ITTO POLICY DEVELOPMENT SERIES NO.12

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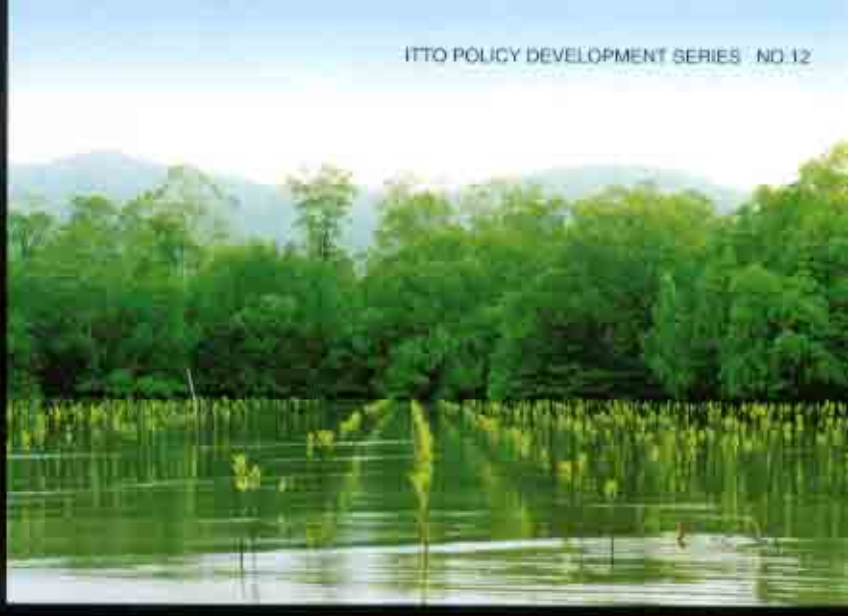

MANGROVE WORKPLAN

2002–2006

INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO MANGROVE WORKPLAN 2002–2006

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FOREWORD

The ITTO Mangrove Workplan has been prepared and published as part of the Organization's policy work and is a concrete example of the importance that ITTO members place on the sustainable management and conservation of these unique forest ecosystems.

Prior to the publication of this Workplan, ITTO had funded approximately US$9 million in mangrove-related projects. These projects have laid the framework in many countries for overall mangrove management and conservation plans, as well as contributing to the restoration and rehabilitation of extensive areas of mangroves. ITTO's project work has also contributed to global information collection and dissemination on mangroves, and has fostered several fruitful collaborative initiatives with other organizations active in this field.

This Workplan will guide the work of the Organization and its member countries on mangroves over the next five years by providing insights into the kinds of activities that are seen as priorities by the Organization for future project work. ITTO looks forward to working together with its many mangrove partners to implement this Workplan and further contribute to the long-term survival of mangrove ecosystems around the world.

Manoel Sobral Filho

Executive Director
International Tropical Timber Organization

June 2002

ITTO MANGROVE MISSION STATEMENT

ITTO aims to promote the conservation, rehabilitation and sustainable management of mangroves to benefit the global community, particularly communities living in the mangroves and their surrounding areas, by engaging in activities within the scope of the ITTA. ITTO's work on mangroves will be carried out in collaboration with relevant organizations and be based upon scientific research of the highest standards, as well as traditional knowledge and value systems.

ACRONYMS

ADB	Asian Development Bank
CIDA	Canadian International Development Agency
DANCED	Danish Cooperation for Environment and Development
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
ISME	International Society for Mangrove Ecosystems
ITTA	International Tropical Timber Agreement
ITTC	International Tropical Timber Council
ITTO	International Tropical Timber Organization
IUCN	International Union for the Conservation of Nature and Natural Resources
IUFRO	International Union of Forestry Research Organizations
JICA	Japan International Cooperation Agency
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
USAID	United States Agency for International Development

ITTO MANGROVE WORKPLAN
2002–2006

1. Introduction

ITTO is one of the main international organizations concerned with the sustainable management of mangrove forests and their conservation. Over the past decade ITTO has undertaken substantial project work to improve the sustainable management of mangroves, their conservation and rehabilitation in several countries around the world.

In November 2000, the International Tropical Timber Council through its Decision 9(XXIX) reiterated and strengthened its support for mangrove forests. ITTO further recognizes the importance of mangroves as explicitly stated in the overall ITTO Action Plan for 2002–2006, which calls on the Organization to, *inter alia*, "promote the conservation, rehabilitation and sustainable utilization of mangroves in collaboration with relevant organizations". The Council's Decision 7 (XXXI) led to an International Mangrove Workshop in early 2002 and, following review by an Expert Panel, to the development of this Workplan. The ITTO Mangrove Workplan will provide guidance for the Organization's future work in this area, for the years 2002–2006.

