., WECAFC *ad hoc* Working Group on Shrimp and Groundfish Fisheries in the Brazil-Guyana Shelf) or on species (e.g., WECAFC *ad hoc* Working Group on Caribbean Spiny Lobster and WECAFC *ad hoc* Working Group on Flyingfish in the Eastern Caribbean) or on specific subjects (e.g., anchored fish attracting devices for small-scale fisheries) of interest to the member countries.

Other regions are well served by organisations that promote sustainable practices in fisheries. An interregional project, "Responsible Fisheries for SIDS", targeting South Pacific, Indian Ocean and Caribbean SIDS was initiated in 2002. It aims at strengthening the capacity of SIDS' fisheries administrations to promote and facilitate responsible fisheries through the deeper and broader implementation of the FAO Code of Conduct for Responsible Fisheries.

FAO has also developed tailor-made instruments for SIDS. Documents officially published within the Fishery Law Advisory Programme have been prepared for Barbados, Cape Verde, Caribbean, Comoros, Cuba, the Dominican Republic, Guyana, Haiti, Jamaica, Maldives, St Lucia, Seychelles, the South Pacific and Tonga.

Examples of recent projects in fisheries include:

- Strengthening coastal fisheries legislation in the Pacific Island States of Micronesia;
- Development of standards for the construction and survey of small fishing vessels in Antigua and Barbuda, Barbados, Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines and the Organisation of Eastern Caribbean States;
- Preparation for an expansion of the domestic fisheries for large pelagic species by the countries of the Caribbean community (CARICOM);
- Development of a policy framework and strategic plan for sustainable fisheries management in Jamaica;
- Reduction of environmental impact from tropical shrimp trawling through the introduction of by-catch reduction technologies and change of management in Bahrain and Trinidad and Tobago;

- Assistance concerning flag States' responsibilities for fishing vessels under UN Conventions in Seychelles;
- Assistance in fisheries and marine resources management, policy and legislation in Maldives;
- Scientific basis for ecosystem-based management in the Lesser Antilles, including interactions with marine mammals and other top predators in Grenada;
- Study on formulation of national fisheries management plan for sharks in the Marshall Islands and Papua New Guinea.

Issues and Challenges regarding Fisheries

Effective fisheries management, implementation of national and international legal instruments, capacity building and institutional strengthening, statistical systems and good governance are the key issues for fisheries development in SIDS. They imply sustainable and responsible development, as well as management and utilisation of both inshore and offshore fisheries resources.

Since the early 1990s, two important new concepts in fisheries management have emerged and have entered the fisheries vocabulary and practice. These concepts are long-term sustainability and responsible fisheries. International fora and resolutions have called upon states to ratify and implement international fishery instruments as a means of strengthening fisheries conservation and management. Instruments referred to, in particular, are the 1993 FAO Compliance Agreement and the 1995 UN Fish Stocks Agreement. The FAO Code of Conduct for Responsible Fisheries, a voluntary instrument embracing all aspects of fisheries, provides a comprehensive framework for governments and other stakeholders to implement long-term sustainable practices in fisheries.

The Code sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognises the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all those concerned with the fishery sector. States and all those involved in fisheries are encouraged to apply the Code and give effect to it.

The commitment of SIDS, which has already been well demonstrated, towards the implementation of these binding and voluntary international instruments can be expected to have major beneficial impacts on the future development and management of fisheries.

5. Forestry Resources and Environmental Protection

Facts and Figures regarding Forestry and the Environment

While the combined forest cover of SIDS may be insignificant in global terms, representing less than one percent of the forest area of the world, forests and trees on many SIDS are extremely important for the well-being of the inhabitants. For most of the larger islands, forests also contribute significantly to the national economy and to international trade in wood and non-wood forest products. In addition, forest resources on several islands are of global importance in terms of their role in the conservation of biological diversity, in particular endemic species and genetic variability.

