Chapter II - **Land Use Pattern in Maharashtra.**

+ Geographical Profiles of Maharashtra

  - Location.
  - Physiography.
  - Climate.
  - Soil Zones.
  - Population.
  - Problems of Small Farmers.
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+ Land Use Pattern.

  - Introduction.
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+ Gross Cropped Area (GCA) and Net Cropped Area (NCA) in Maharashtra.

+ Gross Irrigated Area (GIA) and Net Irrigated Area (NIA) in Maharashtra.

Chapter II : The Land Utilization of Pattern in Maharashtra -

2.1.1 Location : The state of Maharashtra is the third largest states in India both in Population (6278471) and area (307762 sq. kms.). It lies between 15.45' N to 21.1' N latitude and 72.6' E to 80.9' E longitude. Politically the state comprises 30 districts grouped into seven administrative zones, namely Bombay, Poona, Nasik, Aurangabad, Amaravant, Nagpur and Konkan. Territorially, Maharashtra has Gujrat to its northwest, Madhya Pradesh to its north and east and the states of Andhra Pradesh, Mysore and Goa to its South.

2.1.2 Physiography : The physiography has greatly influenced the socio-economic life of Maharashtra. Though two outstanding divisions like vast plateau sloping eastwards and narrow coastal lowland to the west are dominant, physiographically the land of Maharashtra can be defined as follows (Fig. 1).

1) The Konkan low lands
2) The Sahyadri ranges
3) The Deccan plateau
4) Wardha - Wainganga Valley and
5) Tapi- Purna basin.

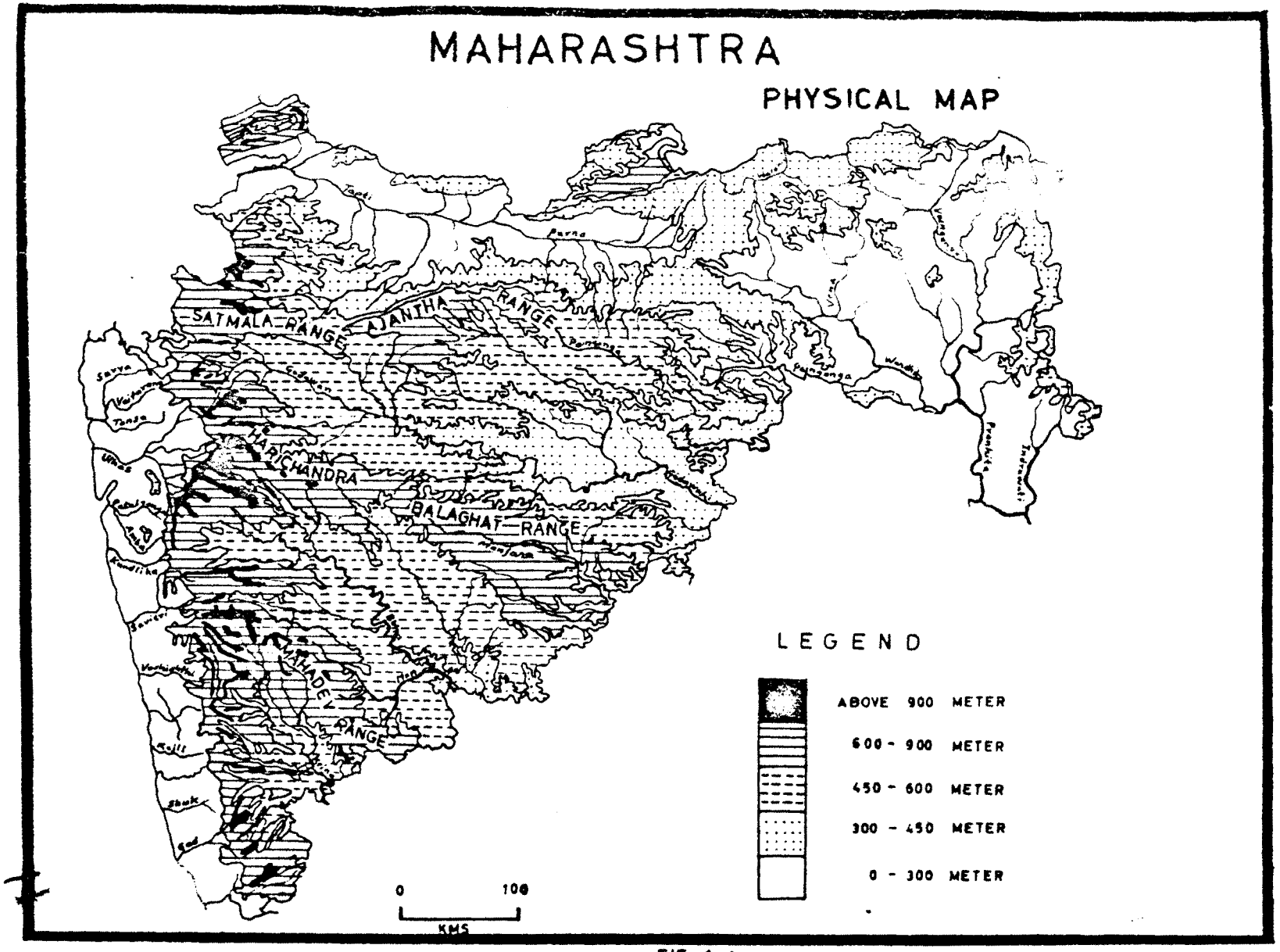

MAHARASHTRA
PHYSICAL MAP
SATMALA RANGE
AJANTHA RANGE
HARICHANDRA
BALAGHAT RANGE
AMBAJOGAI RANGE
LEGEND
ABOVE 900 METER
600 - 900 METER
450 - 600 METER
300 - 450 METER
0 - 300 METER
0
100
KMS

FIG. 1-1

1) The Konkan low lands - The narrow strip of land between the Arabian sea on the West and the Sahyadri range on the east is called Konkan. It streches north-south for 720 Kms. and its width ranges between 45 to 75 Kms. It is about 31,100 sq. Kms. in area. The zone falls in to three longitudinal sub-divisions, the coastal belt, the middle tract and the foot hills of the Sahyadri. The heavy mansoon rain during the summer and extremen humidity mark its climate. Its rivers flow transversely. During the mansoon they are ranging torrents, while in other part of the year, they are either rivulets or mostly dry.

