

STATE OF FORESTS IN SINDH AS WELL AS THE ECONOMIC BENEFITS FLOWING OUT OF IT

Sindh province having a population of about 29.99 million, occupies land area of 14.091 million ha. (34.81 million acres). Out of the above total area of 14.091 million ha an area of 1.125 million ha. (2.782 million acres) is under the control of Sindh Forest Department, which is 8% of the total area of the province. However, out of this total Riverine forests and Irrigated Plantations which are categorized as productive forests cover only 2.29% area, clearly indicating that the province is deficient in forestry resources. The remaining area under the control of Forest Department consists of Mangrove forests and rangelands, which are classified as protective forests. The details of both productive and protective categories of forests are as follows:

Category	Type	Area (Million ha.)	% of total land area of Sindh
Productive Forests	Riverine Forests	0.241	1.71
	Irrigated Plantations	0.082	0.58
Protective Forests	Mangroves	0.345	2.45
	Rangelands	0.457	3.25
	Grand Total	1.125	8.00

So far the energy requirements of the province are concerned, the existing wood energy requirements are estimated to be 6.4 million m³ against sustained supply of 1.68 million m³, thus there is a generating gap of 4.72 million m³ between wood energy supply and demand (FSMP 1992).

Riverine Forests

Sindh Forest Department controls over an area of 241,198 hectares in the riverine tract of the province which are designated as riverine forests and locally known as kacho forests, These forests are dependent on flood water of river Indus and located along both the banks of the River Indus in Thatta, Hyderabad, Dadu, Larkana, Naushero Feroze, Nawabshah, Khairpur, Sukkur, Shikarpur, Ghotki and Kandhkot Districts. The rich alluvial soils support crops of *Acacia nilotica* (Babul) with *Populus euphratica* (bahan), *Tamarix aphylla*, *Tamarix dioica* (Lai) and *Prosopis cineraria* (Kandi). Riverine forests are the most productive forests of Sindh producing wood material for domestic and commercial purposes.

Economic Benefits

Riverine Forests provide major & minor products and services such as timber, firewood, pit props for mines, forage and browse for livestock, biodiversity, and game animals, other non-timber forest products including tannin from bark, gum, honey and even fish from dhands and dhoras (old river beds).

Irrigated Plantations

Irrigated forest plantations of Sindh Forest Department extends over an area of 82,195 ha. and have been declared as Reserved Forests.

Details of irrigated plantations falling within the command area of various barrages are as under:

S #	Name of barrage	Area (in Ha.)
1.	Guddu Barrage Zone	18406
2.	Sukkur Barrage	34567
3.	Kotri Barrage Zone	29222
	Total:	82195

Main species growing there are *Acacia nilotica* (Babul), *Eucalyptus* spp. Talhi (Shisham), Simal and *Conocarpus*. Some development schemes were implemented since establishment of irrigation system. The continued diversion of Indus water in the absence of proper drainage system gave birth to the problems of water-logging and salinity which eventually lead to depressed crop yield and loss of thousands of acres of cultivable land. The seepage from irrigation channels, agricultural fields, and flow of the historic Indus River has increased the ground water reservoir, which could not be drained due to flat topography of the area, low hydraulic gradient and finer textures of underlain aquifer. This resulted in accumulation of water in the aquifer body causing the rise of ground water table.

Economic Benefits

From the above main species of Irrigation Plantation areas, million of rupees revenue is generated due to use of wood supplied to match factories as well as furniture industries and in many herbal medicines.

Indus Delta Mangroves

Mangrove forests covering an area of about 600,000 hectares constitute an important ecosystem in the coastal deltaic region formed by the River Indus. They are almost wholly dependent upon freshwater discharges from the River Indus and a small quantity of freshwater from domestic and industrial effluents of Karachi.

The Indus delta mangroves are under the control of different organizations, which are as follows:

Sindh Forest Department	280,470 ha (693,000 acres)
Port Qasim Authority	64,400 ha (159,000 acres)
Sindh Board of Revenue	255,130 ha (630,000 acres)

At present, four mangroves species are found in the Indus delta as follows:

- i. *Avicennia marina* about 90 %
- ii. *Rhizophora mucronata* about 08 %
- iii. *Aecficeras corniculatum* about 1.5%
- iv. *Cerioos tagal* about 0.5 %

Mangroves forests are essential life supporting ecosystem providing habitat, shelter and breeding ground for a number of economically important wild fauna and flora, acting as barrier for the protection of coastal regions / ports against the disastrous natural phenomenon such as cyclones, wind storms, flooding and soil erosion etc.

Economic Benefits

The Indus Delta, provides subsistence to approximately 200,000 people throughout the year. About half of this population is located in Korangi area relocated on the southern outskirts of Karachi.

The economic importance of mangroves of Indus delta could be ascertained from the fact that they provide important breeding zone for commercially important marine fish, shrimps, lobsters and crabs which help national economy earn US\$ 100 million annually from export earning besides, providing employment and livelihood to more than 100,000 people associated with fishing industry. It is estimated that 90% commercially important tropical marine fish species, especially prawn, spend atleast some part of their life in the mangroves. If the mangroves are degraded then much 250,000 tones of fish caught off the Sindh Coast will be a risk (IUCN) in 1998, Pakistan earned Rs.2.24 billion from fish export.

Rangelands

Rangelands are ecosystems that play critical ecological roles which include, habitat for wildlife, source of biodiversity and pollution buffer. Furthermore, rangelands in Pakistan are a major source of forage for livestock particularly sheep and goats.

Registan lies in the districts of Thar, Mirpurkhas, Sanghar, Khairpur and Sukkur covering the eastern flank of the province, which provides habitat for important fauna such as Partridges, Pea fowl, Sandgrouse, Birds of prey, rare Species of Chinkara, Desert cat, Indian wild Ass, endangered Houbara Bustard etc.

The Arid lands of Kohistan lies in the west of the river Indus, in Districts of Karachi, Dadu, Thatta and Larkana , wherein, the first National Park of Pakistan has been established for the protection of endangered Sindh Ibex (*Capra hircus*). It has extensive mountainous area, particularly in the south. There are several major drainage systems which discharge in the Indus during the infrequent period of heavy rains. Slightly less than 10% of the region is cultivated, The region supports estimated population of 0.302 million in an area of 43000 Sq. Km.

Economic Benefits

The arid lands in Sindh cover 60% of total land area of Province. These rangelands support millions of people and their livestock as a source of fodder, forage, food and fuel-wood etc.

Plans Presently under implementation for bringing more lands under forests especially plantation of bigger trees

Various programmes and development schemes are presently underway in Sindh Forest Department for bringing more and more area under tree cover. It is expected that by the year 2013 about 32.42 million plants of different suitable species as per requirement of site and conditions will be planted inside the state owned forest area and on private farms, including the targets of planting to be achieved during Spring and Monsoon Tree Planting Campaigns.