In small islands, the percentage of endemic species is often very high. Examples include the Dominican Republic, Fiji, Haiti, Jamaica and Mauritius, in which more than 30 percent of the higher plant species are endemic. With regard to birds, Fiji and the Solomon Islands have 24 and 20 percent endemism respectively. Half of the mammal species of Mauritius, one third of those in the Solomon Islands and a quarter of those in Fiji are found nowhere else. The level of biological diversity varies to a great extent in different SIDS.

Because of the relatively small areas involved, concern for over-utilisation of forest resources has not attracted much attention. Fifteen SIDS list timber or hardwood forests as one of their main natural resources. With regard to industrial roundwood, Papua New Guinea is, by far, the largest SIDS producer and exporter, and is currently the world's third largest exporter of tropical hardwood logs with the annual trade valued at more than US$ 220 million (FAO, 2000b).

Conversely, many of the smaller states in Oceania and the Indian Ocean and all the Caribbean states (except Cuba) are dependent on imports to meet all or the major part of their needs for sawn wood and wood-based panels.

In the Caribbean, the most important non-wood forest products are medicinal and aromatic plants, citronella (*Cymbopogon citratus*), and sassafras (*Ocotea pretiosa*) oil. Grenada is the world's second largest producer of essential oils derived from the seeds of the nutmeg tree (*Myristica fragrans*). The heart of the manicole palm (*Euterpe oleracea*) is an important export product in Guyana and the principal source of income for Amerindian communities in the coastal wetlands.

The nutritional importance of dominant staple tree crops such as coconut, breadfruit, bananas and plantains, fruit and nut trees is critical to the nutritional well-being of Pacific island people. It is estimated that there are 250 to 500 plants with curative properties in the Seychelles and the Department of Industry is currently conducting a survey and analysis of these aimed at establishing a national data bank with information on species distribution, chemical and pharmaceutical properties, and ethno-botanical knowledge.

With regard to sea level rise caused by global warming, this is likely to severely threaten islands and low-lying coastal states. Global warming is also likely to lead to an increase in maximum tropical cyclone wind speeds and lower central pressures, leading to more damaging storm surges. The combined effect of increases in cyclone intensities and sea level rise is one of the major threats to the future well-being of small island countries.

FAO Action in SIDS regarding Forestry and the Environment

The ecosystems of SIDS are of major economic significance for subsistence and commercial agriculture, forestry, fisheries and tourism. FAO recognises that demands on forest and coastal resources are endangering the long-term supply of these resources. In addition, climate variability and change, sea level rise, and vulnerability to natural disasters are of particular concern. FAO supports national programmes to minimise risks from climate variability and optimise economic returns while protecting the natural resource base.

The objectives and proposed actions of the FAO Plan of Action on Agriculture in SIDS in this field are as follows:

- to manage sustainably the forest resources by a holistic and integrated approach in the use of forest resources, by rehabilitation and conservation of forestlands, by enhancing coastal protection, by promoting agroforestry systems, by integrating planning and by developing ecotourism;
- to enhance environmental protection by strengthening information systems, preventing degradation of marine habitats, coordinating legal frameworks, and by enforcing, ratifying and concluding international conventions;
- to improve disaster preparedness in order to minimise vulnerability to natural hazards, promoting measures to mitigate the impact of hurricanes and supporting early warning systems, preserving mangroves and developing storm warning systems.

The publication *Forests and Forestry in Small Island Developing States* (FAO, 2002) provides an overview of the many current and potential roles of forests and trees in SIDS as well as the major constraints and opportunities for the sustainable management of these resources. A medium-term outlook for the main island groups is presented, ranging from sustainable management of natural forests and plantations development in the Melanesian SIDS, agroforestry and ecotourism in Polynesia and Micronesia, forest conservation and restoration in East African SIDS to ecotourism and safeguarding of freshwater resources in the Caribbean. Several countries in the Pacific region have reviewed and amended their forestry legislation (e.g., Samoa and Fiji) while others have gone a step ahead and developed and put into place new legislation (e.g., Papua New Guinea, the Solomon Islands and Vanuatu). FAO has provided assistance to forestry legislation in Niue, Palau, Samoa and Vanuatu, and has participated in developing the Code of Practice for Forest Harvesting in Asia and the Pacific.