2) The Sahyadri Ranges - The Sahyadri forms the watershed between the east flowing streams and west flowing streams. Sahyadri with an average hight of 1200 meters runs Southwards along the western edge of Deccan plateau from near the Tap mouth and extends much further beyond the southern limits of the state. In contrast to its steep Western face the range slopes gently east and along the Maharashtra plateau. Its three main transverse spurs demarcate the major river basins of the state namely Tapi-Purna, Godavari and Bhima-Krishna. The Thalghat and the Boreghat are two important passes at the heart of the Sahyadri through which communication lie between the plateau and the Konkan Coast land. The other important Ghats are Kumbarli, Amba, Phonda and Amboli.

3) The Deccan Plateau - It is formed by the Sahyadri running north-south to the west and the Satpuda running east west to the north. The Lava through tropical weathering has produced a soil known as regur, black in colour and capable of retaining moisture. The plateau is deeply dissected by the eastward flowing Godavari, Bhima and Krishna and their tributaties. The plateau falls in height to less than 300 meters both towerds the north and the east.

4) The Wardha - Wainganga Valley - In the district of Chanda, to the extreme eastern boundary of the state, there occurs a series of detached low hills about 500 meters in elevation. Also an interior alluvial lowland drained by the Wardha-Wainganga-Pranbita rivers. The Ramtek Hill (400 meters) is a representative through more prominent, features in landscape.

5) The Tapi-Purna Basin - The Tapi-Purna Basin stretching latidunally across northen Maharashtra ranges named in by the Satpuda in the north and Stamala, Ajantha in the south. This fift valley slopes from east to west. The Tapi rises near Betul in Satpuda range in Madha Pradesh and enters Jalgaon district from the north. The upper Purna also rises in Satpuda and flows through Amaravati, Akola and Buldhana districts and meets the Tapi near Changdev, like Purna, the Bhogavati, the Vaghur, the Girna, and Bori all join the Tapi when it enters Dhule district.

Geographically the area of the state nearly coinsides with the limits of Deccan trap formation (Fig.2). The area of distribution of various rock formation reveals that about 94 percent area is covered by hard rock formation. It presents many structural complexities which controls the mode of occurance of groundwater. The capacity to retain and transmit groundwater through hard rock formation is very much limited. The quarternary alluvial deposits in Tapi-Purna basin provide suitable site for digging tube wells in the state.

2.1.3 Climate - Climatically, the state falls in monsoonal type in character. North-South stretching Sahyadries is important factor in determining the climate of Maharashtra. The climatic year can be divided as fallows.

1) Hot Weather Period - March to May
2) South West Mansoon Period - June to September
3) Post Mansoon Period - October to mid December
4) The Cold weather season - Mid December to February

Temperature - The temperature in the state changes from season to season and from place to place. Some of the salient features of the temperature are as follow.

a) In cold season daily maximum temperature is 28°C in coastal left which rises upto 30°C to 33°C in inland part.

