2. Significance and Objectives of the study area

2. SIGNIFICANCE AND OBJECTIVES OF THE STUDY AREA

Comparative analysis of forest cover in the country (Fig. 6) clearly exhibits that Gujarat is one of the states with forest cover below 10% of its geographical area i.e., only 6.07%. This includes 6224 sq.kms. of dense forest, 5286 sq.kms. of open forest and 397 sq.kms. of mangrove forest mainly in the Southern Gujarat (Fig.7) (FSI report, 1991). The table 4 shows that districts like Rajkot, Surendranagar, Mehsana and Kheda are densely populated with negligible natural forest cover. This has resulted in an increase in the demand of major and minor forest produce.

According to the wood balance study the state demands 73.12 lakh tonnes of firewood and 11.8 Million Cubic Meters (MCMs) of small timber as against the average production in the state i.e. 1.5 lakh tonnes of firewood and 1.8 MCMs of small timber (Forest Department report (Gujarat State), 1992). It is also seen that districts like Kutch, Kheda and Mehsana have higher requirement of minor forest produce due to absence or insignificant natural forest cover (Gujarat wood balance study, 1984).

In addition to the present estimation of the demand, vast tracts of land are ruined by soil hazards like salinity and waterlogging and are lying barren. According to the Society for Promotion of Wasteland Development, Gujarat has 7.8 million hectares of its total geographical area under different categories of wastelands which are mainly distributed in districts like Kheda (Fig.8), Surendranagar, Bhavnagar and Panchmahals (Jambusaria, 1988). Out of 7 lakh hectares of salt affected lands in Gujarat about 0.4 lakh hectares is in Kheda district. Within Kheda also a large part of salt affected land is concentrated in Matar and

