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PROFILE OF THE REGION

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The previous chapter deals with the introduction of the proposed work whereas the present chapter is concerned with vital characteristics of the region. The chapter has been divided into two sections of which the first highlights geographical personality of Phaltan tahsil. In the second section, an attempt has been made to examine the general landuse. Since present investigation is mainly related to the study of irrigation, the author has given emphasis on spatio-temporal variations in the irrigated crops of the region. Nearly 35.50 percent area of the total cropped area is under irrigation and the crops grown by the farmers, on irrigated lands, are contributing highly to the economy of the region. The study of regional variations in the patterns of landuse as well as agricultural landuse is of immense importance for regional planning. It also lays foundation to understand irrigation development because availability of irrigation certainly affects the crop structure and its patterns. Following are the essential characteristics of the region.

SECTION - I

1. THE STUDY REGION :

Phaltan tahsil, covering the part of the Nira river basin, is one of the economically prosperous tahsils of Satara district in South Maharashtra. It lies between 17°58' North

latitudes and 74°10' East to 74°45' East longitudes (Fig.1.2). It has attained second position regarding area irrigated (35.50%) in the district due to the introduction of canal irrigation. The region covers 1180.50 sq.kms (11.26%) of the district with 120 villages and one urban centre in 7 circles. It supports population of 224,018 i.e. 10.98 percent of the district of which 190,159 is rural and 33,859 is urban recording 1.97 persons per sq.km density during 1991.

Nira river forms northern boundary between Poona and Satara districts, whereas eastern border has been deliminated by Solapur district. The region attains 750 metres height (A.S.L.) with northward slopping land drained mainly by Banganga, a right bank tributary of the Nira river.

2. PHYSIOGRAPHY :

Phaltan tahsil constitutes the major part of Nira basin which is agriculturally productive having been irrigated during then British rule. Moreover, the region presents varied physical features and based on the relief features it can conveniently be divided into :-

(i) Hilly region (above 900 mtrs),

(ii) Rolling or tranzitional zone (600 to 900 mtrs),

(iii) Level plain (below 600 mtrs).

PHALTAN TAHASIL RELIEF

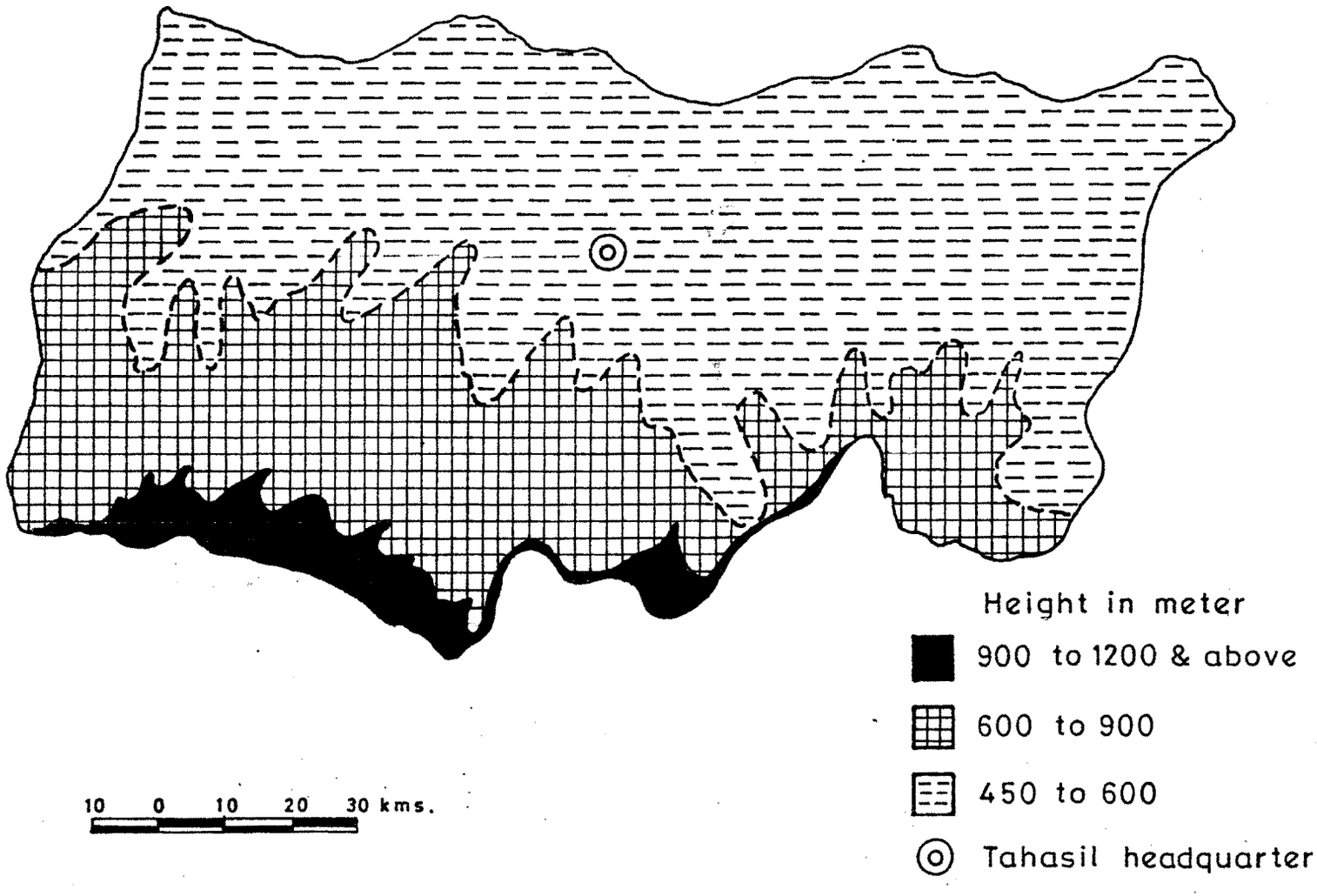


FIG. 2-1

The hilly region occupies smaller part with 10 percent (118.05 sq.km) of the tahsil in the south which is the part of Mahadeo range having more than 900 metres height. The slope conditions (moderate to steep) have restricted the development of irrigation and agriculture as well. Towards the north, parallel to Nira river, tranzitional belt has been characterised by partial development of irrigation. This zone has been covered by alternate small spurs and valleys which have occupied 413.18 sq.km (35%) area. Level plain, an extensive zone with 649.28 sq.km (55%) area is mainly confined to the northern border and parallel to Nira river (Fig.2.1). It has been widened towards the east having fertile soil cover and has availability of perrinnial water supply from right bank Nira canal. Despite low monsoon with average rainfall (292.39 mm) the region has also satisfactory underground water supply percolated through the canal.

3. SOILS :

There are four groups of soils in the region and their distribution corresponds with the relief features. Since it is the part of Deccan trap, the black soils are extensively observed (113,356 hect.). However, they vary in their depth and according to sub-types they are considered here (Fig.2.3). The deep black (above 100 cm) soils are close to the river course which are fertile and devoted mainly to sugarcane crop.