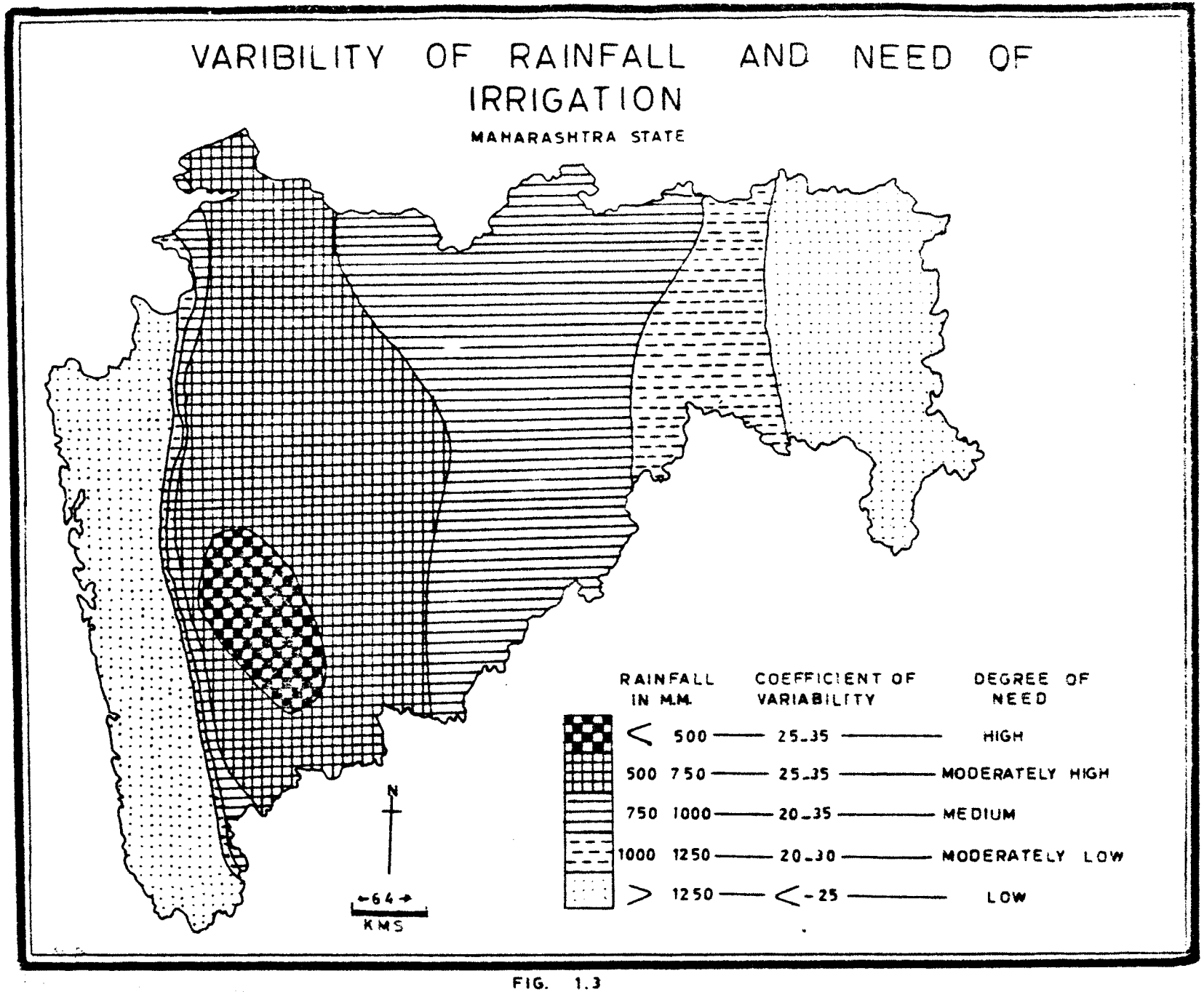

VARIBILITY OF RAINFALL AND NEED OF IRRIGATION
MAHARASHTRA STATE
RAINFALL IN M.M.
COEFFICIENT OF VARIABILITY
DEGREE OF NEED
< 500 — 25_35 — HIGH
500 750 — 25_35 — MODERATELY HIGH
750 1000 — 20_35 — MEDIUM
1000 1250 — 20_30 — MODERATELY LOW
> 1250 — < 25 — LOW
N
64
KMS

FIG. 1.3

b) In hotest season of the year the mean daily maximum temperature recorded falls between 35°C to 43°C in Vidharbha and 30°C to 33°C along the coast.

c) In rainy season, day temperatures drop appreciably. The diurnal variation is not much. The daily maximum temperatures recorded falls between 29°C to 31°C in coastal area and 29°C to 38°C in the interior part of the region.

d) During the post mansoon period the day temperatures show increase in October but thereafter it drops appreciably. The mean daily maximum temperatures are 29°C to 34°C in interior and 29°C to 31°C in coastal division.

Rain fall -

The major rainfall received in Maharashtra comes from south-west mansoon. June, July, August and September are the rainy months where 70 percent of the annual rainfall of a year is concentrated. The regional variation in the distribution of rainfall are obvious. The Konkan has an average of 267 cms. Deccan plateau records 35 to 50 cms. Marathwada and Vidharbha 100 cms.

Seasonal distribution -

i) Rainy Season - This season starts from 7th june and continues upto the mid of September. The major amount of rainfall received in the state is concentrated in this

period. Particularly the coastal districts alongwith Dhule and Amaravati districts have recorded more than 90 percent of total annual rainfall concentrated in this period. Relatively less amount of rainfall is recorded to the east of western Ghats as this area falls in rainshadow zone of Sahyadri ranges. There occurs a dry spell of 3 to 6 weeks between June to September.

ii) Post Mansoon Season - (October-November) Certain amount of rainfall during the month of October is associated with thunder storms. Very little rainfall occurs in November and December. About 8 to 12 percent of the total annual rainfall is recorded in the adjacent district to the east of western Ghats. Insiginificant rainfall is recorded in the Vidharbha region.

iii) Cool Season (December - February) - This is the coolest part when continental tropical air prevails over the region. There is very little rainfall, except in eastern half of the state which gates only 1 to 4 percent of the total rain. Elsewhere rainfall recorded is very insignificant i.e. less than 2 percent.

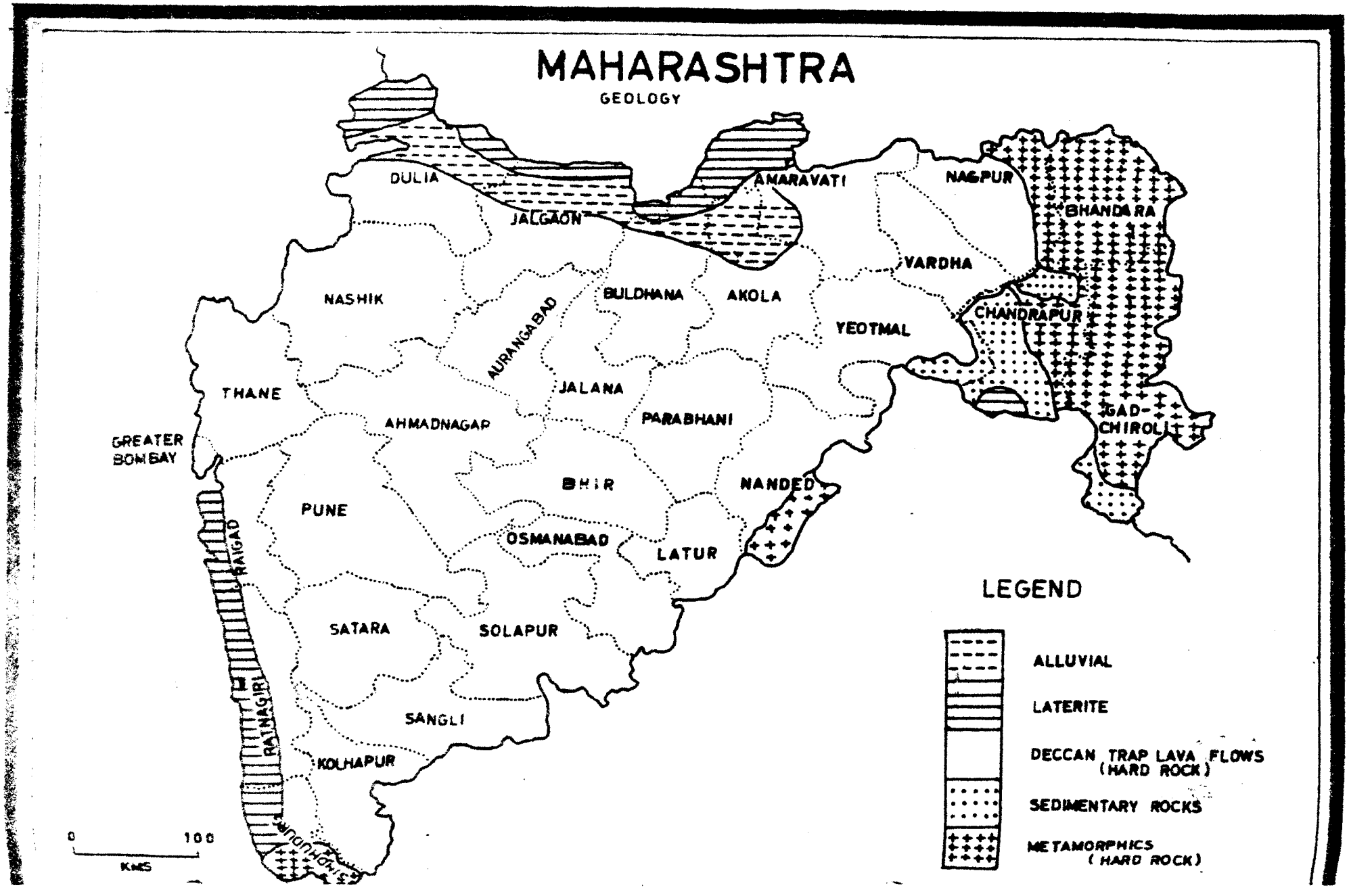
iv) Hot Season - During this season local sea winds prevail in the coastal districts and dry land winds in the interior. This is a period of thunderstorm and thunder showers, Relatively more rainfall i.e. above 9 percent of the annual total is recorded in Sangli and Kolhapur

districts. Less than 3 percent in northern and western parts of the state. Elsewhere it ranges between 3 perdent to 9 percent of annual total rainfall.

