

GLOMIS enters new phase

GLOMIS (Global Mangrove Database and Information System) is a project funded by ITTO and implemented by ISME since 1997 to build a database of published and unpublished available data on mangrove ecosystems. The activities of GLOMIS project is run by the Headquarters in Japan, and the four Regional Centres representing Africa, Americas, Asia and Oceania. The GLOMIS web site (<http://www.glomis.com>) now holds over 8,000 mangrove-related data in reference, people, project, and institute. GLOMIS completed its phase I (1997-2001) and phase II (2001-2003), and entered into a new phase in June 2004. Aims of the new phase is to 1) continue collecting and disseminating mangrove information, and 2) strengthen, expand and improve GLOMIS and its networking. GLOMIS Project Coordinator is Prof. Chris Gordon, and the Assistant Coordinator is Dr. Mami Kainuma.

Regional Centres are, for Africa: the Centre for African Wetlands, University of Ghana; for Americas: LABOMAR, Univ. Federal do Ceará, Brazil; for Asia: Forest Research Institute Malaysia; and for Oceania: National Trust for Fiji.

GLOMIS CD-ROM II

As an output of the phase II of the project, GLOMIS CD-ROM II was released. It contains not only data entries that are on the GLOMIS webpage, but also PDF copy of ITTO Mangrove Workplan 2002-2006, GLOMIS Newsletter, Electronic Journal, satellite images, etc. ISME's identification programme of some mangrove species called "Mangroves and Their World" is also enclosed in the CD-ROM. If you are interested in receiving a copy of the CD-ROM, please contact GLOMIS Headquarters (mangrove@ryukyu.ne.jp). Contribution of five hundred yen (approx. US\$5) for postage and handling fees would be appreciated.



Mangrove news from Indonesia

1. Revision on National Strategy for Mangrove Management in Indonesia

In 1993 the Indonesian National Mangrove Committee in cooperation with the National Foundation on Mangrove and other relevant organizations and agencies have drafted National Strategy for Mangrove Management and Action Plan. The proposed draft was then submitted to various agencies, such as Department of Forestry, State Minister on Environment, Department of Home Affairs, to be acted upon. The proposal was then integrated into the ADB Supported project on the "Rehabilitation and Management of Mangrove in Sulawesi (Celebes)" by the Dept. of Forestry. The final draft was printed in two versions: Bahasa Indonesia (Indonesian Language) and English. Each version consisted of two volumes: Volume 1: The Status of Mangrove Ecosystem in Indonesia and Volume 2: National Strategy and Action Plan.

Although copies of the National Strategy for Mangrove Management in Indonesia have been distributed widely to all relevant agencies, universities, research institution, NGO and individual experts, the National Strategy was not accepted as anticipated for two reasons: the preparation and final products were considered as **top down** approach. Thus, no real efforts for **socialization** and there was **no legal basis** for its implementation. As a result, the degradation of mangrove ecosystem in Indonesia continues at an alarming rate. Two subsequent events took place since 1999. The first was the enactment of Act No. 22 on the Regional Government Autonomy, which give stronger autonomic authority to Municipal and District Governments. The Second was the establishment of a new ministry: Department of Marine Affairs and Fisheries. A new authority agency responsible to manage the sea, coastal areas and small islands as well as fisheries in Indonesia.

Based on lessons learned on the shortcomings of the previous National Strategy on the Management of

Mangrove Ecosystem, enactment of Act No. 22/1999 and the establishment of the Department of Marine Affairs and Fisheries, an inter-agencies and multi discipline Steering Committee and Preparation Team have been established to revise the National Strategy. Although the first Draft will be prepared by a Special Team, the Draft will be discussed and socialized to obtain inputs and improvements from all stakeholders. Two national and six regional workshops planned to be organized for this purpose in 2003. The National workshops will be held in Jakarta and the five regional workshops are planned to be organized in Lampung for Sumatra, in Cilacap for Java, in Samarinda/Balikpapan for Kalimantan, in Makassar for Sulawesi and the Mollucas in Denpasar Bali, for Bali, West and East Nusatenggara provinces and in Biak/Sorong for Irian Jaya (Papua). It is hoped that the Draft will be finalized by December 2003 and the year 2004 will be used for further socialization in various parts of Indonesia. It is expected that a Presidential Decree could be enacted as legal instrument for the National Strategy. Dr. Aprilani Soegiarto, represented ISME and LIPI, is a member of the Preparatory Team.

2. Mangrove Information Center in Bali, Indonesia

Last May 2003, the Minister of the Indonesian Department of Forestry officially inaugurated the establishment of the Mangrove Information Center in Denpasar, Bali, Indonesia. The Bali Mangrove Information Center is a cooperative project between the Department of Forestry of the Republic of Indonesia and Japan International Cooperation Agency (JICA). The Project was initiated at first as the Development of Sustainable Mangrove Management Project, run between 1995-2000. In 2001 the project was extended with the support of JICA and was developed into a Mangrove Information Center. A few new buildings and facilities were added to the existing ones.

The Center will develop electronic data and information base on all aspects of mangrove ecosystems in Indonesia and the surrounding regions. Sub-regional Mangrove Information Centers are planned to be established in various parts of Indonesia, e.g. in Lampung, in Samarinda, in Makassar, in Biak, etc.

Recently, the Bali Mangrove Information Center has conducted a series of trainings on the roles of mangrove and its management to decision makers, planners, NGO and other stakeholders from various districts and municipalities in Indonesia. Dr. Aprilani Soegiarto represented ISME and LIPI, and gave lectures on mangrove management in some of the trainings.

