

Status of Agriculture in Coastal Villages of Ratnagiri, Maharashtra

Balu L. Rathod, Jagdish B. Sapkale

Abstract— Ratnagiri is a coastal district of Maharashtra, having an approx. coastline of 167 km. The district is divided in 09 tehsils. Out of these nine tehsils, five tehsils i.e. Mandangad, Dapoli, Guhagar, Ratnagiri and Rajapur are adjacent to coastline. Most of the area comprises with undulating landscape. The low land area encountered with flood catastrophes and sea tidal waves. In the low levelled coastal tracts, the conditions of agricultural activities are not favourable in all seasons. Most of the agriculture system is influenced by the direct impact of tidal sea-water. Salinity reduces the crop production in the coastal villages of Ratnagiri. In view of the impact of saline water and its effects on agricultural systems, some selected villages have considered for case study.

Index Terms— Coastal Resource Management, Saline soil, Kharland scheme, salinization, water-logging.

1 INTRODUCTION

COASTAL villages of Ratnagiri dominantly produces rice, among all other crops in the district. The agricultural land is fertile, but day by day the production and crop yield decreasing due to unfavorable climatic conditions and salinity problems that occur in the study area. Saline water due to sea tidal; and soil salinity are the causes for destructing the rice or other crops in the region. For evaluating the status of agriculture in coastal areas, some selected villages i.e. Anusure, Mithghavane, Velneshwar, Kolthare, Dhabol, Anjarle, Kelashi have considered for case study. Overall 35 respondents have interviewed through questionnaire survey. The perceptions of the villagers have analyzed in the present research work. The collected information is helpful for the further policy decisions. Coastal resource management not only required in the coastal area of Ratnagiri or Maharashtra, but it is the primary and basic need to adopt the best practices that ever required for coastal resource management in the coastal countries. The processes, policies, different practices that may participate in the coastal resource management should properly examine for the development of coastal area.

The quality of soils in study area is under the process of deprivation. The primary distress to agricultural soil quality arises from salinization, water-logging and intrusion of saline water from adjacent sea. There is an adverse effect of such processes on crop productivity of the region. The major crop in this region is rice, but the annual yield of rice is decreasing day by day. In view of the serious problem that occurs in the region, there may be an alternative option to change the cropping pattern in the salinity affected areas. The traditional crops must be replaced by the new varieties with salinity tolerant plants/crops. [1].

2 METHODOLOGY

The present investigation has attempted to make an in depth study of seven sample villages in Ratnagiri district. Besides this, landuse pattern has been analyzed for year 2012-2013 briefly [2]. The data for general land use and agriculture land use is collected from villages and tahsil revenue department. The data collected, and is converted into percentage. The primary data is collected through questionnaires from farmers. The information with the help of questionnaire requires for the proper management of the agricultural resources.

3 DISCUSSIONS AND RESULTS

Considering overall cropping pattern of the study region (fig 1-District map), total cultivated land was 2,71,804 hectares and uncultivated land area accounts for 2, 19,096 hectares in 2012-2013, which was 8, 16,433 hectares of the total geographical area. According to the Socio-Economic Review and Statistical Abstract of Ratnagiri District (2012-2013) [2], [3], following are the status of crops:-

3.1 Cereals

Rice is leading crop in the Ratnagiri district, cultivated in both Season. Rice occupied 70193 hectares area of the total cropped area in year 2012-13. Table No. 1 shows the area under various cereals crops in Ratnagiri district. The highest area under rice is recorded in Sangameshwar and Chiplun tahsils covering 10,900 and 10,515 hectares of the total cropped area. Nachani (finger millet) is one of the main cereals crops grown in the Ratnagiri district mostly on the slope of the mountains and hills, as the region belongs to undulating topography (fig 2-Slope map). The highest area of Nachani is seen in Guhagar tahsil covering 3200 hectare of area. Maize occupied 316 hectares of total cropped area. The highest area under Maize had recorded in Ratnagiri tahsil i.e. 108 hectares and the lowest area found in Mandangad tahsil it was 14 hectares of area. Topography of the area is highly influenced on the variation of crop productivity.