Variability of Rainfall and Need of Irrigation -

The co-efficent of variability of rainfall is comparatively low (15 to 20 percent) only in South Konkan- and along the Western Ghats (i.e. along Sahyadri ranges) This is the only region of high realibility of rainfall in the state; where need of irrigation is low. Where as 20 to 25 percent variability is observed in the estern five districts of Vidharbha and Western part of state comparising parts of Thane, Raigad, Ratnagiri, Sindhudurg, Poona, Satara and Sangli (Fig.3). This is the region of slightly high realiability of rainfall and moderately low need of irrigation. On the contrary very high variability of rainfall is confined to the central part of the state stretching in north-south direction. This is the drought prone area of the state where reliability of rainfall is very low and need of irrigation is high. Surrounding this region lies an area where variability ranges between 25 to 30 percent. This is the area of moderate reliability of rainfall.

2.1.4 Soil Zones - Maharashtra provides favourable agroclimatic conditions for raising a variety of crops. The climate and the soil type determine the cropping pattern in different parts of the state as follows -


MAHARASHTRA
GEOLOGY
DULIA
JALGAON
AMARAVATI
NAGPUR
BHANDARA
VARDHA
NASHIK
AURANGABAD
BULDHANA
AKOLA
YEOTMAL
CHANDRAPUR
THANE
JALANA
PARABHANI
GAD-CHIROLI
AHMADNAGAR
GREATER BOMBAY
BHIR
NANDED
PUNE
RAIGAD
OSMANABAD
LATUR
SATARA
SOLAPUR
RATNAGIRI
SANGLI
KOLHAPUR
SINDHUDURG
0
100
KMS
LEGEND
ALLUVIAL
LATERITE
DECCAN TRAP LAVA FLOWS (HARD ROCK)
SEDIMENTARY ROCKS
METAMORPHICS (HARD ROCK)

1) Very high rainfall zone with Lateritic Soils.

2) Very heavy rainfall zone with non-hateritic Soil.

3) Ghat Zone.

4) Transition Zone I

5) Transition Zone II

6) Scarcity Zone

7) Assured rainfall zone

8) Moderate rainfall zone

9) Heavy rainfall zone with soils. derived from parent rocks.

1) Very high rainfall zone with Lateritic soils.

This zone comprises Ratnagiri district, western border strip of Kolhapur, and south parts of Kulaba district (Raigad). Since the soils are lateritic paddy is the prominent crop in valley with millets such as nagli (Eleusine coracana) Vari (Panicum miliaceum), and other hill millets on hill slopes.

2) Very heavy fainfall non Lateritic Zone -

This zone comprises of Thane, estern part of Kulaba and Western part of Nasik district. This zone has a large area under saline soils due to ingress of sea water. The following major cropping sets are met within this region.

1) Lighter Soils - Paddy or nagli (Monoculture)

2) Medium Soils - Paddy Gram/Wal/Wheat

3) Saline Soils + Paddy co(Monoculture)

3) Ghat Zone -

The area included in this zone comprises of hilly high lying terrains round the ghats of Amba, Fonda, Amboli of Kolhapur district and Ratnagiri district, Koyana and Mahabaleshwar of Satara district, Lonawala and Khandala of Pune district, Akola taluka of Ahemadnagar district and Tribak Igatpur of Nasik district.

The area is mostly covered with deciduous or semi-deciduous forest with varkas soils. A monoculture cropping of Wari Sawa (P. miliare) and niger (Guizotia abyssinca) is prevelent.

4) Transition Zone - I

It comprises of a narrow strip going through the western flank of Kolhapur, Western part of Sangli, Pune, and estern part of Kulaba district.

The soils are mainly red to brown with varying depends and textures. The main crops grown are - paddy, Vegetables, niger, mostly as monoculture.

5) Trasition Zone - II

This zone extends to the estern side of the trasition zone upto scarcity zone and comprises estern part of Kolhapur, Sangli, central part of Pune, parts of Nasik and Dhule districts. The area grows mostly Kharip crops consisting of Paddy, Jowar, Bajra, Groundnut and Cotton under irrigation.

6) Scarcity Zone -

This forms the traditional famine area of Maharashtra. It comprises of eastern parts of Kolhapur, Sangli, Satara, Pune, Nasik, Ahmednagar, Dhule, Western part of Jalgaon, Aurangabad, Bhir, Osmanabad and Sholapur districts.

The main cropping pattern is Kharif cum rabi type. Wheat, gram, rabi Jowar and Safflower are grown in the deep soils. Kharif crops like Bajra, udid and matki are grown in comparatively higher and shallower soils.

This is the most important area when attention needs to be paid for improving the yield. A number of irrigation projects are located in this tract and sugarcane, cotton and wheat for the major core of irrigated cropping.

7) Assured rainfall Zone -

This zone comprises of Buldhana, part of Dhule and Jalgaon, Akola, Amaravati, Western part of Parbhani and Southern part of Nanded,

This is kharif cropping tract with cotton, Jowar and groundnut as kharif crops and wheat gram and safflower as rabi crops.

8) Moderate rainfall Zone -

This zone consists of western part of Nanded, Parbhani, Akola and Amravati, Yeotmal and Nagpur districts

and Western part of Chandrapur. All types of kharif crops and rabi crops like wheat, gram and linseed are grown in this part.

9) Heavy rainfall Zone with Soils derived from Parent Rocks -

This zone comprises Bhandara, part of Nagpur and Chandrapur. The predominant crop is Paddy in Kharif, other crops like wheat, gram, linseed, rabi jawar are also grown.