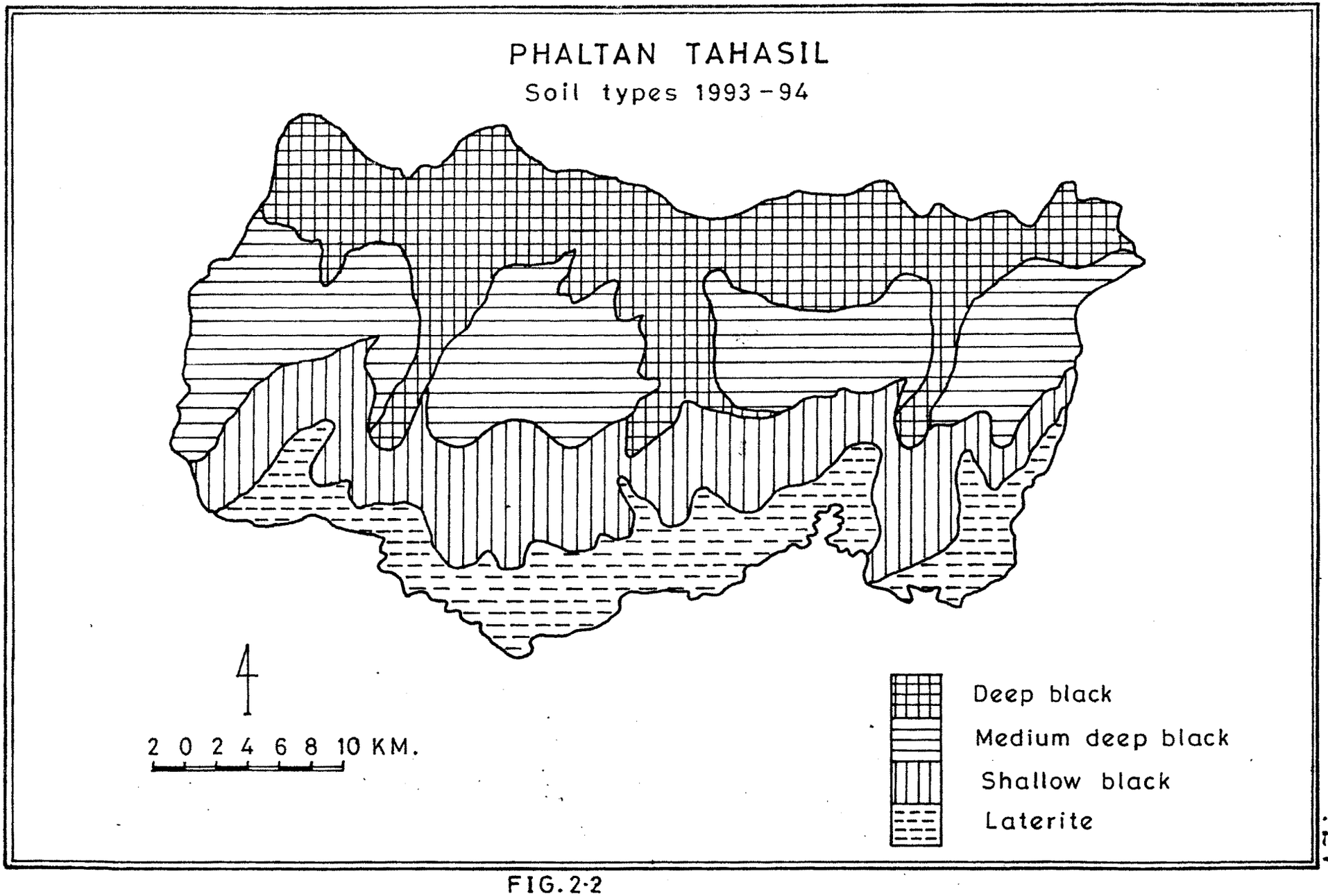

PHALTAN TAHASIL
Soil types 1993 - 94
2 0 2 4 6 8 10 KM.
Deep black
Medium deep black
Shallow black
Laterite

FIG. 2-2

This has been followed by medium black soils, (50 to 100 cm) with 32,873.24 hect. of area, are also under irrigation showing monoculture of sugarcane. The shallow black (25 to 50 cm) soil covering tranzitional zone (Fig.3.5) showing less intensity of irrigation. Well irrigation is dominant in this part. Jowar and Bajara are the two major food crops. Laterite soils (Fig.2.2) are observed in the extreme south which are poor in nature promoting poor development of agriculture. The adverse physical condition have also inhabited the development of irrigation in this zone with 21,537.64 hect.(15.59%).

4. CLIMATE :

Climate is the principle aspect of physical environment affecting agriculture (Symons,1967). Climaticconditions are important in determining distribution and performance of crops. Monsoon affects or even dominates almost every aspect of our life (Spate and Learmouth,1967). The temperature and rainfall being two important elements of climate have been considered in the present analysis. The nature of distribution of these elements determines the necessity of irrigation.

4.1 Temperature :

In Phaltan tahsil, temperature can be regarded as an important component which indirectly controlls rainfall regime and water availability for irrigation as well. The temperatures recorded at Phaltan tahsil headquarter, are consider here.

Table 2.1 : Monthly average temperature of the region, 1994 (Phaltan).

Month	January	February	March	April	May	June	July
Temp.°C	20.5	20	29	30	32	30	29

Month	August	September	October	November	December
Temp.°C	24	22	22.5	21	20.5

SOURCE : Tahsil Office, Phaltan, 1994.

Table 2.1 shows monthly average temperature which varies from month to month. December, January and February are months when low temperatures (20.5°C) are recorded. Highest temperature (32°C) are observed from April onwards upto June. The temperatures then gradually lowers down. The high temperatures in summer season, may enhance the rate of evaporation of water from irrigation.

4.2 Rainfall :

The seasonal nature and intensity of rainfall are important considerations which determine water regime and consequently the development of irrigation. The average annual rainfall in the region is 2631.53 mm.

