

CHAPTER - III

SPATIAL DISTRIBUTION OF IRRIGATION FACILITIES

The sources of irrigation in Maharashtra are largely affected by the physical features, such as topography, soil, presence of surface and ground water etc. Presently region has four different sources of irrigation, viz. well, canal tank and other sources of irrigation. The topography is mostly suitable for the development of well irrigation and less suitable for tank irrigation.

The well irrigation is wide spread in upland districts of Deccan plateau where above 80 percent of the irrigated area is covered by this source only. Owing to the non-availability of perennial stream the canal, lift and tank irrigation are less developed in this part. It occupies about 54.82 percent of the total irrigated area in the state. The canal irrigation occupying about 22.59 percent of total irrigated area is observed only along the major river basins of the state. Whereas tank irrigation (14.88 percent) is largely confined to eastern part of the state comprising Chanda, Gadachiroli, Bhandara and Nagapur districts. The other sources of irrigation containing lift irrigation as a major source, share about 7.68 percent of the total irrigated area. It is largely confined to the districts of Kolhapur, Ratnagiri, Satara, Sangli and Nasik.

3.1 Well Irrigation :

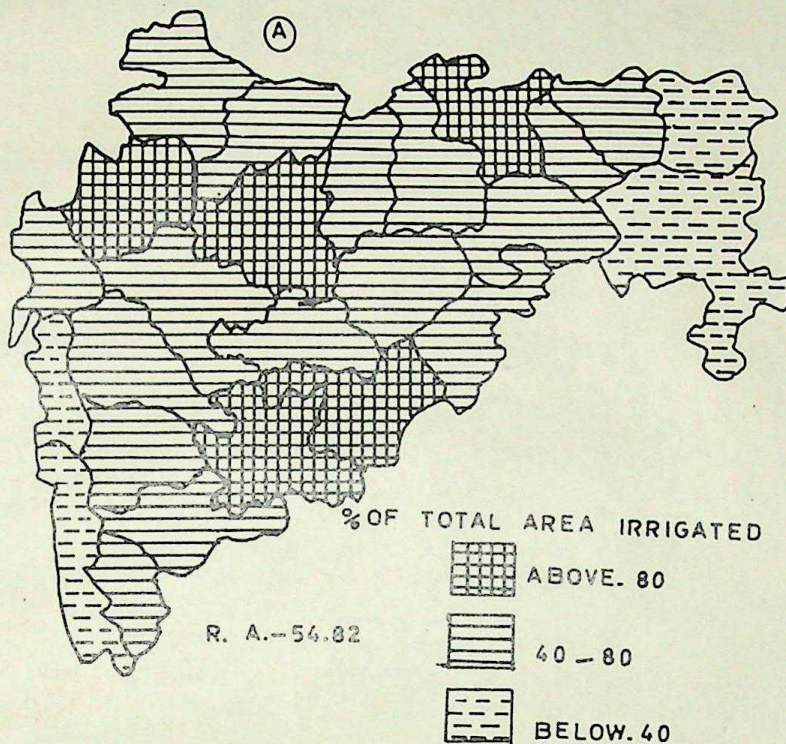
The well irrigation has spread over a wider area, particularly in Sangli, Solapur, Ahmadnagar, Dhule, Jalagaon, Pune, Bhir, Osmanabad, Aurangabad, Yeotmal, Akola and Amaravati where 80 percent of the total irrigated area is covered by this source. Being the only source of irrigation, the density of well is also high in this part (Pawar, 1984). Well irrigation occupies 54.85 percent of the total irrigated area in the region. However, its distribution varies from the west to east considerably. The high concentration of well irrigation is observed on Deccan plateau where 40 to 80 and in some district above 80 percent of the irrigated area is shared by this source (Fig.3.1A). Less than 40 percent of the total irrigated area by this source is reported in western and eastern margin of the state. It is due to the unsuitable topography for well irrigation. During the period under study the area under well irrigation has increased from 39,5,749 to 81,2,939 hectares.

3.2 Canal Irrigation :

The canal irrigation (Government) is developed along the parts of river Krishna, Godavari and its minor tributaries. Moderate slope of land and perennial source of water are responsible for this growth. The private canal system diverting local stream water in the field for irrigation purpose is another