The traditional cropping pattern needs revision on the basis of newly developed high yielding hybrid, dwarf, early maturing improved varieties and dry land research findings. At present the farmer is raising less remunerative crops such as rainfed wheat. Which could easily be substituted by safflower or gram. The cropping system of each village will have to be classified into four groups.

a) High yielding potential cum low risk crops
b) High yielding potential cum high risk crops
c) Low yielding potential cum low risk crops.
d) Low yielding potential cum high risk crops

2.1.5 Population - Population projections made by the planning commission indicate that the state shall reach 73.4 million people by 1990. Consequently our annual food grain requirement to feed the growing population by 1990 will be grown 14.33 million tonnes as against the popu

Table No.2.1 Projection of Population and food grains required (Million tonnes)

Sr. No.	Year	Population Estimate Million.	Cereals		Pulses		Total food grains	
			Required	Product	Required	Product	Require	Product
1	1960-61	39.6	6.50	6.75	1.23	0.99	7.73	7.75
2	1961-62	40.6	6.66	5.60	1.26	0.86	7.92	6.46
3	1962-63	41.6	6.83	5.87	1.29	0.83	8.12	6.70
4	1963-64	42.6	6.99	5.79	1.32	0.45	8.31	6.63
5	1964-65	43.5	7.44	5.89	1.35	0.86	8.49	6.75
6	1965-66	44.6	7.32	4.03	1.38	0.66	8.71	4.69
7	1966-67	45.7	7.51	5.12	1.42	0.76	8.92	5.95
8	1967-68	46.9	7.70	5.83	1.45	0.80	9.15	6.63
9	1968-69	48.0	7.88	5.91	1.49	0.44	9.37	6.76
10	1969-70	49.2	8.08	5.65	1.52	0.83	9.60	6.49
11	1970-71	50.4	8.27	4.73	1.56	0.69	9.83	5.42
12	1971-72	51.4	8.83	4.31	1.61	0.63	10.02	4.93
13	1972-73	52.4	8.60	2.60	1.65	0.45	10.23	3.03
14	1973-74	53.4	8.76	6.25	1.68	0.99	10.44	7.23
15	1974-75	54.4	8.92	6.8	1.73	1.10	10.65	7.90

Cont on. 2

Sr. No.	Year	Population Estimate Million	Cereals		Pulses		Total food grains	
			Required	Product	Require	Product	Required	Product
16	1975-76	55.6	9.10	7.87	1.77	1.16	10.86	9.03
17	1976-77	56.7	9.26	8.57	1.82	1.04	11.80	9.68
18	1977-78	57.8	9.44	9.44	1.86	1.01	11.30	10.45
19	1978-79	59.0	9.62	8.98	1.91	1.03	11.52	10.01
20	1979-80	60.2	9.82	9.32	1.94	1.03	11.75	19.35
21	1980-81	61.4	10.01	8.87	1.98	0.83	11.99	9.70
22	1981-82	62.6	10.21	-	2.20		12.23	
23	1982-83	63.9	10.42	-	2.10		12.47	
24	1983-84	65.1	10.62	-	2.10		12.72	
25	1984-85	66.6	10.84	-	2.14		12.98	
26	1985-86	67.8	11.06	-	2.18		13.24	
27	1986-87	69.1	11.23	-	2.22		13.50	
28	1987-88	70.5	11.50	-	2.37		13.77	
29	1988-89	71.9	11.73	-	2.31		14.05	
30	1989-90	73.4	11.96	-	2.36		14.33	
31	1990-91	-	-	-	-		14.60	

Source — ?

production 9.70 million tonnes in 1980-81. Additionally the requirements of raw material for agro based industries such as textile, sugar, dairy, oil to meet the needs of an increasing population at a higher level of per capita consumption have to be provided. Stupendious efforts have to be made, if we are to achive self sufficiency in food and other agri commodities during the 1980s and to maintain it in the 1990s. At this juncture, when the state is confonted with the challenging problem, it is essential to review our past experience, take stock of available resources, structure and formulate future plans of action. Increasing agricultural production in the state by increasing area is no longer possible, except perhaps marginally, as most land suitable for cultivation and much that is marginally so, has already been brought under cultivation. In fact, the concept of growth with social justice, when interpreted in terms of various kinds of developmental parameters, will need diversion of additional areas from agriculture to some other types of land use. The answer to achieve self sufficiency in food, therefore, lies in increasing the yield per nuit area in unit time through adoption of improved crop production technology.

Since 1960, aberrant mansoon has been withessing and so it is necessary to live with it in future. These wheather aberrations and consequent crop losses have

underlined the urgency and importance of attending to problem of rainfed areas. The various agroclimatic regions in the state are endowed with the favourable climate for crop growth, as there are no extremes.

2.1.6 Problem of Small Farmers - Another important feature which has a direct bearing on the progress of development in Agriculture in the state is the size of the holdings of different farmers. In Maharashtra there is a large percentage of small holders and out of total holdings of 49.50 lakh as many as 12.42 lakh holdings are less than one hectare which is 25 percent of total holdings and the number of holders having an area upto 2 hectares or less is 21.20 lakhs which forms 43 percent of total number of holdings.

Table No.2.2 The Distribution of holdings by size.

S.No.	Size of Holding in hectares	Total holdings Number	Percent	Area (ha)	Percent
1	Below 0.5	683369	13.80	163367	0.77
2	0.5 - 1	558556	11.28	414214	1.96
3	1 - 2	878267	17.74	1284164	6.06
4	2 - 3	626569	12.66	1538618	7.26
5	3 - 4	460580	9.30	1592029	7.52
6	4-- 5	357616	7.62	1596053	7.54
7	5 - 10	871548	17.61	6121298	28.90
8	10 - 20	417991	8.44	5630239	26.58
9	20 - 30	70339	1.42	1667118	7.88
10	30 - 40	16305	0.33	553697	2.61
11	40 - 50	5029	0.11	222016	1.05
12	50 - Above	4455	0.09	396612	1.87

Source:

From the above statement it seems that 25 percent holders having less than one hectare land actually hold only 2.73 percent of total land where as 43 percent holders having less than 2 hectares. Possess 8.79 percent of total land. The very large number of small holder poses considerable problem regarding development as they lack in financial resources.