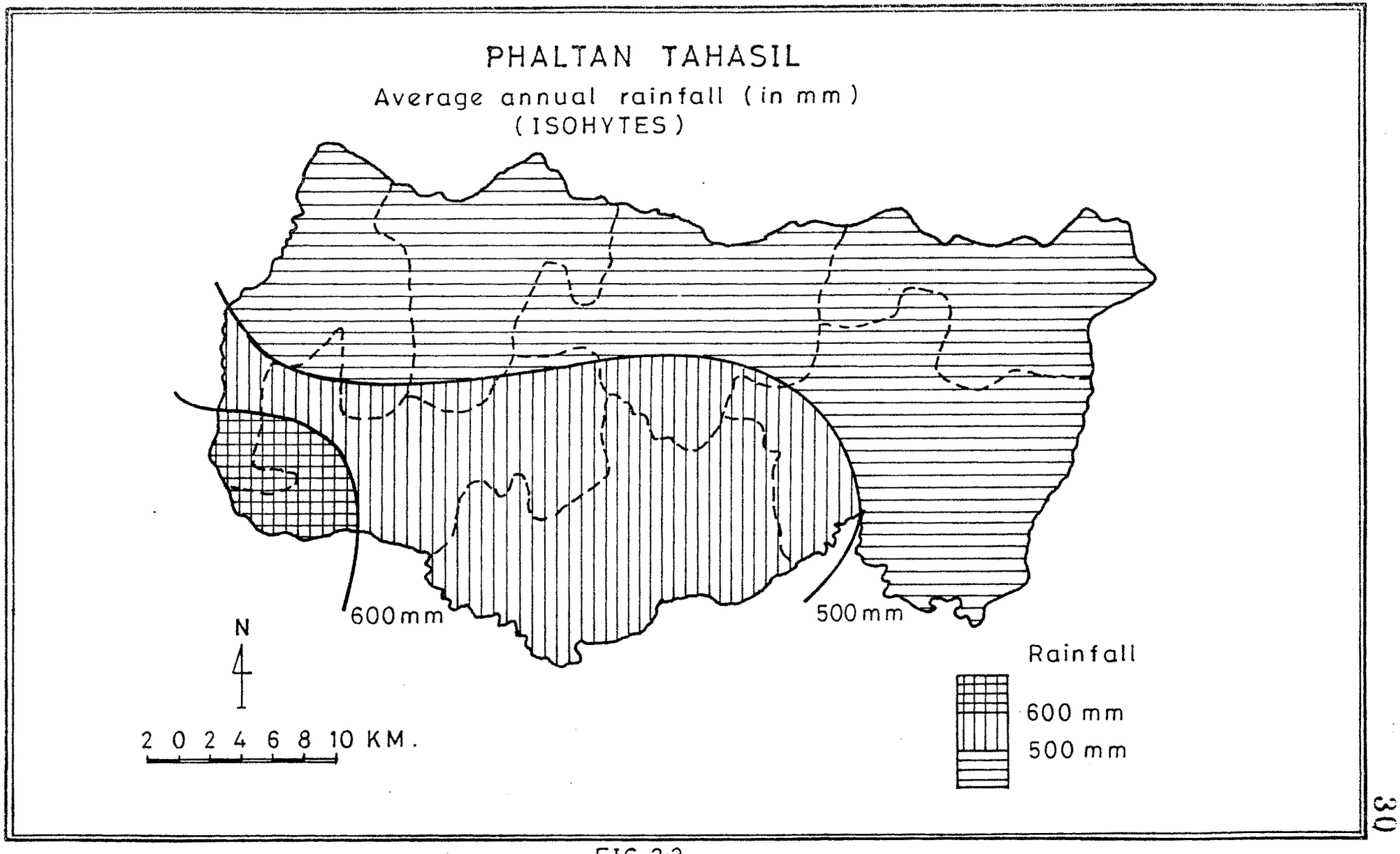

PHALTAN TAHASIL
Average annual rainfall (in mm)
(ISOHYTES)
600 mm
500 mm
N
2 0 2 4 6 8 10 KM.
Rainfall
600 mm
500 mm

FIG. 2·3

Table 2.2 : The average monthly rainfall, Phaltan Tahsil, 1990-94.

Sr. No.	Months	Average monthly rainfall in mm.	Percentage to total
1	January	-	-
2	February	-	-
3	March	-	-
4	April	37.20	1.41
5	May	158.40	6.01
6	June	430.20	16.35
7	July	375.80	14.28
8	August	301.80	11.47
9	September	452.63	17.20
10	October	674.50	25.65
11	November	21.80	00.83
12	December	179.20	6.80
	Total	2631.53	100.00
	Average	292.39	

SOURCE : Tahsil Office, Phaltan, compiled by the Author, 1995.

4.2.1 Spatial distribution of rainfall :

The isohytal map (Fig.2.3) shows the rainfall distribution in the region. It is observed that there is large scale