ITTO's work on mangroves is consistent with the Organization's objectives, as laid out in Article 1 of the International Tropical Timber Agreement (ITTA). These objectives fall under three broad categories:

- Effective consultation and cooperation between members on issues related to the international trade and utilization of tropical timber and sustainable management of its resources;
- Promotion, expansion, diversification and strengthening of tropical timber trade and greater market transparency; and
- Encouragement of reforestation and forest management, sustainable utilization and conservation of the tropical forest and its genetic resources.

Mangrove ecosystem goods and services have links with ITTO objectives. When effective consultation and cooperation is promoted between mangrove timber producing and consuming countries, and there is more diversification and transparency in the international trade of mangrove products, there will be fair sharing of income and the tendency for resource over-exploitation will be reduced. Moreover, when producers are encouraged and supported to practice reforestation, rehabilitation, conservation and proper management of the mangrove ecosystem, the result is healthy or restored mangrove forests that mimic natural conditions. Rehabilitated mangrove ecosystems bring back all the benefits of the ecosystem to the local people who depend on it for livelihood, including the provision of products for international trade.

1.1 Importance and Uniqueness of Mangroves

Mangroves constitute a unique tropical ecosystem, occurring most extensively along the protected coastal shores with muddy to sandy bottoms, which is alternately covered and uncovered by tidal fluxes. Mangroves often extend also into the sub-tropical zone of some eastern coasts of continents and major landmasses due to warm marine coastal currents. The development, structure and dynamics of mangrove ecosystems are otherwise regulated by the interplay of marine coastal waters with fresh or brackish waters from land drainage.

In general, geography, coastal topography (including geomorphology), and tidal regime determine the presence or absence and extent of the mangroves. Structure, physical properties and chemical composition, salinity, acidity of the soil and sediments, the nature of the substratum as well as the climate determine the development, growth and productivity of the mangrove ecosystem.

Mangroves differ from other forest ecosystems in that they receive large inputs of matter and energy from both land and sea. They also store large quantities of organic carbon. They display a high degree of structural and functional diversity, placing mangroves amongst the most complex ecosystems.

Ecologically, mangroves represent a rather sharp transitional gradient between the marine and fresh water environments. Thus, only flora and fauna that have broad physiological tolerance can survive. No other association of woody plants and grasses takes root or develops into a forest in the intertidal zone anywhere in the world. In spite of the demanding environment, mangrove ecosystems are home to

a wide range of plant and animal biological diversity. In terms of animal biodiversity, mangrove ecosystems serve as habitats for many species of birds, mammals, reptiles, fishes, molluscs, and crustaceans, as well as a wide range of hitherto unknown species of micro-organisms. Although the existence of endemic mangrove fauna is rare, some species are highly dependent on mangrove ecosystems.

Mangroves provide many other functions such as coastal stabilization, erosion prevention, biological filtering, and serve as a sink for several pollutants. Mangroves also serve as natural laboratories where scientists can discover new or poorly known ecological or physiological processes, relationships between morpho-types and DNA sequences of the flora and fauna, responses to elevated atmospheric CO_2, etc.

In addition, mangroves provide many economic benefits. Firewood, charcoal, logs and raw materials for paper and chipboard are useful timber products derived from the mangrove forest. Mangroves provide medicines and fodder, as well as habitats and nursery grounds for many commercially important aquatic species. Mangroves are also increasingly viewed as ecotourism destinations. While products from mangrove ecosystems do not generally play a large part in international trade, they are very important for local communities. Integrated management plans are necessary to take account of the complexity of goods and services provided by mangroves.

1.2 Problems and Impacts

In recent times, over-exploitation and destruction of mangroves due to human activities have caused heavy damage to these ecosystems worldwide. Mangrove soil is generally marginal for agriculture, yet conversion of mangrove land for agriculture is widespread. In several parts of the world mangroves have been destroyed to create shrimp ponds which cannot sustain their production over time due to acid sulphate soils, viral diseases, etc. Mangrove destruction is also due to a variety of other reasons: the need for fuelwood, oil prospecting and production, conversion to cattle-ranching, the salt industry and coastal development everywhere (harbor, urban and industrial development, airports, power plants and others). International and national demand for mangrove forest resources and land is at present one of the main causes of the destruction of mangroves. Poor policies and legislation (and lack of enforcement) also contribute to mangrove destruction and degradation. This is partly due to the fact that information on mangroves and their importance is often lacking or inaccessible. During the last decade approximately 1 000 km² of mangroves have been destroyed annually. Mangroves are not wastelands and their destruction, for whatever purpose, invariably results in ecological degradation and social impoverishment of local people. The restoration of degraded mangroves can be extremely costly and time-consuming.

