

NOTES ON THE FEASIBILITY OF REFORESTATION IN THE CHAKARIA SUNDARBANS MANGROVES

In recent decades, the Chakaria Sundarbans located in Cox's Bazar district has been subjected to a tremendous human interference. It was once covered with moderately dense mangroves. It is now a denuded area. A major proportion of the forest areas has been converted to shrimp ponds. The remaining areas fall under the normal tidal inundation.

The Forest Department sought research backup from the Bangladesh Forest Research Institute (BFRI) to develop techniques for the rehabilitation of the mangroves of Chakaria Sundarbans. Accordingly, a reconnaissance survey was conducted. It showed that the area outside the shrimp farms was suitable for raising mangrove species from silvicultural point of view (Siddiqi *et al.* 1992). Five species, namely sundri (*Heritiera fomes*), gewa (*Excoecaria agallocha*), kankra (*Bruguiera sexangula*), passur (*Xylocarpus mekongensis*) and baen (*Avicennia officinalis*) were chosen for trial in the denuded areas. The seeds/propagules of the mangrove species were collected from the Khulna Sundarbans. The seedlings were raised in polybags near the experiment site. The seedlings were kept in

the nursery for one year. Most of the seedlings of *E. agallocha* died during this period. The reason of the mortality was not known. The experiment was thus carried out with the remaining four species.

The site for the trial was selected at Charandip along the gentle slope of the canal in the eastern part of the Chakaria Sundarbans. It was under tidal inundation round the year. Even during the dry season, it remained inundated for about four hours a day. The soil was silty-clay loamy and its pH was 7.1-7.5. Water salinity varied from 8-23 ppt depending on the seasons.

Weeding and clearing of the site were made. The seedlings were planted in July, 1992 at 1.2m x 1.2m spacing. A Complete Randomized Design was followed with three replications. Each plot was planted with 200 seedlings. Thus a total of 2400 seedlings were required. No vacancy filling was undertaken.

The experimental area was regularly visited. Data on seedling survival and growth were recorded at every three-month interval (Table 1). The cause for the seedling mortality was noted.

Table 1. Survival and growth of the four mangrove species planted at Chakaria Sundarbans

Species	Months		
	July/92	October/92	January/93
Mean survival (%)			
<i>Heritiera fomes</i>	100	0	0
<i>Xylocarpus mekongensis</i>	100	16.7	2.5
<i>Avicennia officinalis</i>	100	4.8	0
<i>Bruguiera sexangula</i>	100	6.2	0
Mean height (cm)			
<i>Heritiera fomes</i>	38	-	-
<i>Xylocarpus mekongensis</i>	57	71	82
<i>Avicennia officinalis</i>	44	60	-
<i>Bruguiera sexangula</i>	25	31	-

Table 1 shows a heavy mortality of the seedlings. During a period of only six months after planting, all the seedlings except for *X. mekongensis* died. Only 2.5% seedlings of *X. mekongensis* was found surviving. With regard to the growth, *X. mekongensis*, *A. officinalis* and *B. sexangula* increased in heights indicating suitability of the species in the site from silvicultural point of view. However, all the seedlings of *H. fomes* died immediately after planting.

The experiment was conducted in an unfenced area. The plots were much disturbed. Biotic interference was found to be the main cause for the mortality of the seedlings. Trampling by the domestic herbivores was severe. Netting by the fishermen also made a considerable damage to the seedlings. It appears, therefore, that the Chakaria Sundarbans can be rehabilitated with mangroves only when biotic interference is controlled. This can be done with the active cooperation of the local people.

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Species	Survival (%)	Height (cm)
<i>X. mekongensis</i>	2.5	100
<i>A. officinalis</i>	0	120
<i>B. sexangula</i>	0	100
<i>H. fomes</i>	0	0