To overcome this problem at least upto some extent the policy of reforming the agrarian system was continued in 1980-81 also and thereafter. Under this, ownership rights are confirmed on large number of tenants and cultivators. In equalities in respect of land holdings are reduced. Fragmentation of holdings is prevented by low and by consolidation. Undet this scheme of consolidation in large number of villages involving croses of hectors of land ceiling on maximum limits of agricultural holdings were first imposed in 1962 and revised in 1975 in different categories of irrigation limits are lowered.

Table No.2.3

Use of Fertilizers and Food production in Maharashtra

S.No.	Year	Use of Fertilizer in '000 tonnes		Food Production Million tonnes	
		India	Maharashtra	India	Maharashtra
1	1970 - 71	-	-	-	4.26
2	1971 - 72	-	-	-	2.68
3	1972 - 73	-	-	-	6,79
4	1973 - 74	2,839	294	104.7	7.24
5	1974 - 75	2,773	-	99.8	7.90
6	1975 - 76	2,894	265	121.2	9.04
7	1976 - 77	3,411	290	111.2	9.70
8	1977 - 78	4,286	360	126.4	10.46
9	1978 - 79	5,117	380	131.9	10.2
10	1979 - 80	5,255	421	108.9	10.3
11	1980 - 81	6,676	419	133.0	10.7

Source :-

Due to the introduction of H. Y. V. Programme and expansion of irrigation facilities in the state there was good demand for chemical fertilizers. This is an indicative of the fact that there has becoming a short fall of organic mannres which is rather a serious cause for concern.

2.4 Use of Electric Pumps.

Years	No. of Villages Electrified	No. of Electric Pumps
1950 - 51	3061	21,000
1955 - 56	7294	56,056
1965 - 66	45,144	5,12,756
1970 - 71	-	-
1971 - 72	-	-
1972 - 73	-	-
1973 - 74	-	-
1974 - 75	-	-
1975 - 76	1,85,806	27,92,960
1976 - 77	2,02,869	30,41,305
1977 - 78	2,22,869	33,41,305
1978 - 79	-	-
1979 - 80	-	6,09,958

2.2 Land Utilization Pattern -

2.2.1 General Introduction - Land utilization pattern of india peior to 1949 - 50 the total geographical area was divided into five main categories, vis. 1)Forests 2) Area not available for cultivation 3) Other uncultivated land excluding fallows; 4) Fallows and 5) Net area sown. Later on definitions of different land use categories were changed and a new and comprensive classification of land use was introduced gradually. According to new classification of land use, the total geographical area had been divided into nine categories namely 1) Forests, 2) Land under non-agriculture use (NAU) 3) Barren and Uncultiveable land, 4) Permanent Pastures and other grasing lands 5) Miscellaneous tree crops and groves 6) Culturable waste land 7) Fallow other than current fallower 8) Current fellows and 9) Net area sown.

2.2.2 Land Use Pattern in a Developing Country- In a developing country one cannot expept the land utilization pattern to remain satisfactory over a period. For development programme generates competing demand for cultivation of crop production, growth of forests and Pastures. Changes in pattern of land utilization are brought about either through conscious planning or through a mere haphazard development. In the case of conscious planning certain objective regarding useful pattern of land utilization are kept under view and

measures are directed towerds attainment of those objectives. For instance the attempts are purposfuly made to bring more and more land under cultivation or under multiple cropping or both so as to make up the deficiency in food and agricultural raw materials. Because in developing countrye the demand for agricultural produce grows faster than its supply and the agricultural output depends up on the area under cultivation and productivity of per unit of land. In other words, agricultural output is a function of area under cultivation and yield per unit of land.

In the case of an haphazard development certain objectives are not kept under view, and as such no efforts are directed to attain those objectives. For example an extention of the cultivated area may be brought about at the cost of existing forests. Though in the newly settled countries, planned changes in the land utilization pattern are not disirable, they are a must in the old countries like India. So the planned changes to be effected in the land use pattern in countries like India are of great significance. As P. V. John says "In old countries like India, however where population is very large and scope for extension of cultivation is somewhat limited it is essential to plan changes in land utilization rather than to allow haphazard one to come out. Planned changes would involve an assessment

of the situation with regard to the present pattern of utilization and keeping of certain specific targets of reclamation, afforestation, changes in the area under cultivation and of irrigation facilities. Further he pointed out that there has not been planning of the land utilization pattern to any significant extent in this country. Not withstanding there have been conscious efforts to promote a better use of land through," grow more food compaigns", "scientific experiment, and "van Mahotsava' which means planting of more trees to help afforestation. What ever the circumstances that existed in the past, we may examine the following paragraphs the changes in the different individual land use categories with a particular reference to the changes in the net cropped area, multiple cropped area and gross cropped area in the Maharashtra state during the period (1970 - 71 to 1980 - 81). In order to understand the changes i.e. increase or decrease in the individual land use classes we have taken 1970 - 71 as the base year for the period 1970 - 71 to 1980 - 81

Land use Categories

1) Total geographical area.
2) Forest
3) Area not available for cultivation
4) Other uncultivated land - Permanent pasture
   - Under tree cropps
   - Cultivable waste

5) Fallow land

6) Area under Crops

7) Net Area Sown

8) Area Sown more than once

9) Gross cropped area

10) Irrigation and Gross cropped area

11) Gross irrigated cropped area

2.2 2.2.3 Land use pattern in Maharashtra - The total geographical area of Maharashtra is 307.76 lakh hectres. Since the beginning of planned economic development, not very significant changes have occured in the different land categories. The area under forest remained unchanged round about 17.05 percent of the total geographical area. The land put to non agricultural uses has been increased from 7.86 lakh hectres (2.2 percent) in 1970-71 to 9.93 lakh hectares (3.35 percent) in 1980-81. This is bound to occur as the development process gets accelerated and consequently the process of urbanization and industrialisation gets accelerated. The agricultural lands are being increasingly converted into the non agricultural lands for dwelling and industrial purposes. This is reflected in decrease in the net sown area over the period.