Recent projects in forestry and environment include: Vanuatu forestry legislation; preparation of forest management plans and proposals for a National Forestry School in the Dominican Republic; sustainable agroforestry in the Dominican Republic and Jamaica; support for the Tropical Forestry Action Programmes in Cyprus and Saint Kitts and Nevis; community forestry in Haiti; forest conservation and management in Belize and Papua New Guinea; dendroenergy as alternative to promote sustainable energy development in Cuba; fire monitoring systems in Cyprus and Cuba; strengthening of national capacity to control the sustainable use of the forest resources in Suriname; strengthening the institutional capacity of the Samoa Forestry Division; coconut wood utilisation in the Marshall Islands; and Reviewing the national forest policy in Mauritius.

Regarding hurricanes, tornados, tropical storms and cyclones, FAO has been helping countries set up warning and information systems, advising on the use of hurricane resistant crops and forestry methods, as well as helping agricultural systems and coastal fisheries to get started again in the wake of the storm. The cycle of assistance includes prevention, preparedness planning, monitoring and early warning, assessment of impact and needs, relief, rehabilitation and reconstruction, as well as sustainable recovery. FAO organises regularly impact assessment missions on tropical cyclones to different SIDS.

In 2001, FAO published an *Analysis of the Medium-term Effects of Hurricane Mitch on Food Security in Central America* (FAO, 2001).

Through the FAO supported project, "Emergency assistance for the formulation of national hurricane disaster preparedness", the Governments of the Eastern Caribbean States have come together to formulate national and regional plans to improve hurricane readiness for these sectors. As a result, each participating country (i.e., Antigua and Barbuda, Barbados, Dominica, Grenada, St Lucia, St Kitts and Nevis, St Vincent and the Grenadines, and Trinidad and Tobago) was asked to prepare a set of national reports outlining the particular situation of the agriculture, forestry and fisheries sectors in their respective countries.

Another project, "Support to the local reconstruction initiatives and rural transformation", had invaluable positive results and the impact of the hurricane Mitch, which had dramatic consequences in Central America, was found negligible in the project area thanks to human preventive action. The importance of the FAO Global Information and Early Warning System in SIDS was emphasised during the Second International Conference on Early Warning that took place in Bonn, from 16 to 18 October 2003.

Examples of recent projects in disaster rehabilitation include emergency assistance to farmers and fishermen affected by hurricane in Antigua/Barbuda and Dominica; emergency supply of agricultural inputs to the population affected by hurricane Floyd in the Bahamas and tropical cyclone Cora in Tonga; emergency assistance for small farmers affected by hurricane Keith in Belize and cyclone Hina in Tonga; emergency re-establishment of root crops production in storm-affected areas in St Lucia; emergency integrated nutrition-agriculture intervention in Fiji; emergency supply of essential agricultural inputs to the population affected by drought and subsequent flooding from El Niño in Jamaica and flood-affected farmers in Seychelles; emergency supply of essential fisheries and agricultural inputs to populations affected by hurricane Luis in St Kitts and Nevis.

Issues and Challenges regarding Forestry and the Environment

Pacific countries, supported by FAO, have developed a regional "Code of Conduct of Logging of Indigenous Forests in Selected South Pacific Countries" which was endorsed by the 26th South Pacific Forum meeting in September 1995. This Code is a good example of an initiative to be encouraged and replicated for sustainable development of SIDS. Another positive example is the one of agroforestry systems with coconut as the main wood resource for atolls with low soil fertility as well as for smaller states, where availability of land is a limiting factor. Good prospects also exist for diversification in terms of the provision

of non-wood forest products, where niche markets are present or can be developed. Forest-based tourism and recreation is on the increase, in particular eco- or nature-based tourism.

The extent to which SIDS will be able to overcome their common constraints and capitalise on existing and future opportunities for the sustainable management of their forest and tree resources depends, to a large extent, on the generation of awareness, political will and effective regional collaboration.