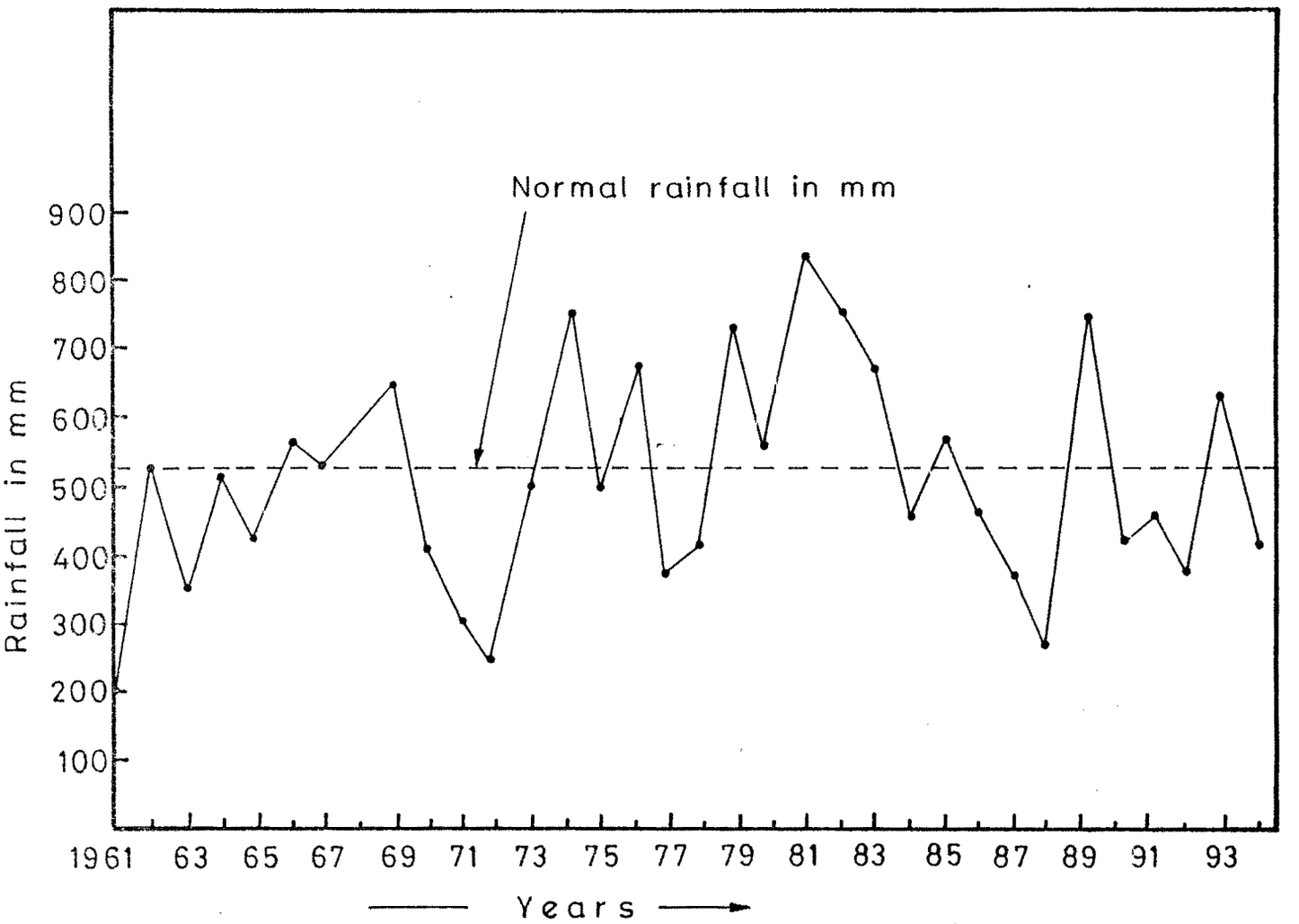


FIG. 2·4 - ANNUAL VARIATION OF RAINFALL FROM THE NORMAL.

variation in the areal distribution of rainfall. The rainfall decreases remarkably from west to east (600 to 500 mm). Despite spatio-temporal variations the monsoon rainfall has considerable bearing on the development of irrigation as well as agriculture.

4.2.2 Seasonal distribution of rainfall :

The necessity of rainfall arises when the distribution of rainfall is unequal in time and space as the crops require timely and adequate water supply. Table 2.2 shows the temporal variations in the rainfall in the region which is very remarkable. It is evident from the past that post-monsoon period has been characterised by high rainfall. The high proportion of rainfall is observed in October (674.50 mm). During monsoon (June-August) the region has moderate rainfall rainging from 301 to 430 mm. The months of November and December have also recorded rainfall which is useful for Rabi season. Nearly 42.85 percent rainfall occurs in September and October. The region has also occurances of pre-monsoon rainfall.

In view of the fluctuations occuring in rainfall, the year can conviniently be divided into four seasons.

i) Rainy season (June to October) -

The rainfall is highly concentrated in this season as it receives about 84.95 percent of total rainfall. It is mostly assured and very much useful for Kharif crops. The intensity of

rainfall during this season is important in the context of water availability for irrigation in the rest of the season.

ii) Post-monsoon season (November to December) -

Climatically this period is transitional. The south-west monsoon is replaced by north-east monsoon which is associated with cyclonic rainfall. The region receives 7.63 per cent of total rainfall and it is useful for Rabi crops.

iii) Winter season (January to February) -

The region receives almost no rainfall in this period. It is also characterised by the irregular cyclonic rainfall which is beneficial, though not adequate for rabi crops.

iv) Hot summer season (March to May) -

This part of the year receives insignificant amount of rainfall (7.42%) which is associated with thunderstroms. It is very useful for sugarcane as there is very much scarcity of water for irrigation during this period and leads fair growth of this crop.

4.2.3 Annual variation in monsoon rainfall :

Fig.2.4 indicates annual variations in rainfall from the normal for the last 34 years. The region has 525 mm normal rainfall. The annual averages are more than the normal during seven years. The year 1983, has recorded highest rainfall

(more than 800 mm). Contrasting to this, there are some years which are marked by rainfall less than normal. Nearly 17 years have recorded this situation and the year 1971 marked lower rainfall (less than 250 mm) than the normal. remaining years have recorded normal rainfall. All these temporal variations have close link with the availability of water. The water quantum for irrigation is related with these fluctuations. However, canal receives irrigated water from Nira river which is available from Veer Dam Reserviour for a distance of 70 km to the west of the region. But the above fluctuations are important from the view point of well irrigation.

4.2.4 Rainfall and Irrigation :

The spatio-temporal distribution of rainfall in the region are very much varied. There is fair concentration of rainfall in the rainy season but still the region experiences gaps of drought. The dry months are characterised by acute shortage of water for crops as they receive insignificant amount of rainfall. This has created the need of irrigation in the region. Therefore, the region has only alternative to store rainfall water within the dams and regulating it when it is required to standing crops. Thus, there is link between rainfall and development of irrigation.

5. DEMOGRAPHIC CHARACTERISTICS :

Phaltan is second populous tahsil in Satara district having 224,018 total population in 1991 which is 10.98 percent of district with 113,606 male and 110,412 female population. Nearly 84.89 percent is rural (190,159) and 15.11 percent is urban. Of the total worker of 48,892 in 1991, the tahsil has recorded nearly 15 percent (34,226) cultivators and 12 percent (126,963) agricultural labourers. Since the region has been dominated by agricultural activity, there is substantial population of cultivators in the total workers in Phaltan tahsil. The tahsil records 141 persons per sq.km in 1995 which is varying regionally. The irrigated tracts of this tahsil have supported much population number where the density of population is relatively more than southern hilly region. The said zone is agriculturally productive in which greater section of rural population is involved.

SECTION - II

Irrigation is single most component which brings about the changes mainly in agricultural landuse and general landuse too. The farmer pays attention towards cash cropping which may give him substantial returns. Thus, the changes in cropping pattern are inevitable factor where irrigation facilities are provided. Beside this, when changes in agricultural land use takes place, they have their bearing on the general landuse.

With the introduction of irrigation, waste lands are brought under cultivation. An attempt is, therefore, made here to examine the spatio-temporal patterns of general and agricultural landuse which is linked with irrigation facilities. Therefore, main objective of this section is to study the spatio-temporal dimentions of general as well as agricultural landuse. The study of irrigated crop landuse is also attempted here to understand the degree of influence of irrigation on the cropping pattern of the region.

6. THE GENERAL LANDUSE PATTERN :

It is the use made of land by man in a series of recognised categories and it is the function of four variables viz. land, water, air and man (Singh,1981). Certain proportion of it is available for cultivation which is the base for agricultural production. Landuse changes occur to meet the varied demands of the society in its new way of life.

The major use of land is for crops, forest, pasture, mining, transportation, gardening, residental, recreations, industries, commercial purpose, cultivable waste, barren and fallow land. The landuse study, in its spatial context, is essential to understand the regional nature of the areas of optimum landuse, degraded degree etc. (Shinde,1987).

The study has been made under two heads viz. i) Non cultivable land and ii) Cultivable land (Table 2.3).

Table 2.3 : Landuse pattern of Phaltan tahsil, 1959-63 and 1989-94.

