

### THE PERFORMANCE OF SOME NON-MANGROVE SPECIES IN THE COASTAL AREAS OF BANGLADESH

From 1966 up to 1990 the Forest Department has raised a massive plantation of 125,000 hectares with *Sonneratia apetala* and *Avicennia officinalis*. However, due to rapid rise in ground level some areas in the coastal belt are now unsuitable for mangrove plantations. The Forest Department, therefore, tried some mesophytic species in such areas. Seven non-mangrove namely, *Acacia nilotica*, *Albizia procera*, *Albizia lebbek*, *Pongamia pinnata*, *Casuarina equisetifolia*, *Samanea saman* and *Hibiscus populanaeous* were observed to exist in the mangrove areas.

Non-mangrove plantations of Noakhali Coastal Afforestation Division were visited during 1990 and 1991. The Plantation Journals of the division were consulted. The diameter at breast height and the height of the trees were measured. The survival was occularly estimated. Information about non-mangrove plantation was also collected from the forest staff through discussion.

The non-mangrove plantation areas were inundated by the monsoon high tide only. The soil texture was reported to range from silty-loam to silty-clay loam,  $p^H$  between 7.5 and 8.2 and soil salinity between 2.5 and 12.0 m mhos/cm in dry season (Hassan 1986). Except *Casuarina equisetifolia* all other species were raised by dibbling seeds on 7m x 0.75m x 0.6m earth heaps. Subsequently, no tending operation was carried out.

Out of the 7 species *Acacia nilotica* and *Albizia procera* were found promising. *A. nilotica* was the most common species. The mean annual increment (MAI) in height varied between 0.46m and 0.27m and that in diameter varied between

1.26 cm and 0.51 cm (Table 1). The tree form was generally poor.

The next abundantly available species was *A. procera*. The growth of the species at Char Majid and Char Nangulia was luxuriant. The MAI for the height and the diameter varied between 0.76 and 0.90m and 0.90 and 1.23 cm respectively (Table 1). The tree form was good.

Few individuals of *Albizia lebbek* were noticed in mixture with *A. procera*. The MAI for the height and the diameter was 0.40m and 0.67 cm respectively (Table 1).

*Pongamia pinnata* was found at Char Majid and Char Mohiuddin. The survival of the species was reasonable (2-4 trees per heap). The maximum annual height and diameter increment was 0.58m and 0.83 cm respectively (Table 1). Generally the tree form was poor.

*Casuarina equisetifolia* was found in excellent form at Char Mohiuddin and Char Nangulia. The MAI in height and diameter varied between 0.65 and 0.70m and 0.59 and 0.94 cm respectively (Table 1).

Only 5 individuals of *Samanea saman* were noticed at Char Majid and Char Nangulia. The MAI in height and diameter was 0.54m and 0.92 cm respectively (Table 1).

*Hibiscus populanaeous* was found at Char Mohiuddin only. The MAI in height and diameter was 0.30m and 0.62 cm respectively (Table 1).

Since the trees were not raised on any statistical design the performance of the species could not be compared. Transplantation with seedlings raised in polybags, proper tending

Table 1. Growth performance of mesophytic trees in Noakhali coastal areas

Species	Location	Age of the trees (yrs)	Average height of trees (m)	± S. E.	MAI in height (m)	Average diameter of trees (cm)	± S. E.	MAI in diameter (cm)
<i>Acacia nilotica</i>	Goalkhali	17	7.74	± 0.25	0.46	13.75	± 0.80	0.80
	Char Laksmi	12	2.90	± 0.11	0.27	6.38	± 0.56	0.58
	Char Clark	14	4.86	± 0.31	0.35	7.13	± 0.58	0.51
	Char Majid	13	5.26	± 0.31	0.41	8.72	± 0.86	0.67
	Char Nangulia	17	7.90	± 0.48	0.46	21.33	± 1.33	1.56
	Char Mohiuddin	13	5.54	± 0.35	0.43	6.81	± 0.53	0.52
<i>Albizia procera</i>	Char Majid	8	5.30	± 0.45	0.76	7.57	± 1.27	1.08
	Char Mohiuddin	13	11.65	± 0.59	0.90	12.95	± 0.40	1.00
	Char Nangulia	17	13.13	± 1.18	0.77	20.97	± 1.87	1.23
<i>Albizia lebbek</i>	Char Majid	13	4.62	± 0.31	0.36	7.00	± 1.04	0.54
	Char Nangulia	17	7.44	± 0.79	0.44	13.50	± 1.98	0.79
<i>Pongamia pinnata</i>	Char Mohiuddin	13	6.26	± 0.30	0.48	8.24	± 0.47	0.63
	Char Nangulia	17	8.06	± 0.70	0.47	14.17	± 1.67	0.83
<i>Casuarina equisetifolia</i>	Char Mohiuddin	13	8.51	± 0.21	0.65	7.72	± 0.23	0.59
	Char Nangulia	17	11.84	± 0.41	0.70	15.94	± 0.14	0.95
<i>Samanea saman</i>	Char Majid	8	3.70	± 0.78	0.54	2.90	± 0.17	0.41
<i>Hibiscus populanaeous</i>	Char Mohiuddin	13	3.86	± 0.12	0.30	8.01	± 0.23	0.62

operation and prohibition from grazing could have ensure better success of the plantations.

A trial with proper design and a greater number of non-mangrove species should be carried out in order to select suitable species for relatively raised land forms of the coastal areas.

#### REFERENCE

- Hassan, M. M. 1986. Preliminary report on coastal afforestation sites. In : Drigo *et al.* 1987. The maturing mangrove plantations of the Coastal Afforestation Project. FAO/UNDP Project BGD/85/085

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