ACTUAL FOREST COVER IN INDIA
1991 ASSESSMENT

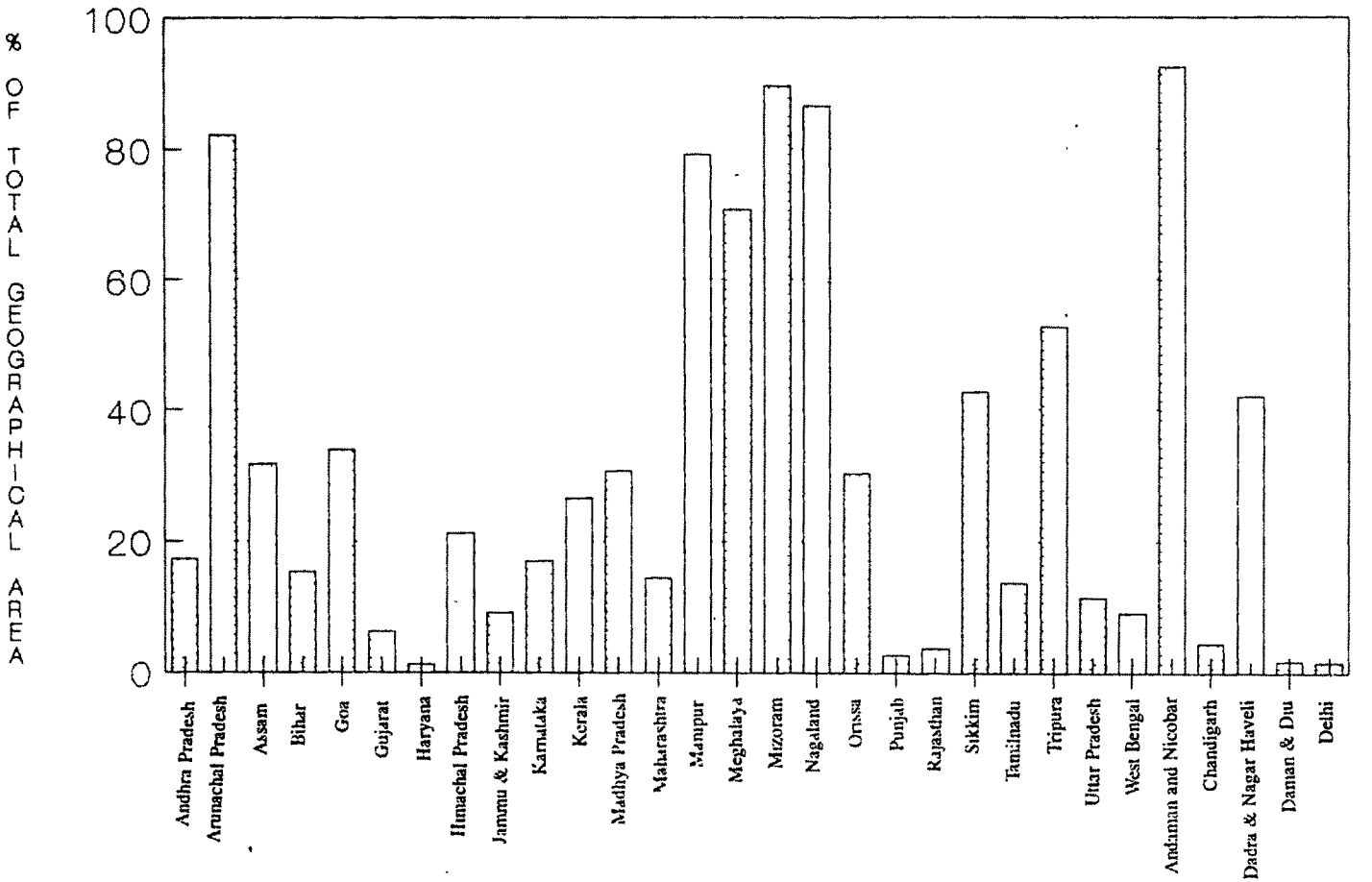
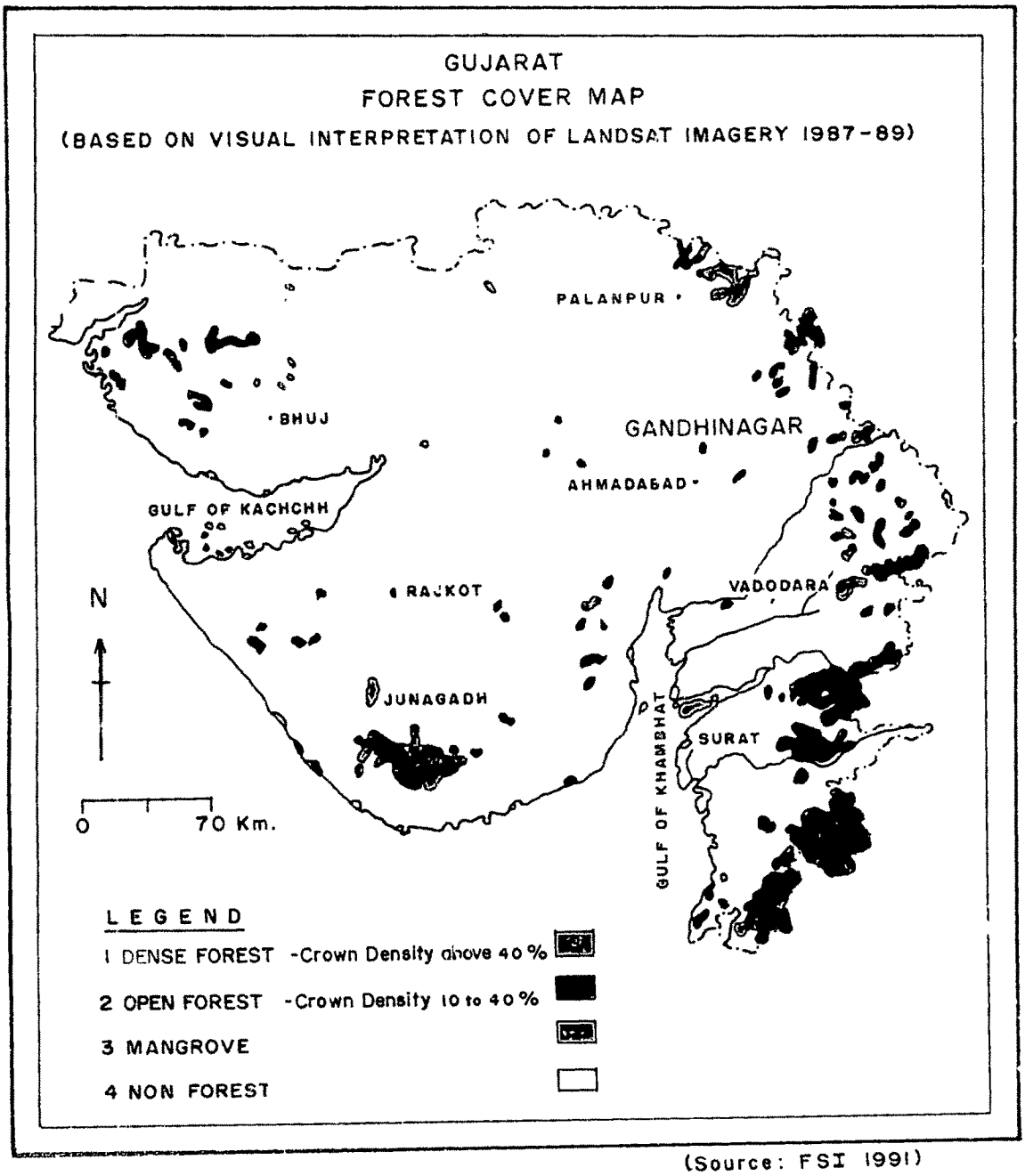