Landuse category	Area in Hect. 1959-63 (Average)	Percentage	Area in Hect. 1989-95 (Average)	Percentage	Change in 1959 to 1993
I. Non-cultivable land					
1 Forest	21,710	7.42	8,893	2.89	- 4.53
2 Area not available for cultivation	25,102	8.58	13,187	4.29	- 4.29
a) Land put to non agricultural use	52	0.02	40	0.01	- 0.01
b) Barran & unculti-vable land	25,050	8.56	13,147	4.28	- 4.28
II. Cultivable land					
3 Net area sown	203,123	69.38	263,132	85.50	+ 16.12
4 Fallow land	38,455	13.13	6,410	2.08	- 11.05
a) Current fallow	34,455	11,77	3,259	1,05	- 10.72
b) Other fallow	4,278	1.36	3,151	1.03	- 0.33
5 Other cultivated land	4,390	1.49	16,128	5.24	+ 3.75
a) Uncultivable waste land	1,155	0.33	8,985	2.92	+ 2.59
b) Permenent pasture land	3,235	1.16	7,143	2.32	+ 1.16
Total Geographical area	302,780	100.00	307,750	100.00	

SOURCE : i) Socio-Economic Review and District Statistical Abstracts of Satara District.

ii) Compiled by the Author, 1994.

6.1 Non-cultivable land :

The non-cultivable land comprises forest land and area not available for cultivation. Forest occupies about 2.89 percent (8893 hect.) of total geographical area in 1989-93 which was about 7.42 percent (21710 hect.) in 1959-63. The forest area is mainly confined to western and south western parts of the study area. Area not available for cultivation is about 4.29 percent (13187 hect.) which includes land and which cannot be brought under cultivation unless at a very heavy cost. The land put to non-agricultural use is 0.01 percent (40 hect.) and baren and uncultivated land is 4.28 percent (13147 hect.) of the total area of Phaltan tahsil.

6.2 Cultivable land :

The cultivable land which includes the net sown area and fallow land sharing about 85.50 percent of geographical area. In the present study the same meaning is taken while assessing the impact of irrigation. The high (above 90%) proportion is observed in Hole, Phaltan and Aussu circles. Generally, this is due to the gentle slope and recent developments in irrigation facilities. Taradgaon, Barad and Girvi circles have moderate (60-90%) area under this category. The low (below 50%) intensity of net sown area is observed in Adarki circles where the land is highly undulated resulting in poor scope for agriculture in general and irrigation in particular.

The land which remains vacant for 5 to 7 crop seasons comes under fallow class. The total fallow land accounts for 2.08 percent (6410 hect.). Of this 1.05 percent (3259 hect.) is other fallow land (Table 2.3).

The other uncultivable land consists of cultivable waste and permanent pasture. Total area under this landuse category is 5.24 percent (16128 hect.). Of this 2.92 percent (8985 hect.) is uncultivable waste land and 2.32 percent (7143 hect.) is permanent pasture.

Some changes in general landuse have been observed. The area under forest has decreased marginally (4.53%). The negative change is also observed in case of the area not available for cultivation (4.29%). Whereas other uncultivable land records positive change by 3.75 percent. The region has noted decrease (11.05%) in fallow land during 1959-63 to 1989-93. There has been increase in net sown area (16.12%) due to increase in irrigation facilities in the study area.

7. IRRIGATION AND CROPPING PATTERN :

Although agriculture is the main stay of our economy, it is not developed at modern and commercial scale. The country, therefore , need sound agricultural planning. Agricultural planning cannot be formulated without proper diagnosis of the agricultural characteristics like cropping pattern (Tripathi,1986). The cropping pattern is the proportion of area under different

crops at a point of time. According to agricultural economists cropping pattern refers to the proportion of area under various crops at a point of time (Kanwar,1972).

The cropping pattern denotes the raising of crops in a particular set of time. It is a dynamic phenomenon which changes according to the adoption of new technology. Indeed, no cropping pattern is good for all times to come because the requirements of the society changes which many times completed to change the existing cropping pattern (Hussain,1979).

Cropping pattern is not the same all over the tahsil under study. Variations in cropping patterns are related to physical and non-physical conditions. Moreover it is governed by the choice of the farmer. These choices are directly governed by specific purposes for which the irrigated crops are to be grown and these are conditioned by geographical factors and modified by the emergent social and economic circumstances (Mamoria,1979).

7.1 Overall cropping pattern :

In the area under study, various crops are grown in kharif and rabi seasons. Jowar, maize, rice, pulses are the kharif crops. Whereas, wheat, sugarcane, gram and oilseeds are rabi crops. However, food constitutes agricultural land. Nearly 24028.01 hect. (37.49%) of the gross cropped area is under food crops. The main foodgrain grown, are jowar (16.60%), Bajara (6.86%), rice (0.12%), maize (1.06%), wheat (23.28%) (Table 2.4).

13250
A

Among the commercial crops, groundnut cover 2.40 percent (1539.11 hect.), vegetables 1.56 percent (1000 hect.) and horticulture crops share 0.67 percent (428.66 hect.) area.

7.2 Irrigated cropping pattern :

A variety of crops are grown in the region. Cropping pattern of the region is determined by the physical and socio-economic factors such as soil, climate, irrigation facilities, use of high yielding varieties, chemical fertilizers, size of holding, market facilities, fragmentation of land etc. The magnitude of crop diversification mirrors the impact of physical, socio-economic and technology organizational influents but more strong are the physical environs (Singh,1976).

Partial failure of rain or delayed arrival of the monsoon cause damage to crops. It is also concentrated in a brief period of 3 to 4 months. So efforts are made to supply the irrigation water to most of the crops of the region. Irrigation of second crop and cash crop is common practice in the tahsil. Sugarcane, wheat, groundnut are the principal irrigated crops. The other crop like jowar, bajara and horticultural crops are the major irrigated crops. Their spatial distribution is as follows.

(i) Sugarcane :-

Sugarcane comprises about 29166.03 hect. which occupies 45.51 percent gross irrigated area in the year 1989-93 (Table 2.4). In view of the spatial distribution of soil fertility (Fig.2.2)

Table 2.4 : Phaltan tahsil - Irrigated area under different crops.