WELL IRRIGATION

1975-80



CANAL IRRIGATION

1975-80

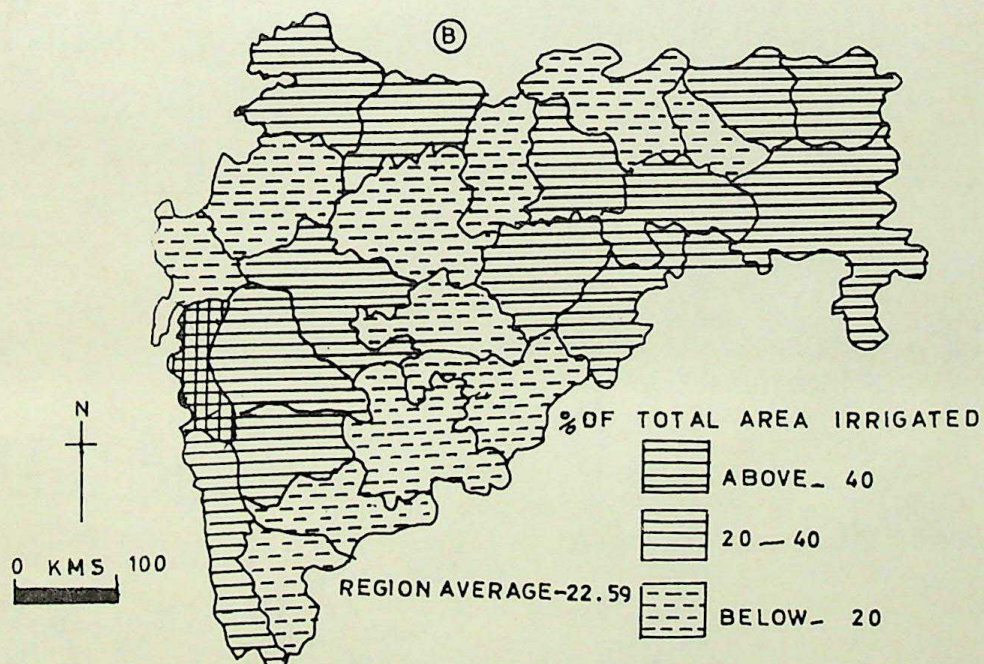


FIG. 3.1

feature. It has developed in the western hilly part, where above 40 percent of the net irrigated area is shared by this source of irrigation (Fig.3.1B). Canal irrigation contribute about 23 percent of the total irrigated area in the region. However, there are some regional imbalances in the development of this source. Raigad district ranks first (above 40 percent of total irrigated area) where private canal system is practiced. The moderate percentage (20 to 40) of the irrigated area is confined in north-western and eastern hilly part where private canals are practiced. The districts of Akola, Yeotmal, Parbhani and Nanded also have a moderate development of canal irrigation. The low development is observed elsewhere in the state. Normally the canal irrigation is always preferred to well and lift irrigation as former is cheaper. The canal irrigation in which water utilized by gravity flow requires almost plain topography having lesser degree of slope. Krishna basin having undulating topography through out the region, is largely unsuitable for flow irrigation except valley bottom areas.

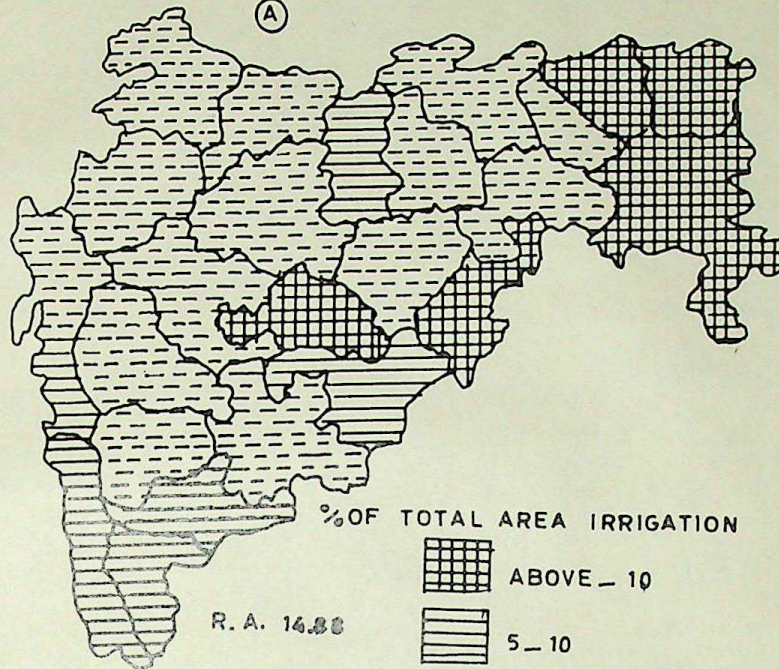
3.3 Tank Irrigation :

The tank irrigation in the state is relatively less developed. It occupies about 15 percent of the total irrigated area only. However, the concentration of tank irrigation is confined to the eastern part of the state. The districts of

TANK IRRIGATION

1975-80

(A)



OTHER SOURCES OF IRRIGATION

1975-80

(B)