6. Capacity Building, Policies and Institutional Strengthening

Facts and Figures regarding Capacity Building

The scarcity of skilled manpower and the weakness in institutional capacities are common constraints shared by SIDS. Current agricultural and food security policies and strategies show that despite a great diversity in SIDS, agriculture, fisheries and forestry still play a major role through their contribution to GDP, as a source of employment, as generation of export earnings to the economy and as a safety net.

The situation of institutions and policy in support of agriculture, fisheries and forestry varies considerably. At one end, the sector is virtually non-existent, such as in Nauru (exporter of phosphate) or Bahamas where tourism (40 percent of GDP), financial and international services, and e-commerce are the pillars of the economy. At the other end, the agriculture sector is predominant, such as in Jamaica where the agricultural sector is recognised as crucial for enhancing economic growth and food security, income and employment generation, poverty reduction and where a number of national agricultural policies are being implemented (the Agricultural Policy Framework 2001-2004, the Corporate Plan, the Operational Plan, the Medium-Term Plan 2002-2004) or in Tonga where, over the past decade, agriculture and fisheries consistently accounted for over 70 percent of the total export earnings, over 50 percent of employment and about 30 percent of GDP.

The importance of the sectors varies from one SIDS to the other. For example fisheries dominate the agriculture sector in the Maldives, a nation 1,192 small coral islands. It used to be the dominant sector of the economy until 1985 when the tourism industry surpassed it in terms of contribution to GDP. In the case of Kiribati, marine resources provide the main source of revenue together with copra.

SIDS have developed policies and strategies to adjust to the new world environment and are in the process of strengthening national institutions to support their implementation. Some new concerns with critical human repercussions are being reflected in the new policies.

One major concern is the growing incidence of poverty. In the case of the Federated States of Micronesia, poverty incidence is estimated to be approximately 40 percent of the population, with signs of increasing inequalities. Another worrying concern in some SIDS is unemployment, which in the case of the Marshall Islands has reached 28 percent of the male population and 37 percent of the female population. Though pervasive poverty has not been a problem, considerable inequality exists between the urban and outer islands population.

Many SIDS are deteriorating nutrition situation, with a growing tendency to import poor quality food, displacing nutritionally valuable local crops. Food vulnerability is increasing in the outer islands where the situation is complicated by distances and changing consumption preferences away from local food towards consumption of imported staples (rice and flour) and convenience food like canned and frozen meat. The increasing incidence of non-communicable diseases, along with prevalent child malnutrition, vitamin A deficiency and anaemia in women, are a testimony of growing nutritional unbalances in a number of SIDS.

Land fragmentation and land ownership remains a growing concern in SIDS where land was mostly communally owned. In the case of the Solomon Islands, land ownership is communally held and about 90 percent is customary. There is a demand for clear land tenure systems recognising traditional land systems to become part of the national legal framework.

Agriculture pests and diseases are also prevalent concerns of many SIDS. For example, in terms of market access for taro and limes, Niue has experienced market access difficulties due to the inability to demonstrate freedom from pests and disease and pest monitoring programmes. SIDS have taken initiatives to diversifying their production as a reaction to declining revenues from traditional export crops. These innovative approaches provide new routes and ideas for adapting to niche markets and to the new trends in northern countries where consumers' preferences are increasingly becoming oriented towards certified products, with information on the origins of the produce and the methods of production.

Many SIDS have adapted themselves to the new environment by developing more participatory processes in their policy design and implementation, and increased decentralisation, adapting traditional decision-making habits to modern requirements. In the case of Tonga, there is an integrated network within each district. Traditionally, district and town officers carried out their functions through informal meetings. Now the formal occasion, the "fono" is normally held once a month, decisions are taken in conjunction with the primary stakeholders concerned. In some islands national development strategies and policies are the result of extensive consultation process involving civil society institutions and private sector representatives.