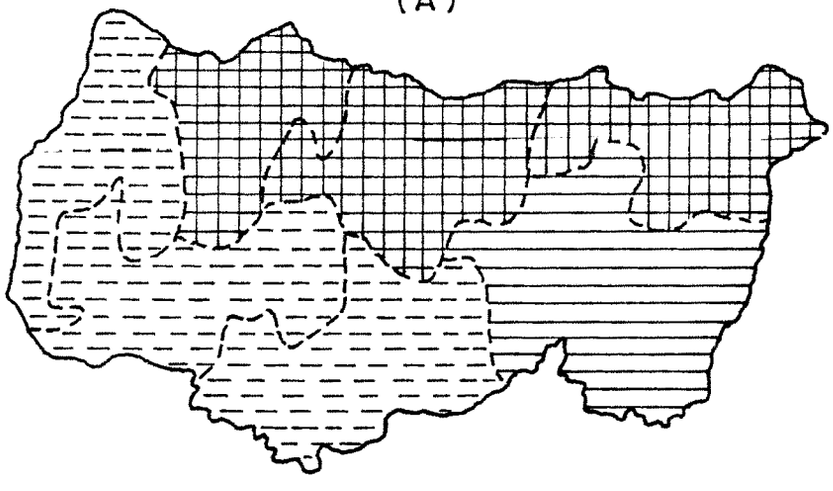
Sr. No.	Crops	1959-1963		1989-1993		Percentage change 1959-63 to 1989-93
		Area in hect.	% of G.C.A.	Area in hect.	% of G.C.A.	
1	Sugarcane	5000.64	13.93	29166.03	45.51	+ 31.58
2	Wheat	5396.77	15.04	14918.77	23.28	+ 8.24
3	Jowar	15941.72	44.41	10638.63	16.60	- 27.81
4	Bajara	1898.78	5.29	4393.58	6.86	+ 1.57
5	Groundnut	1897.23	5.29	1539.11	2.40	- 2.89
6	Vegetable	2244.07	6.25	1000.00	1.56	- 4.69
7	Fodder	1625.33	4.53	786.01	1.22	- 3.31
8	Maize	204.46	0.57	676.46	1.06	+ 0.49
9	Fibre crops	643.67	1.79	390.51	0.61	- 1.18
10	Horticulture	187.47	0.52	428.66	0.67	+ 0.15
11	Rice	797.51	2.22	77.44	0.12	- 2.09
12	Spices	57.56	0.16	70.22	0.11	- 0.20
	Gross irrigated area	35894.21	100%	64085.42	100%	

SOURCE : i) Tahsil record, Taluka Namuna No.20.
ii) Compiled by the author.

PHALTAN TAHASIL

Sugarcane cropping pattern 1989-93

(A)



% GROSS AREA IRRIGATED

HIGH

20

MODERATE
R.A.10-80

10

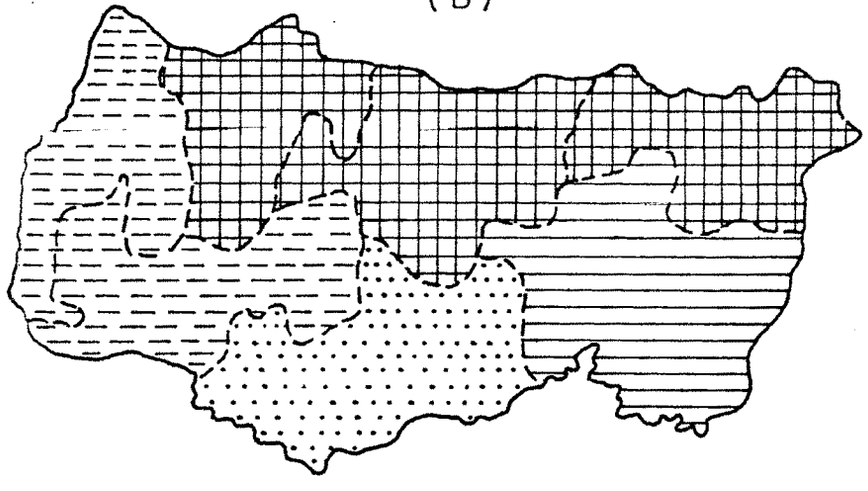
LOW

N

2 0 2 4 6 8 10 KM.

Sugarcane cropped area vol of change
1959-93

(B)



% GROSS AREA IRRIGATED

20.0

4.0

0

- 1.0

FIG. 2·5

and irrigation facilities, sugarcane cultivation is largely confined to the northern circles of Phaltan tahsil (Fig.2.5 -A).

Hole, Phaltan, Aussu circles have a relatively high proportion (about 20%) under this cop. This is the area where irrigation facilities are comparatively more developed. The moderate area (10 to 20%) under this crop is observed in Barad circle. The facilities and other agro-climatic conditions are responsible for the concentration of sugarcane cultivation in this part of the tahsil. Girvi, Adarki Bk. and Taradgaon circles of the study area have shown very low (below 10%) proportion of sugarcane cultivation which can be related to the low development of irrigation facilities.

Changing nature :

The period under investigation has witnessed phenomenal growth in the area under sugarcane which rose from 13.93 percent (5000.64 hect.) in 1959-63 to 45.51 percent (29166.03 hect.) in 1989-93. The significant positive change (above 20%) is observed in Hole, Phaltan and Aussu circles due to increasing irrigation facilities (Fig.3.3-D) and special efforts made by two co-operative sugar factories. The moderate positive change (4 to 20%) is found in Barad circles and (below 4%) positive change is confined to the circles of Adarki Bk. and Taradgaon. In general, the increase in the sugarcane is in proportionate to the increase in the irrigated area (Fig.2.5-B).

The negative change (below 1.0%) in area under sugar-cane are noted only in one circle Girvi circle of Phaltan tahsil. It may change due to less irrigation and change in farmers attitude. They have prefered other cash crops like horticulture (grapes and pomegrade).

(ii) Wheat :-

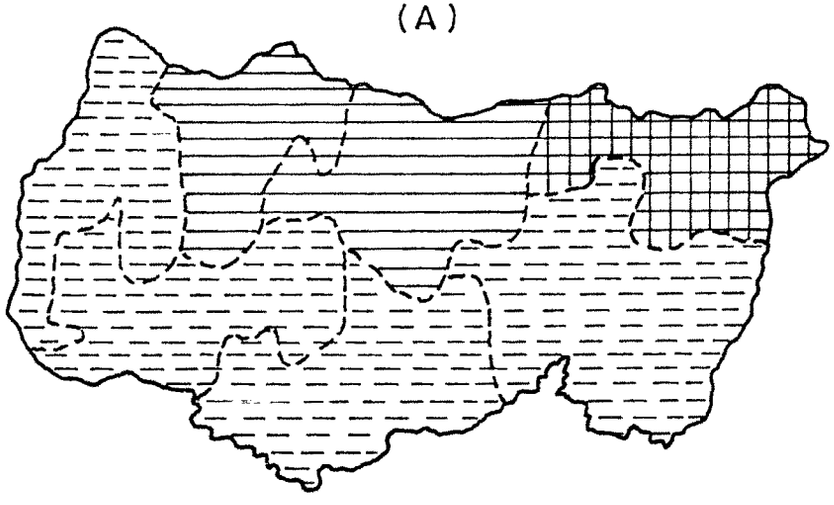
Wheat is the most significant cereal crop grown during the winter season. It requires cool climate with moderate rainfall less than 50 cm and irrigation. The post-monsoon rainfall is not sufficient for optimum production. Therefore, it is the irrigation which determines its areal extent. Wheat occupies about 14918.77 hect. and (23.28%) of the gross irriga-ted area in the year 1989-93. Wheat establishes strong relation-ship with irrigated area in the tahsil. Wheat cultivation is relatively high irrigated area. More than 10 percent wheat area is observed in Aussu circles, while the moderate zone (5 to 10%) is noted in Hole and Phaltan circles. Low proportional (below 5%) is observed in Barad, Girvi, Adarki Bk. and Taradgaon circles (Fig.2.6-A).