FIG.6

(SOURCE:FSI, 1991)



(Source: FSI 1991)

FIG.7

Table : 4 District-wise forest cover in Gujarat (Area in sq.kms)

Sr. No.	District	Geographical area	Forest cover Dense	Open	Mangrove	Total	Forest cover %
1	Ahmedabad	8707	8	46	-	54	**0.62**
2	Amreli	6760	57	134	-	191	2.82
3	Banaskanta	12703	433	306	-	739	5.81
4	Bharuch	9038	750	470	7	1227	13.58
5	Bhavnagar	11155	29	94	16	139	1.25
6	Gandhinagar	649	3	4	-	7	1.08
7	Jamnagar	14125	21	118	118	257	1.82
8	Junagadh	10607	993	615	-	1608	15.16
9	Kheda	7194	-	45	-	45	**0.63**
10	Kachchh	45652	187	823	239	1249	2.74
11	Mehsana	9027	3	21	-	24	**0.27**
12	Panchmahals	8866	412	538	-	950	10.72
13	Rajkot	11203	4	76	-	80	**0.71**
14	Sabarkantha	7390	373	298	-	671	9.08
15	Surat	7657	917	400	14	1331	17.38
16	Surrendernagar	10489	10	61	-	71	**0.68**
17	The Dangs	1764	1022	492	-	1514	85.83
18	Vadodara	7794	206	273	-	479	6.15
19	Valsad	5244	796	472	3	1271	24.24
	Total	196024	6224	5286	397	11907	6.07

(Source : FSI,1991)

DISTRIBUTION OF WASTELAND IN KHEDA DISTRICT
TOTAL AREA IN SQ.KMS (526.98)