FAO Action in SIDS regarding Capacity Building

The scarcity of skilled manpower calls for a pooling of the limited human resources through regional cooperation and institutions. FAO has been closely involved in the continuous upgrading of skills (farmers, fishers, forest users, exporters, administrators, extension personnel, both men and women) through specialised training and capacity building.

The objectives and proposed actions of the FAO Plan of Action in the field of capacity building in SIDS, are the following:

- to strengthen national capacities by building up national policy formulation capacity and analytical capacity, as well as scientific, administrative and infrastructure capability;
- to strengthen supportive services to agriculture by strengthening research and extension, improving the accessibility to credit, establishing marketing services, ensuring that women's specific needs are taken into account;
- to provide a coherent institutional framework for sustainable natural resource management by ensuring implementation of legislation, integrating approaches and policies, establishing relevant databases.

In line with these objectives, FAO has undertaken a number of programmes and projects on food security and agricultural policy and strategy. A recent FAO activity involving most SIDS is the "Initiative to Review and Update National Agricultural Development and Food Security Strategies and Policies", which involved country questionnaires providing valuable up-dated information on SIDS' present situation and needs. *Twenty-six* SIDS have also been providing highly relevant data in the Country Policy Profiles on the state of agricultural policy, strategy and foreseen support, which give a clear picture of present potentials and constraints.

The initial results show that the main constraint expressed in SIDS refers to remoteness and dependence on food imports, which generates market access difficulties and food supply vulnerability in the vast majority of SIDS. This food supply vulnerability is aggravated by the current competitiveness from cheap food imports affecting local food production initiatives. From these profiles, it appears that SIDS are mostly concerned about emphasise the following issues: to maintain local food supply promotion, expansion and diversification (96 percent of responding SIDS); to update land tenure policies (40 percent of responding SIDS); to develop irrigation infrastructure and water harvesting (32 percent of responding SIDS).

Agricultural export diversification for strengthening agricultural trade remains a challenge which led to coconut improvement (Kiribati), reorientation and restructuring of the sugar sector (Barbados), diversified exports in Niue (taro, vanilla, honey), and enhancing market access to export fruit products (Samoa). Fishery production is considered as a main policy issue in 40 percent of SIDS while forestry and environment policy issues represent a priority in 28 percent of SIDS.

The main policy implementation gap is the limited human resources capacities which affects over 50 percent of responding SIDS. On the other hand, the decentralisation mechanism in small territories is considered a success in Micronesia, Tonga, Marshall Islands, Tuvalu and Vanuatu. Participatory process is quite efficient in Niue and Samoa. In terms of coordination, Nauru has developed an appropriate inter-ministerial coordinating tool through the National Environment Coordinating Committee (NECC), which manages all support activities relating to the concerned by environment, agriculture, fishery and livestock. Furthermore, inter-ministerial consultation in Bahamas and Barbados is successfully undertaken. Bahamas is a success story in terms of links between agriculture, tourism and environment, which translates in sustainable use of natural resources. The poverty reduction target and link with agriculture is well underlined in Papua New Guinea and St Lucia.

Examples of recent FAO projects in policies, strategies and legal aspects include a special programme on food security projects in 23 SIDS; fisheries law in Maldives; training on quarantine and marketing information in Niue; national plan of action for nutrition in the republic of the Marshall Islands; assistance to the bureau of agriculture for capacity building in farm management, marketing and value adding technologies in the Republic of Palau; and national food production and nutrition in the Solomon Islands.

FAO has been working on improving capabilities of national Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) in four pilot SIDS (i.e., Barbados, Cape Verde, Comoros and Samoa) as a means of reducing food insecurity and allowing donors and technical agencies to more effectively respond to changing circumstances of individual countries (FAO, 2000c). In addition, a workshop on the "Formulation of a National Food Insecurity and Vulnerability Information Strategy for Fiji" was held in Suva, in September 2003.

Issues and Challenges regarding Capacity Building

The review of past and present policies and human resources in SIDS shows that agriculture and fisheries play an important role in supporting the local economy of the islands, contributing to food security. While the economic value of these activities might represent a small percentage of GDP in some SIDS, fishing and subsistence agriculture remain the major activity of many sections of the population.