The increase in area is recorded in Aussu circle (above 4 to 6%). The hectarage under wheat has increased from 5396.77 hectares (15.04%) to 14918.77 hect. (23.26%) during the last 34 years (Table 2.4). The decrease is less than 1 percent in Girvi circle (Fig.2.6-B).

PHALTAN TAHASIL

Wheet cropping pattern 1989 - 93

(A)



% OF GROSS AREA IRRIGATED

10 %

R.A.4-89

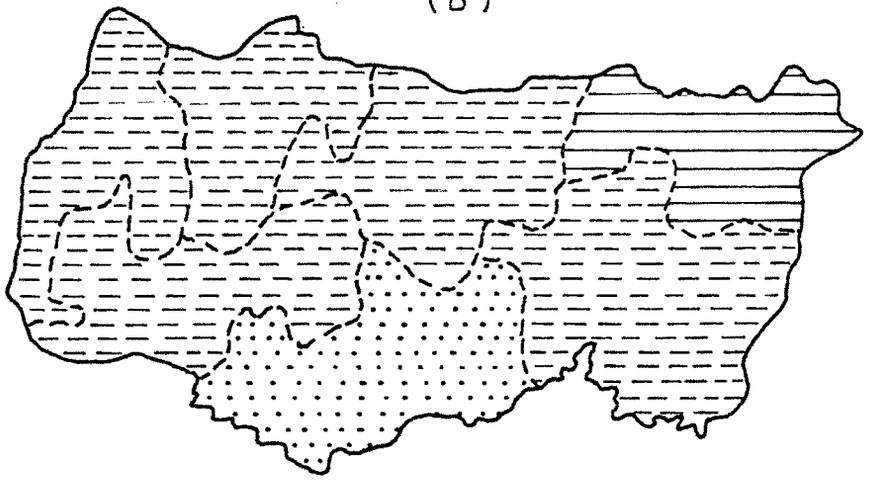
5 %

N

2 0 2 4 6 8 10 KM

Wheat cropped area vol of change 1959-93

(B)



% OF GROSS AREA IRRIGATED

+ 4 %

0.0 %

- 1.0 %

FIG. 2-6

(iii) Jowar :-

Jowar is staple food crop which is grown both as kharif and rabi crop. It is largely grown as rainfed crop but to some extent it is also grown under irrigation. Jowar shares about 16.60 percent gross irrigated area. High proportion (above 20%), of the total irrigated area is confined to the Taradgaon circle of Phaltan tahsil (Fig. 2.7-A). The moderate proportion of jowar irrigated cropping (10 to 20%) is observed in Phaltan tahsil i.e. Hole, Aussu, Barud, Girvi and Adarki Bk. circles. Elsewhere the irrigated hectarage under jowar is very insignificant.

The irrigated hectarage under jowar, has decreased from 15941.72 hect. (44.41%) to 10638.63 hect. (16.60%) during last 34 years (Table 2.4).

The negative change is observed in Hole, Phaltan and Aussu circles where most of the area under jowar has been replaced by sugarcane requiring perennial irrigation facilities. In general, maximum proportion (45.51%) of irrigated water has been utilised by sugarcane only the other crops like groundnut and bajara are supplied with irrigation, however, they have insignificant proportion in the total irrigated area (Fig.2.7-B).

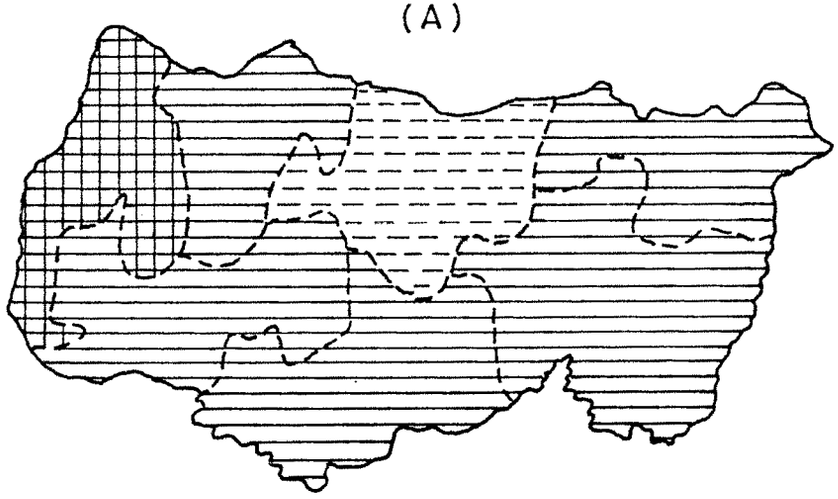
8. INTENSITY OF CROPPING :

Intensity of cropping is an important phenomena indicating the overall picture of agricultural development.

PHALTAN TAHASIL

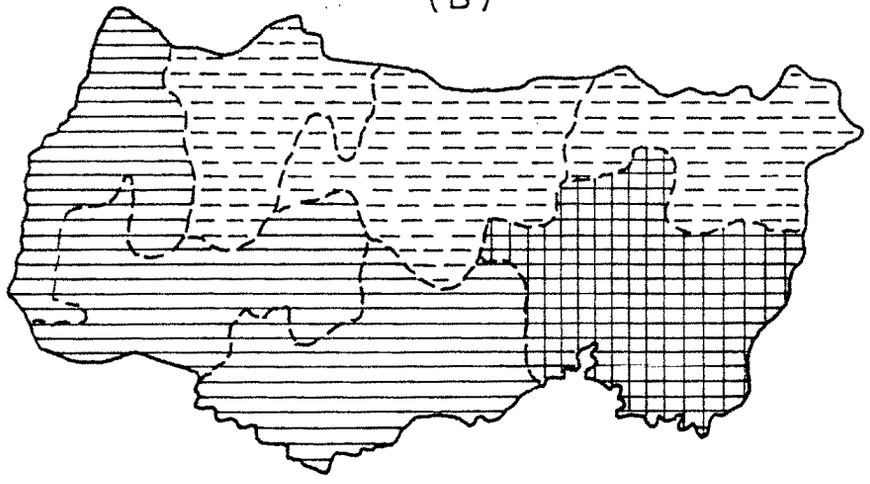
Jowar cropped area 1989-93

(A)



Jowar cropped area vol. of change 1959-93

(B)



N

% OF GROSS AREA IRRIGATED

20

R.A. 14-18

10

2 0 2 4 6 8 10 KM.

% OF CHANGE IN JOWAR CROP.

+ 10 %

0

- 10 %

FIG. 2-7

Intensity of crop is nothing but the reflection of physical and socio-economic set up of the region and it is not uniform in the study region. In fact it is controlled by various factors such as climatic conditions, soil fertility and regular supply of water. A temporal study of cropping intensity of area expresses the actual development in the agricultural landscape. The intensity of cropping is defined as the extent to which the net area sown is cropped or resown. The gross cropped area as percentage of the net area sown gives a measure of landuse efficiency which really means the intensity of cropping (Singh,1981). In Phaltan tahsil, the intensity of cropping is 76 percent.