All abiotic and biotic factors acting on mangrove ecosystems vary between and within countries. Over and above this, anthropogenic factors have induced changes in almost all the mangroves of the world, predominantly in a negative manner. Significant changes of all sorts became increasingly damaging during the second half of the 20th century. The changes have affected the distribution, extent and health of single mangrove species and of the ecosystem as a whole. The coastal zone everywhere in the world is extremely dynamic. It may be described as a chaotic system where an infinitely large number of variables are in constant and relentless interaction. The chaotic nature of coastal zone systems makes the impact of changes hard to anticipate and often dramatic.

Mangroves are home to and provide livelihoods for millions of people, but the opinions of local residents regarding their management have seldom been sought. Public awareness regarding mangroves and their conservation is often lacking. There is an urgent need to bring people and nations together to apply the knowledge and wisdom of experience to use the mangrove forest judiciously. By and large, the contemporary attitude is that mangroves are an expendable commodity. It is widely believed that after total felling the forest will regenerate spontaneously. On the contrary, this only happens under very special conditions and usually with human assistance. Many see in mangroves not much more than timber, charcoal and woodchips, despite the many benefits and functions listed in Section 1.1. Indirect benefits offered by mangroves are easily forgotten and set aside when quick profits can be generated by converting mangroves to other uses.

The experience of ITTO and others has shown that unregulated mangrove use leads to the abuse and wastage of natural capital wealth and hampers natural regeneration. It is therefore imperative to find ways and means for rational management appropriate to ecological and socio-economic needs and constraints everywhere. Such management, however, can only be fully developed and implemented at the local level with the collaboration of local people, legislators and experienced mangrove professionals, and must incorporate the development of viable alternative livelihoods.

1.3 Current Activities Undertaken in Mangroves

1.3.1 ITTO

ITTO has contributed immensely to the conservation, rehabilitation and management of tropical forests, including mangroves, through governments, individuals and organizations. The Organization has sponsored numerous projects worldwide to contribute to the goal of sustainably managing the world's tropical forests. ITTO's extensive experience in the conservation, rehabilitation and management of mangrove ecosystems is summarised in the report of the ITTO International Mangrove Workshop held in Cartagena, Colombia, in February 2002.

Between 1990 and 2001, ITTO financially supported mangrove projects totaling about US$9 million in member countries. The projects include research activities, workshops on conservation and sustainable utilization of mangrove forests, establishment of an international network for the conservation and sustainable utilization of mangrove forest genetic resources, establishment of a mangrove information database, and publication of the world mangrove atlas and the manual for mangrove ecosystem restoration.

1.3.2 Other Organizations

Interest in mangrove ecosystem research and management has risen in recent times among many stakeholders. Many other organizations apart from ITTO carry out research, conservation, rehabilitation and management activities in mangrove ecosystems. Organizations such as ADB, CIDA, DANCED, EU, FAO, ISME, IUCN, IUFRO, JICA, Ramsar Convention, UNDP, UNEP, UNESCO, USAID, Wetlands International as well as numerous national governmental, non-governmental and educational organizations have sponsored programs on mangrove ecosystem conservation and management. The experiences of many of these organizations in conservation, rehabilitation and management of mangrove ecosystems are summarized in the report of the Cartagena workshop.

The project areas covered by other organizations include, *inter alia*:

- tourism and environment case studies;
- nursery and plantation projects in mangrove areas;
- railway and port restructuring;
- bee-keeping in mangrove forests;
- production of handbooks on mangroves;
- creation of mangrove walkways; and
- establishment of protected areas.

ITTO has undertaken collaborative work on mangroves with several of these organizations, especially ISME, with which it collaborated to produce the World Mangrove Atlas and other important outputs.

1.4 Other Considerations

The complexity of the mangrove forest and the adaptability and vulnerability of mangrove species and of the entire ecosystem are the basic realities to be considered for the construction of an overall mangrove workplan. To acquire knowledge of mangrove bio-ecology and rational utilization and management of the system, a large number of variables should be taken into account.

On the basis of past experience it is clear that knowledge acquired for the utilization of mangroves in one area cannot be directly transferred to other areas without prior adaptation to local environmental conditions. Detailed local workplans that consider and include the interests and knowledge of local populations should always be developed on this basis. The value of mangrove forests varies widely from place to place as a function of species composition, local productivity of the system and of particular species, and the needs of the local population for livelihoods and trade.