As far as the other uncultivated land use category is concerned, it did not make any contribution to the net area sown for the whole period. The category of other uncultivated lands shows an increasing trend over the period. The fallows

land has made a small contribution to net sown area during the period. However, the area sown more than once registered increasing trend i.e. it was 9.78 lakh hector in 1970-71 which steadily increased to 18.38 lakh hectares in 1979-80, because of increasing the irrigation facilities in the state. As a result gross cropped area increased to 201.33 lakh hectares in 1980-81. The major contribution to the gross cropped area should therefore come from the area sown more than once. The gross cropped area is likely to increase only through bringing agricultural lands under multiple cropping. And the multiple cropping is possible only when increasing irrigation facilities are made available through construction of minor irrigation dams. We are therefore of the views that with a view to increasing gross cropped area, emphasis should be placed on irrigation in the drought prone dry tracts of the state.

2.3 Gross Cropped Area and Net Cropped Area in Maharashtra-

The land utilization in 1970-71 revealed that as far as net area sown is concerned Maharashtra ranked second in India accounting for 13 percent of the net sown area in country. As regards gross area sown the state ranked 3rd in the country accounting for 11.5 percent of gross cropped area in country. The incidence of double cropping in the state was as low as 5.5 percent in that year with all India 18.5 percent. The irrigation facilities in

the state were meagre. Hardly 8 percent of the net cropped area as well as gross cropped area in the state was irrigated.

The three years (1970-71-72) being of drought and 1972-73 being the worst affected year. The net irrigated area and gross irrigated area had declined by 6.7 percent and 9.5 percent respectively in 1972-73. Thus the ner area irrigated in 1972-73 was 12,76,000 hectares against 13,67,000 hectares in 1971-72. The gross area declined to 14,68,000 hectares in 1972-73 from 16,22,000 in 1971-72 food crops, accounted for 91 percent of the gross irrigated area in 1972-73. The percentage was 62 percent in food grains i.e. Rice 3,45,000 hectares wheat 2,48,000 Jowar 2,09,000 hectares.

In 1973-74 Maharashtra ranked 2nd and 3rd in India from the point of net and gross area sown respectively. 13 percent of ner cropped area and 11 percent of the gross cropped area in the country being accounted for the state. The extent of double cropping in Maharashtra was low as 6 percent of the net sown area in that year compared with 19 percent in India. This has been mainly due to the meagre irrigation facilities available in Maharashtra; where by hardly 8 percent of the net cropped area and 9 percent of gross cropped area was irrigated in 1973-74. As against this nearly 23 percent of net cropped and 24 percent of gross

cropped area was irrigated in that year in India. The net and gross irrigated area in 1973-74 were 14.12 lakh hectares and 17.64 lakh hectares respectively giving the extend of irrigated double cropping of nearly 20 percent. A very large percentage (57 percent) of the net irrigated area was by well followed by Government canals and tank.

In 1974-75 Maharashtra ranked 2nd in India from the point of net area sown accounting for 13 percent of net cropped area and 3rd from the point of gross area sown accounting for 12 percent of the gross cropped area in India. Maharashtra ranked 18th in India in respect of double cropping. In that year the extent of double cropping in the state was only 7 percent of net sown area as compared with 18 percent in India. This was mainly due to the meagre irrigation facilities available in the state. In 1974-75 hardly 9 percent of the net cropped area and 10 percent of gross cropped area was irrigated in the state. And the state ranked 9th and 18th respectively in India in that respect. Nearly 24 percent of net cropped area and 25 percent of gross cropped area was irrigated in India in that year. The net and gross irrigated area in 1974-75 was 16.12 lakh hectares and 19.33 lakh hectares respectively showing an increase of 9.5 percent and 9.6 percent over preceeding year's area. As in 1973-74 the extent of irrigated double cropping was nearly 20 percent. In 1974-75 a large percentage (58 percent) of the net irrigated area was irrigated by wells followed by Government canals (20 percent) and tanks (14 percent).

According to land utilization data for the year 1975-76 Maharashtra ranked 2nd in India according to net area sown accounting for nearly 13 percent of net area sown in the country in that year, and 3rd according to gross cropped area accounting for 11.5 percent gross c cropped area in India. The extent of double cropping in Maharashtra was hardly 7.7 percent of net sown area in that year and compared unfavourably with all India average of double cropping about 20 percent. The low percentage of state was particularly due to meagre irrigation facilities available in Maharashtra, hardly 10 percent of the net cropped area and 11.1 percent of the gross cropped area in the state was irrigated in 1975-76 compared with 24 percent and 25 percent respectively in India.

In 1976-77 the net and the gross irrigated was 18.33 lakh hectares and 22.42 lakh hectares respectively giving about 2 percent small increase in both over the previous year. However the percentage of net irrigated area to net cropped area, so also gross irrigated area to gross cropped area remained unchanged in 1976-77 at 10 percent and 11 percent respectively. This position followed in the next year i.e. 1977-78 also.

Maharashtra ranked 2nd in uet area sown and 3rd in gross cropped area in 1977-78, accounting for 13 percent and 12 percent of the respective area in India. It had a higher land man ratio the percapitu net sown and gross

cropped area in Maharashtra in that year being 0.36 and 0.39 hectares as against 0.26 and 0.31 hectares respectively in India. Per agricultural worker net sown and gross cropped in state was similarly higher at 1.53 and 1.66 hectares in 1977-78 compared to 1.13 and 1.37 in India. Net and gross irrigated area in 1977-78 were 19 lakh hectares and 23 lakh nectares respectively giving an increase of 3 percent and 4 percent over the rearlier years irrigated area. The surface irrigation potential created in the state by the state sector irrigation works by June 1980 was 17.20 lakhs hectares of which 8.70 lakh hectares (50 percent) was in cronically draught prone area; an increasen of 0.60 lakh hectares and 0.63 lakh hectares respectively over irrigation potential created a year earlier.

2.4 Gross irrigated Area and Neet irrigated Area in Maharashtra -

Irrigation is an important input for the development of agriculture. It is regarded as an integrate part of sound infrastracture and the basic ingradient of agricultural activity. To be successful and well developed agriculture requires supply of water at regular interval and in required quantities. Modern agricultural technology such as use of high yielding varieties of seeds, use of fertilizers and pesticides can be adopted only when the assured water supply is available.