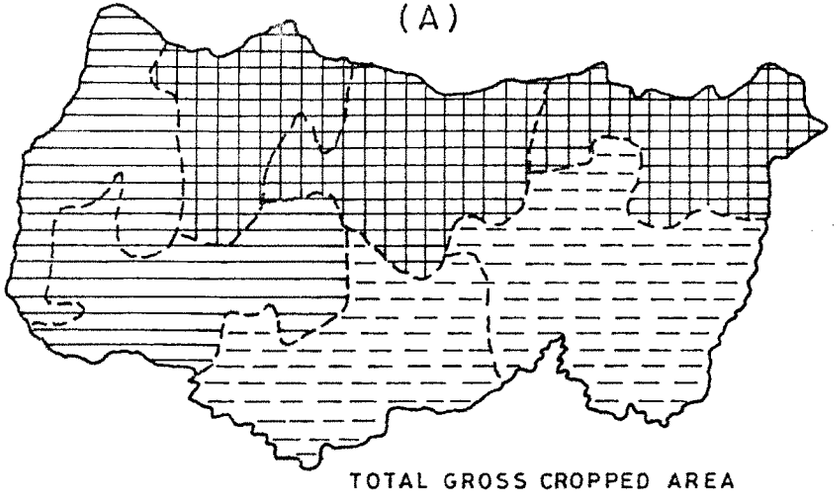
8.1 Spatial pattern of cropping intensity :

The high cropping intensity (above 90%) is observed in Hole, Phaltan and Aussu circles. This can be well attributed to the better irrigation facilities and presence of deep black alluvial soil, but use of modern agricultural technology is also partly responsible for high intensity (Fig.2.8-B). The moderate intensity of cropping (60 to 90%) is confined to Barad and Girvi, Taradgaon circles. The inadequate supply of surface water has restricted cropping intensity. The low intensity of cropping (below 60%) is noted in Adarki circles. The undulating topography, shallow soil and inadequate supply of irrigation water are responsible for low intensity of cropping.

PHALTAN TAHASIL

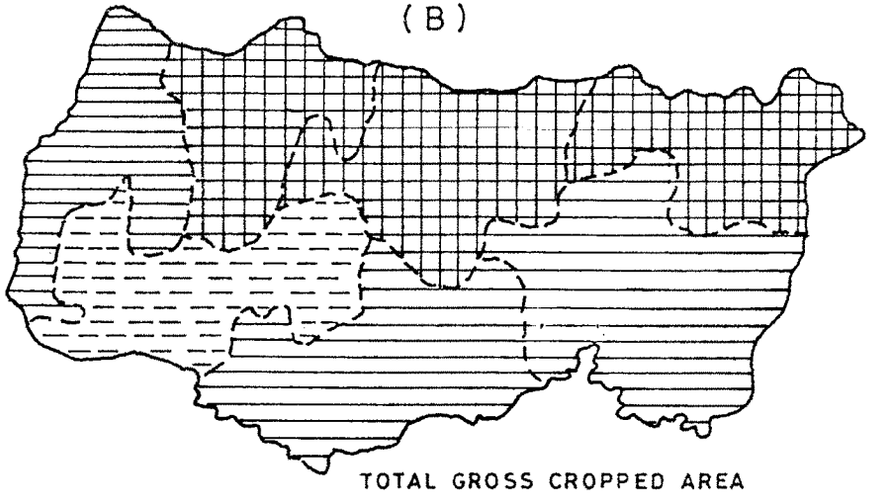
Intensity of cropping 1959 - 63

(A)



Intensity of cropping 1989 - 93

(B)



TOTAL GROSS CROPPED AREA AS % OF N.S.A.

60
50
R.A.55·54

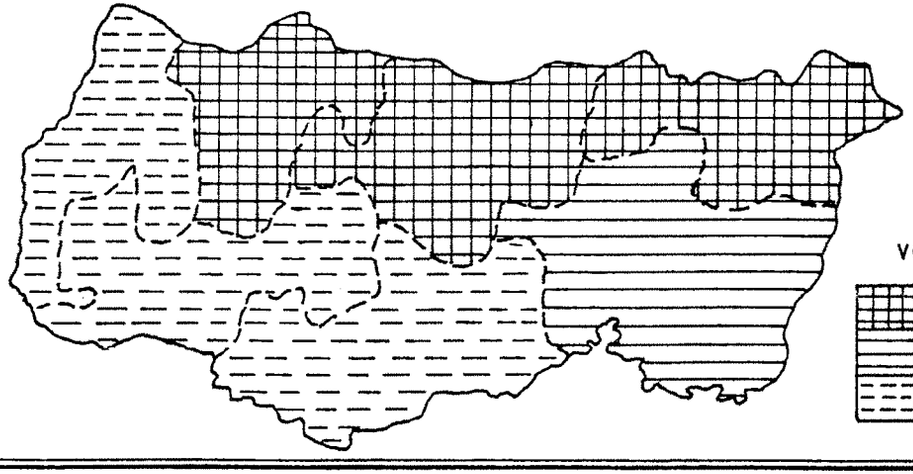
N

2 0 2 4 6 8 10 KM.

TOTAL GROSS CROPPED AREA AS % OF N.S.A.

90
60
R.A.76·0

Intensity of cropping vol of change 1959-93



VOL. OF CHANGE IN %

30
15
R.A.20·46

FIG. 2·8

8.2 Change in Intensity :

Fig.2.8-C reveals the change in the intensity of cropping during the last 34 years. The high change is (above 30%) in Hole, Phaltan and Aussu circles. Barad circle has noted moderate change (15 to 30%) and low change (below the 15%) is observed in Girvi and Adarki Bk. circles of the Phaltan tahsil.

SUMMARY :

The Phaltan tahsil has been characterised by the spatial variations in the physical factors which influence the development of irrigation. Central plain is suitable for well irrigation. Irrigation is dominent in northern parts viz. along the Nira river. Climatically, the study region is hot and dry throughout the year except July to October. During this period, relative humidity is high. The rainfall distribution is uncertain and not uniformly distributed. Therefore, the need of irrigation, in both the seasons is essential. Soil also influences the extent of irrigation as its moisture holding capacity varies according to texture and structure. Shallow soil in the region permits perennial irrigation, whereas deep black soil need drainage. In general, the soils of the region are fertile and irrigation facilities are made available so that agricultural yields could be increased.

The density of rural population in relation to cultivated area, is moderate to high in the north and the central part. The proportion of agricultural labourers is high where irrigation facilities are developed.

There is spatio-temporal change in irrigated cropping pattern. Irrigation is responsible in bringing about such changes. Sugarcane is the main cash crop and wheat is second leading irrigated crop have dominated the northern part and it is also increasing in extent whereas other food crops are decreasing in the region.

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