- Balu L. Rathod : Assistant Professor, Department of Geography, Kankavli College, Kankavli, District- Sindhudurg, Maharashtra (Ph.D. Scholar, Department of Geography, Shivaji University, Kolhapur, Maharashtra, India, , e-mail- balurathod267@gmail.com
- Jagdish B. Sapkale: Assistant Professor, Department of Geography, Shivaji University, Kolhapur, Maharashtra, India. Mobile No. 09850046453 (Ph.D. Guide & Corresponding Author - E-mail: jbs_geo@unishivaji.ac.in



Figure : 1

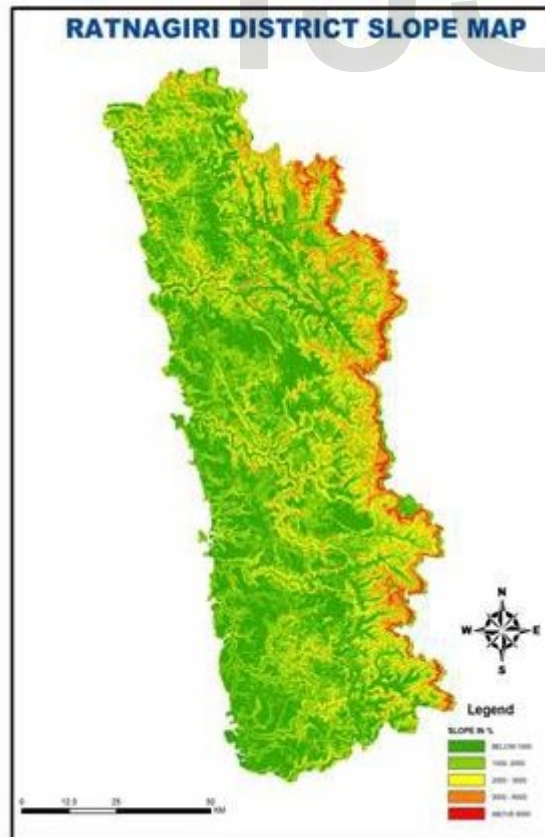


Figure : 2

Sr. No	Tehsil	Rice	Nachani (finger millet)	Vari (Grain)	Maize
1	Mandangadh	3910	915	170	14
2	Dapoli	7200	2050	450	20
3	● Khed	1116	900	0	80
4	Chiplun	10515	1443	150	20
5	Guhagar	4245	3200	412	16
6	Ratnagiri	7599	1720	36	108
7	Sangameshwar (Devrukh)	10900	2420	720	18
8	Lanja	6514	1100	95	20
9	Rajapur	8750	1225	60	20
Total		70193	14973	2093	316

Source : Socio-Economic Review and Statistical Abstract of Ratnagiri District -2012-2013.

3.2 Pulses

The relief of the Ratnagiri district is highly uneven, having very narrow riverine plains that border the coastline. Over 85% of the land surface is hilly and undulating. On the east side there is a steep scarp of the main Sahyadris ranges. In the central part of the district the dissected small hills are present, which are the off shoots from the main range; develop higher elevations in their middle portions. These are separated from each other by undulating plateaus, and extended westwards upto the coast-line. Savitri, Vasishthi, Jagbudi, Shastri, Ratnagiri, Muchkundi, Jaitapur, Waghotan ect. are the main rivers present in the study region [4]. The climate of the district is moist. Climate of the Ratnagiri district is hot and humid. The rainfall is plentiful and regular. The year may be divided into four seasons, the summer season from March to May, the south-west monsoon season from June to September, the post-monsoon season from October to November and the winter season from December to February. Humidity is more in summer. Maximum temperature of the district is around 34.3° C and minimum temperature is around 19° C [5], [6]. These conditions are almost favourable for the growth of fruit crops and fruits plantation. Besides this, the physical/ topographical aspects of the district and soil characteristics are also supports for the production of pulses. Map no. 3 (fig 3) shows the area (in hectare) / land cover under pulses. Pulses consist of Gram, Moong (green gram), Chawali (black eyed bean), Wal (green bean) Tur (pigeon pea/red gram), Udid (Black Gram) are the rabbi crops grown in the study region. Pulses crops have fourth position in the study area. The pulses have cultivated on an approx. area of 3224 hectares of total cropped area. The highest area under pulses is recorded in Sangameshwar, Chiplun and Guhagar tehsil of total cropped area under pulses (Statistical report, Ratnagiri).