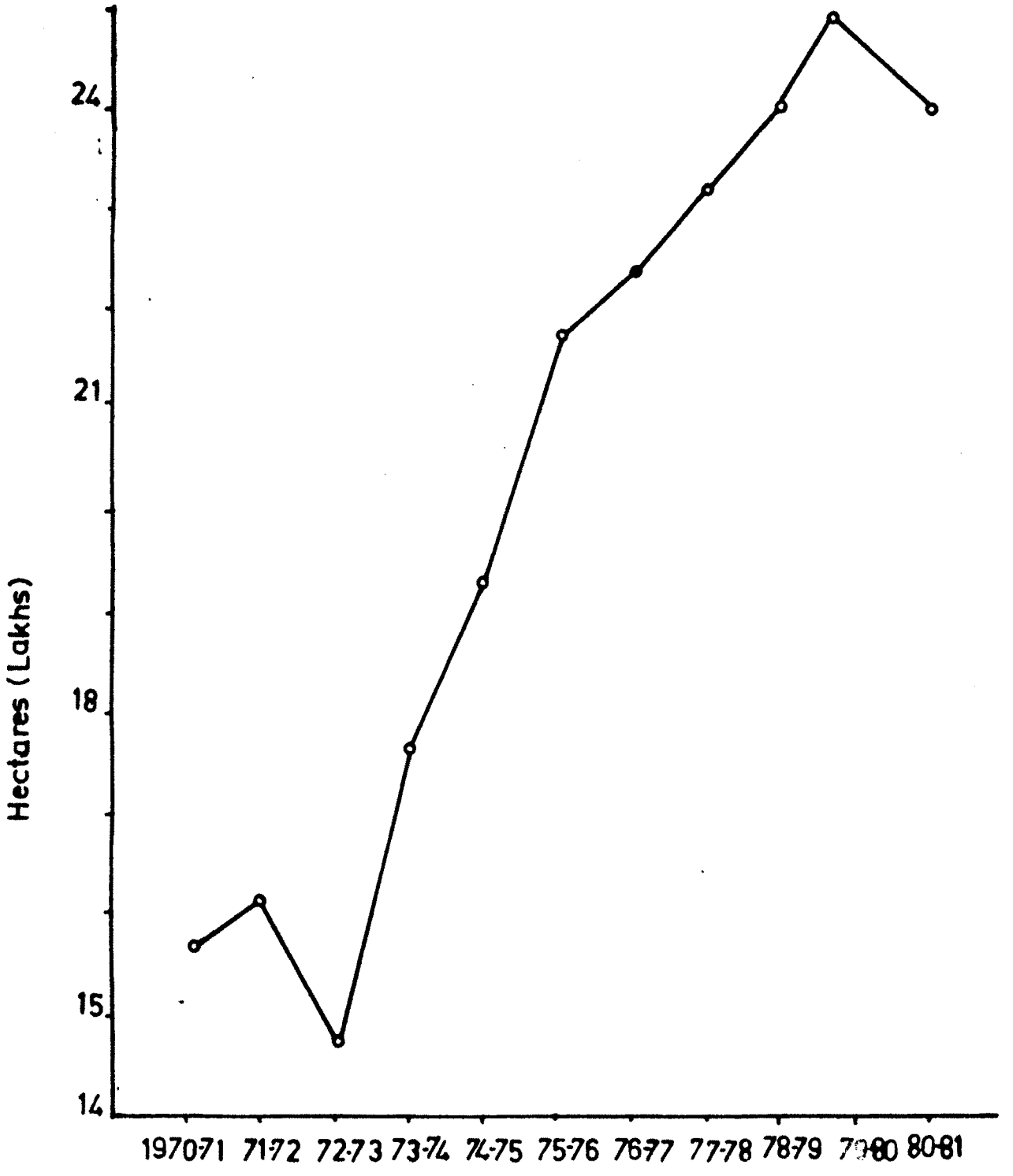
Table No. 2.7 Use of Irrigated Area in Maharashtra (In Lakh hectres)

Sr. No.	Sr.No. Year	Total cropped area.	Net crop area.	Double sown area	Irrigated Total	Net Irrigated	% of Net Irri. to Net crop. area.	% Total Irri. to total crop area.
1	1969-70	194.35	184.62	9.72	16.23	14.31	7.75	8.35
2	1970-71	187.37	176.68	10.69	15.70	13.50	7.64	8.37
3	1971-72	181.15	170.36	10.79	16.22	13.67	8.02	8.95
4	1972-73	169.80	163.82	9.89	14.68	12.76	7.78	8.54
5	1973-74	194.86	183.24	11.62	17.67	14.12	8.04	9.06
6	1974-75	195.05	182.06	12.99	19.33	16.12	8.85	9.91
7	1975-76	196.64	182.62	14.02	21.71	18.02	9.87	11.04
8	1976-77	197.42	186.39	14.13	22.42	18.33	10.00	11.36
9	1977-78	198.08	184.08	14.00	23.00	19.00	10.32	11.61
100	1978-79	197.38	183.18	14.20	24.05	19.15	10.45	12.18
11	1979-80	197.02	181.54	15.58	24.95	19.20	10.57	12.66
12	1980-81	201.22	183.13	20.72	24.4	19.26	10.51	12.13

Gross Cropped Area

Maharashtra State 1970-71 to 1980-81

Total Irrigated Area
Maharashtra State 1970-71 to 1980-81



For the country like India, whose 50 percent national income comes from agriculture and about 70 percent of the total labour force is engaged in agriculture, irrigation of much use. It is said that Indiana agriculture is gamble of mansoon. It is due to the erratic nature of mansoon all over the country. And to surpass this danger of uncertanity of rainfall, irrigation i.e. artificial supply of water to crop at required time and in required quantity is the only solution.

Presently, the development of irrigation facilities in Maharashtra are imbalanced and inadequate. About 10 percent of the net sown area in the state is irrigated which is much less than the national average of 24.5 percent. Relatively high intensity of irrigation is observed in the western upland districts of state alongwith Chandrapur, Gadchiroli and Bhandara in east, Here wells, canals and lift irrigation are developed simultanepusly. The moderate development of irrigation is noted in central drier part, whereas poor development is remarkable in Konkan region and western vidharbha region.

Although irrigation in state is increased for 4 percent to 10 percent of net sown area during last three decads still there is plenty of scope for bringing additional area under irrigation. Even the Dandekar, Deuskar and Datta Deshmukh, reports to Government imposed a limit of 8 months a year for utilization of such water for irrigation. Thus they claimed, would bring about 70 percent of the cultivated land under irrigation in Maharashtra with exixting irrigation