The interaction between international agencies, universities and specialized laboratories must be strengthened as appropriate to facilitate mangrove research and funding. In this context, collaboration and assistance from all stakeholders is essential to ensure the successful implementation of this ITTO Mangrove Workplan.

2. Workplan Objective

The objective of this Workplan is to guide the work of ITTO on mangroves during the period 2002–2006 and to provide guidance to member countries seeking support from the Organization for mangrove management, conservation and rehabilitation through project activities. The Workplan can also serve to guide further collaborative activities between ITTO and others.

3. Activities

The following list of activities, which can be divided into six program areas, is based on recommendations from a panel of mangrove experts. In the formulation of these activities, the panel took account of comments by Council members, the recommendations made by the Cartagena workshop, and the draft Mangrove Workplan considered at the Thirty-first ITTC session. The criteria used to select activities for this Workplan are as follows:

1. ITTO's past history of conducting successful work in the area;
2. Relevance to ITTO's mandate (ITTA Article 1 – Objectives);
3. Relevance to program areas specified in Decision 9(XXIX) as follows:
   - increase awareness among members to promote conservation of mangroves
   - encourage cooperation among members to intensify ITTO's activities to conserve existing mangroves and rehabilitate degraded mangroves;
   - promote the sustainable management and utilization of mangroves;
4. Geographic scope (limited to ITTO membership);
5. Duration of activity;
6. ITTO's comparative advantage;
7. Financial implications for ITTO.

Activities will be carried out by member countries, by ITTO or by both, and whenever possible in collaboration with other relevant organizations. These activities should be submitted and implemented through the ITTO project cycle, taking into account appropriate levels of financial and human resources to be allocated, and the overall balance between all activities of the Organization.

Area 1: Conservation and sustainable management

- Assess existing, and if applicable develop new, methodologies and guidelines for assessing qualitative and quantitative aspects of mangroves
- Assess existing, and if applicable develop new, criteria and indicators for sustainable management of mangrove ecosystems
- Encourage members and assist them where appropriate to:
  - implement sustainable mangrove management and establish protected mangrove areas, including buffer zones surrounding and influencing such areas
  - prepare and implement mangrove management plans
  - establish bilateral and multilateral arrangements for transboundary conservation and management areas
  - rehabilitate degraded mangroves.

Area 2: Mangrove information and awareness

- Maintain, expand and improve access to existing mangrove information databases in collaboration with other organizations [e.g. the Global Mangrove Database and Information System (GLOMIS)]
- Update/revise the World Mangrove Atlas
- Support and participate in an International Year of Mangroves under the United Nations system
- Encourage members and assist them where appropriate to:
  - publish and disseminate mangrove information in local languages
  - conduct assessments, monitoring, mapping, boundary demarcation, etc., where reliable information on mangrove resources is lacking.

Area 3: Socio-economic aspects

- Encourage members and assist them where appropriate to:
  - carry out work to assess the contribution of mangroves to, and impacts of mangrove degradation on, local communities and to generate sustainable socio-economic benefits from mangroves for local communities
  - document and promote use of traditional systems of knowledge and management for mangroves
  - conduct valuation studies of wood and non-wood goods and services from mangrove areas.

Area 4: Mangrove ecosystem functions and health

- Encourage members and assist them where appropriate to:
  - undertake studies and projects to improve understanding of mangrove forest ecosystem structure, growth and function
  - undertake systematic research and monitoring activities to be used to assess the health of mangrove species and their habitat including, *inter alia*, the effects of climate change/sea-level rise
  - undertake studies of ecological impacts of wood harvesting and other human actions (e.g., hydrological alterations, creating shrimp ponds) on different types of mangrove ecosystems and innovative technologies for reducing the adverse impact of human uses.

Area 5: Cooperation and capacity building

- Provide training and fellowships, through the ITTO Fellowship Program, with the intention of sharing and increasing awareness, understanding and skills relating to mangrove ecosystems
- Encourage members and assist them where appropriate to:
  - establish National Mangrove Committees (NATMANCOMs) to coordinate all activities relevant to mangrove ecosystems
  - increase mangrove management capacity for extension workers, government officials and local community leaders
  - encourage and support cooperative relations between all stakeholders (e.g. national and international bodies, local communities, private sector, environmental NGOs) with responsibility for the conservation and sustainable utilization of mangrove ecosystems through networking, workshops, etc.

Area 6: Policies and legislation

- Encourage members and assist them where appropriate to:
  - formulate appropriate laws and policies on mangroves with participation of all stakeholders and ensure their enforcement
  - conduct analyses of existing laws/policies and their impacts on mangrove management/conservation.