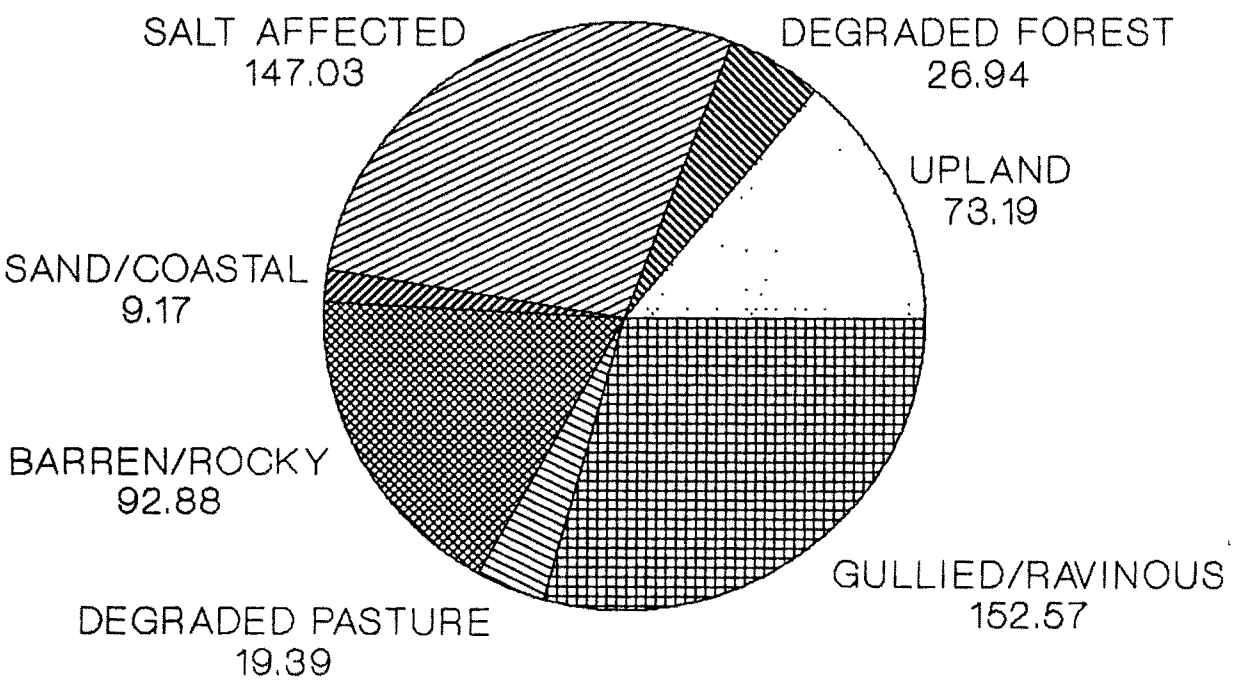


FIGURE : 8

(SOURCE : JAMBUSARIA,1988)

Khambat talukas due to the introduction of Mahi River Bank Canal system (MRBC). These lands show the presence of distinct salt encrustation at severe stage (Plate 1)

In order to reduce/check the burden on the existing poor natural forest, to bridge the gap between supply and demand and to utilize the existing wasteland for the productive use, massive afforestation schemes have been launched during the last four decades. The detailed plantation achievements in Gujarat under various schemes from 1951 are shown in the table 5. The leading role of Gujarat in such afforestation programmes has already been mentioned. Further, this programme is highly successful in Kheda district (Gujarat Wood balance study, 1984).

The above information clearly shows that Kheda is one of the districts with good social forestry plantation and vast tracts of wastelands. Keeping this in mind, all the talukas of the district were surveyed. Finally, Matar taluka was selected for the extensive study. In the present investigation the following factors supported the selection of Matar taluka as a site for extensive study,

I) absence of natural forest cover but pres ence of good social forestry plantations,

II) occurrence of cent per cent rural population which fully depended on these plantations for their day to day need and

III) occurrence of a large area under wasteland.

Thus it is imperative to monitor these plantations and make an indepth study on wasteland and other land use for the proper development of the area.

PLATE 1

Soil surface showing white salt effloresence formed after evaporation of water in the study area.

PLATE 1

Table 5 . Social Forestry Plantation achievement under various five year plans in Gujarat (in hectares)

	Scheme	51-56	56-61	61-66	66-69	69-74	74-79	79-80	80-85	85-90
1	Strip Plantations	-	-	-	-	780	8292	8163	37590	15000
2	Village Woodlot	-	-	-	-	-	8755	8821	38208	25000
3	Reforestation of degraded forests	-	-	-	-	-	6000	9700	30250	35000
4	Malki Plantation	-	-	-	-	-	40	125	1000	30500
5	Rehabilitation of degraded farmlands	-	-	-	-	-	-	-	1456	
6	Social Forestry including rural fuelwood plantation	-	-	-	-	-	-	-	11130	22500
7	Mixed plantation on wasteland	-	-	-	-	-	586	2950	-	-
8	Rural fuelwood Plantation (Irrigated)	-	-	-	-	-	-	-	-	2500
9	Fodder development	-	-	-	-	-	-	-	-	12000
	Total	-	-	-	-	780	23673	29759	119634	142500

(Source : Gujarat Wood Balance Study,1984)

2.1 OBJECTIVES

- To identify, delineate, and monitor the various social forestry plantations of Matar taluka at 1:50,000 scale using multitemporal satellite images by visual interpretation.

- To select the suitable and appropriate season of the imagery, and the satellite data product viz., Landsat MSS, TM, SPOT and IRS for delineation of social forestry plantations in the study area.

- To understand the general landuse of Matar taluka using IRS LISS-II digital data, considering the different aspects like wastelands, social forestry patches, agriculture etc., using different digital enhancement techniques.

- To find out the potentials of IRS digital data for obtaining village-wise statistics of plantation specifically based on the plantation types in the study area.

- To carryout a detailed ground truth survey in order to check the detected social forestry and wastelands. This also include the collection of soil samples from the different wasteland categories, socio-economic data and phenology of different plant species from the study area.

- To correlate the soil physio-chemical properties with the wastelands identified.

- To screen village-wise capability of land for social forestry plantations considering different relevant parameters using GIS.

- To estimate fuel and fodder availability and requirement of the taluka using GIS.

- Finally, to generate a site suitability model for social forestry plantations using RS-GIS technology.