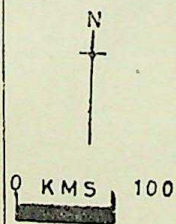
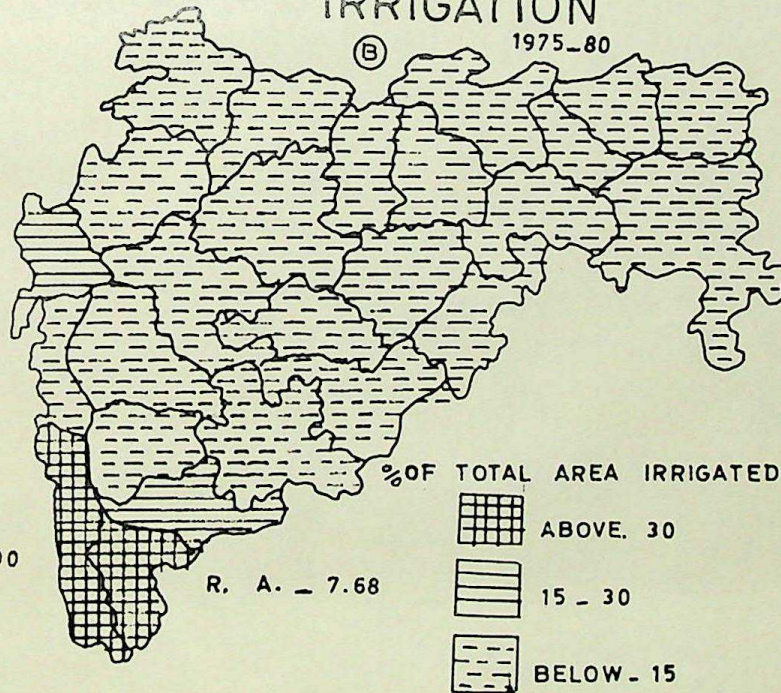


FIG 3.2

Chandrapur, Gadachiroli and Bhandara share above 60 percent of the total irrigated area. It is followed by Nagapur and Nanded districts. It is largely due to the suitability of topography for tank irrigation in those districts. Most of the tanks were constructed during the British period.

The moderate (5 to 10 percent) area under tank irrigation is noted in western part of the state (Fig.3.2A). It includes districts of Raigad, Ratnagiri, Sindhudurg, Kolhapur and Sangli. Tank irrigation is insignificant in remaining part of the state. The tank irrigation, though insignificant has increased hectarage from 82,632 to 2,20,677 during the last three decades.

Percolation Tanks :

Recently, indirect method of irrigating the lands is adopted by constructing the mud walls across the small streams for recharging the groundwater. This helps in increasing the water table in the wells, prolongs the duration of water in the wells, increases the yield of wells etc. (Pawar,1981). In the study made by the Fact Finding Committee, it was observed that groundwater potential of areas supply by percolation tanks increased almost by three times. The work of constructing the percolation tank in the state was launched mainly as a relief measure during the famine of 1972-73. It is largely confined

to the drier part of the region which is prone to drought frequently. Nevertheless, the percolation tank has become a special feature of drought prone area. However, desilting of such tanks seems to be necessary, once in a three year for their proper functioning.

3.4 Other Sources of Irrigation :

It includes various minor sources by which temporary irrigation is made available. In these sources lift irrigation, a new phenomena in the region contains large share.

Lift Irrigation :

Lift irrigation schemes are provided to lift up the water from the surface flow of nala, river, canal etc., for irrigating the land situated at high level. Before the adoption of water pumps, farmers used to make full use of river water by means of 'Budhaki Moats'. 'Budhaki' is shallow hole dug in the bed of river or stream, while a 'Well' is a vertical deep shaft or hole dug on the farm to obtain the under groundwater. Presently, the lifts are operated on river banks particularly in Kolhapur, Satara, Sangli and Nasik districts by constructing 'Kolhapur Type' of weirs.

The concentration of lift irrigation is observed in Kolhapur and Ratnagiri districts, where above 30 percent of the

total irrigated area is shared by this source (Fig.3.2B). Particularly, Kolhapur district has speciality of lift irrigation schemes. The district alone shares above 65 percent of the lift irrigated area in the state. The remarkable growth of lift irrigation in Kolhapur district seems to be due to the availability of perennial sources of water from river Panchaganga and Krishna, the development of co-operative societies, encouragement and financial aid from co-operative sugar factories. Industrious and innovative nature of farmers are also partly responsible for large concentration of this source of irrigation (Pawar,1981). Elsewhere the spread of lift irrigation and other sources of irrigation is insignificant. However, recently in other parts of the state various lift irrigation schemes are in progress by constructing Kolhapur type of weirs. The area under lift irrigation has been stepped up considerably from 34,777 hectare to 1,15,019 hectares during the last three decades.

The analysis of irrigation (sourcewise) reveals that the well irrigation is the major source of irrigation in the state which is dominated in central deccan plateau of the state. It is followed by canal irrigation which is developed along the river valleys only. The private canal system is practiced only in the western hilly part of the state.

Whereas tank irrigation is mainly practiced in the eastern part of the state. Among other sources of irrigation lift irrigation is dominant. The spread of this source is still limited in western upland districts. Thus it seems that due to topographic variation particular source of irrigation is dominant in particular part of the state.