Save the mangroves



Professor M.S. Swaminathan, the former and the first President, and Professor Aprilani Soegiarto the third and the current President of ISME embraced each

other when they met at the International Summit on Global Initiative Fish for All, held in Penang, Malaysia, 3 November 2002. They both agreed to work together to save the mangrove ecosystem, one of the most productive ecosystem on earth, but under increasing threats. Prof. Swaminathan at present is the UNESCO Cousteau Chair in Ecotechnology and acted as Chairman of The Steering Committee of the International summit. Whereas Prof. Aprilani is a member of the Board of Trustees of the World Fish Center, the host of the Summit.

Exploitation of mangroves in Pakistan

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Pakistan has a coastline of about 1,000 km. The Indus River delta extends over 250 km from Sir Creek at the Indian Border and Karachi in the west with about 250,000 ha of mangroves (Mirza *et al.*, 1983). An updated assessment is needed. The 750 km long coastline in Balochistan has three small pockets of mangroves and no permanent or significant runoff from land. These mangrove stands are located at Miani Hor, Kalamat Khor and Gawatar Bay, with a collective mangrove coverage of about 7,425 ha. Of the four species of mangroves that occur in the country, *Avicennia marina* is the dominant species everywhere (Saifullah, 1997).

In Pakistan direct utilization of mangroves is restricted to only few types, of these fuel and fodder are the major ones. 1) Fuel (Firewood). The coastal inhabitants of Pakistan are mostly unskilled fishermen and are very poor, they use mangrove wood as firewood. It is estimated about 18,000 tons of wood are utilized annually. The fuel value of *A. marina* wood is low and therefore not recommendable. 2) Fodder (Grazing and stall feeding) - There are an estimated 125,000 persons in the Indus delta region and most of them rear camels, cattle and goats which

either graze or are stall fed on mangrove foliage. The estimated 16,000 camels (Qureshi, 1995) browse exclusively on *A. marina* foliage. Yearly professional herders of the "Jat" community bring their camels from inland to the mangrove islands where they are left for 5-6 months (June-October). Local people bring large amounts of mangrove foliage and twigs to the cattle which is stall fed. In addition to the cattle in the R. Indus alone there are an estimated 2,150 buffaloes and 8,500 sheeps and goats (Qureshi, 1995). Approximately Rs 3,000,000 worth of fodder is cut annually in the Indus delta. The total amount of foliage consumed by the camels has not been estimated. The figure for Korangi and Phitti Creeks together is 660 tons/yr at a price of Rs 1/kg. Mangrove foliage is used as fodder because there is not enough vegetation in the hinterland to feed the cattle. The consumption of mangroves as fuel and fodder by local people exceeds the sustainable yield (Saifullah, 1997).

Small scale direct uses of mangrove are bark for dyeing fish nets in Balochistan and mangrove wood for boiling and curing prawns in the field. About 40 kg of firewood are required for boiling 15 kg of shrimps which are then oven-dried for curing. This traditional method is now supplemented by modern processing and storage facilities. Mangrove poles are used for scaffolding and hut construction.

The indirect benefits provided by mangroves supersede direct uses economically by several orders of magnitude in Pakistan. These include the thriving shrimp and fish fisheries. The annual shrimp landing in Pakistan fluctuated between 25, 598 and 34,000 metric tons during the last decade with an export value of two to three billion rupees. The commercial value of the shrimps depends upon their size, the larger ones costing more than the small ones. Table 1 describes the composition and yield of different size groups.

There are about 235 species of fishes related to mangrove areas (Ahmad *et al.*, 1999). Some species are of commercial importance, such as the Pomphret (*Pampus argenteus*), mackerel *Scomberomorus commerson*, the sea perch *Lates calcarifer* and the shad *Hilsa ilisha*, locally called "Palla". The total number of fish species in Pakistan including those related to mangroves is about 400 and the total annual marine catch was of the order of 432,690 tons in 2001 out of which only 55,734 are exported with a revenue of Rs 3.5 billion in hard currency.

Other animal resources are of limited value and

exploited commercially only locally. The mud crab *Scylla serrata* and the gastropod *Mercenaria sp.* (cockles) are exploited locally. Birds are a tourist attraction. About 83 species have been recorded in mangroves which include resident, non-resident and migratory birds (Ahmad *et al.*, 1999). The so-called "Indus-Flyway" passes through Pakistan and white pelicans, flamingoes, spoon bills and other migratory birds stop over in the R. Indus delta mangroves. About 1,000 ha of mangroves have been converted into salt pans, mostly located in the western part near Karachi.

Prospect of future resources include apiculture, ariculture and ecotourism. Apiculture in the mangroves of the Delta has not yet been exploited commercially. A pilot study by IUCN/Karachi revealed that 5-9 kg honey was produced per colony of *Apis mellifera*. Another study by Sindh Forest Department concluded that the existing forest can support as many as 300,000 colonies of honey-bee during the May-June flowering season and that as much as Rs 100,000,000 may be earned annually through production of honey (Khan, 1999). At many places mangroves may be converted into marine parks which are of interest to ecotourism, ecological studies, environmental education and wildlife protection. Finally, the recommendation is put forth to make cost-benefit analyses of potential socio-economic development of sustainable use of the mangroves of the R. Indus Delta, Miani Hor, Kalamat Khor, Gawatar Bay in Pakistan.

Table 1 Composition and yield of different size groups of shrimps

Size Groups (cm)	10-20	8-14	5-10
Local name	JAIRA	KALRI	KIDDI
Species	<i>Penaeus merguensis</i> <i>P. penicillatus</i> <i>P. indicus</i>	<i>Metapenaeus affinis</i>	<i>Parapenaeopsis stylifera</i>
Annual yield (2001) (metric tons)	6776	7246	11576

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ISME is organizing GLOMIS. Please send articles/publications concerning mangroves and mangrove ecosystems to ISME Secretariat.

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