FAO analysed strengths and weaknesses in agriculture policies and strategies at country level and the following major issues with regard to SIDS were identified.

Positive aspects. Small population size which facilitates reaching a consensus and a quick response to new policies; existing participatory mechanisms in place; existing decentralised administration; potential for diversification into niche markets; high endemism and biodiversity; high potential for ecotourism; large opportunities of fisheries sector; coconut products as a source of income generation.

Policy gaps. Lack of sufficient legal framework; limited human resources; lack of skilled labour due to high migration overseas; low implementation capacities; difficulty of community outreach and inter-island transportation; insufficient conflict-solving capacity of political leaders; insufficient budget; poor statistics; land ownership issues. Further analysis of the Country Policy Profiles is being undertaken and will provide additional openings for upgrading the level of policies and strategies in SIDS for a more accurate planning for the future.

7. Summary and Conclusions

This chapter has shown that the FAO field programmes and normative activities developed on behalf of SIDS since the Barbados

Global Conference have made considerable contributions in specific areas of agriculture, fisheries and forestry, but have been constrained by recurrent impeding factors.

The areas of operation of FAO included adjusting to changes in the global operation in the trading environment, promoting a more diversified and sustainable agriculture, fostering long-term sustainability in the fisheries sector, promoting sustainable forest management taking account of SIDS fragile ecosystem and strengthening the institutional capacity of SIDS in these areas.

There are a number of new and emerging issues including the increasing relative poverty and food insecurity. The role of FAO is more important than ever, in assessing the food and agricultural situation and informing the international community through the Global Information and Early Warning System and the Food Insecurity and Vulnerability Information and Mapping Systems, as well as the Anti-Poverty Programme. FAO's Special Programme on Food Security will continue helping low-income food deficit countries to raise incomes and enrich food sources of the weak segments of the population.

Food-import dependency is being exacerbated. Given the growing tendency of many SIDS as net food importers, FAO is trying to assist SIDS in creating an environment in which domestic producers can increase food production where economically justified, and diversify their production systems into sustainable systems, with due recognition of traditional production systems.

Emerging nutrition-related health issues are on the increase. SIDS are facing clear deterioration in the nutrition situation with a growing tendency of poor quality imported food replacing nutritionally valuable local crops. FAO is responding to the demands of countries through both its nutrition programmes including *Codex Alimentarius* and its agriculture programmes to increase the availability and quality of food.

Looking Forward

Regarding coalitions and trade, FAO will pursue its work with SIDS on trade-related aspects of intellectual property rights (TRIPS), bio-safety and health. FAO's contribution could be enhanced by greater collaboration with agencies to help creating a SIDS Trade Coalition, which will foster a greater recognition of SIDS singularities by the international community.

With respect to the multi-dimensional aspects of human security including food, land and water security in SIDS, the FAO's world knowledge on land and water management can be of great benefit to SIDS by developing a truly integrated approach tailored for these states, involving the agencies and institutions for concerted action. This implies bridging the actual work on strategies and policies being implemented by SIDS with the support of FAO, and a decentralised approach for implementation at grassroots level.

FAO can foster existing initiatives to diversify SIDS' production for local consumption as well as for export markets for organic certified products and other export crops. It can also encourage community-based initiatives on sustainable tourism, with synergic linkages between the tourism and agriculture sectors.

With respect to mitigation of natural hazards, seas and forests, FAO is promoting the concept of long-term sustainable use and management practices of aquatic and forest resources to lessen the adverse impact of cyclones and enable faster recovery of affected areas. The FAO mitigation projects should considerably reduce the impact of high risk tropical cyclones and minimise impacts on vulnerable groups. FAO will pursue its work in that field. A truly integrated approach to forestry and fisheries and the development, ratification and implementation of legal instruments by SIDS is vital to the region and requires collaboration with all agencies and institutions involved.

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