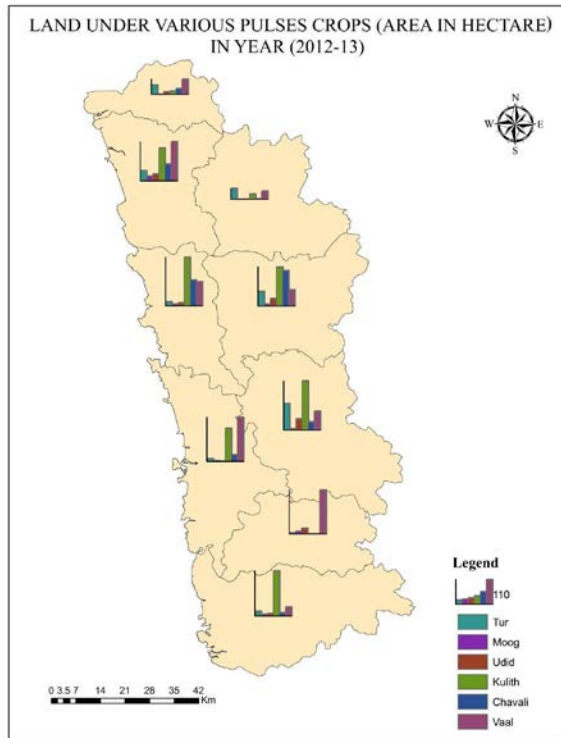


Figure : 3

very less (0.30%) area found in kelashi village. And warkas (poor productivity land or low grade millet soil) land is more in Velneshwar and Kolthare villages. It has also analysed that, the area under rice is more in Velneshwar and Methghvane villages and very less area is found in Dhabol village. Area under Nachni is more in Velneshwar. During the field survey, the perceptions of the land owners are taken into consideration. Most of the villagers have lost their agricultural land due to entrance of saline water of sea into their agricultural fields. The saline water from sea enters through estuaries and small tidal inlets at the time of high tide and inundated most of the agricultural land. There should be control over the direct entrance of saline water into the agricultural land. To minimize the salinity problem, earthen bund should construct across the entrance according to the rules of coastal regulation zone. The old bunding with its inlet and outlets having metallic caps are very old, and there is a leakage problem of saline water from the pipes/entrance during the high tide. Therefore land owners wants to repair such damaged system, also noticed their expectations from the government to construct new bundings, where the problem occurs.

Table- 2 :Villagewise# Landuse [Jiryat (Dry crop), Bagayat (Irrigated land), and Warkas (Poor productivity land)]

S r. N o. .	Villages	Jiryat Land		Bagayat Land		Warkas Land	
		Area in Guntha	Area in %	Area (Guntha)	Area in %	Area (Guntha)	Area in %
1	Anusure	23	3.69	-	-	-	-
2	Methghavne	90	14.46	-	-	-	-
3	Velneshwar	241	38.74	255	38.63	84	41.17
4	Kolthare	20	3.21	230	34.84	120	58.82
5	Dhabol	170	27.33	100	15.15	-	-
6	Anjarle	32	5.41	73	11.06	-	-
7	Kelashi	46	7.39	02	0.30	-	-
Total		622	100	660	100	204	100

Source – Field work (# Values/information is of Respondents that has considered for survey)

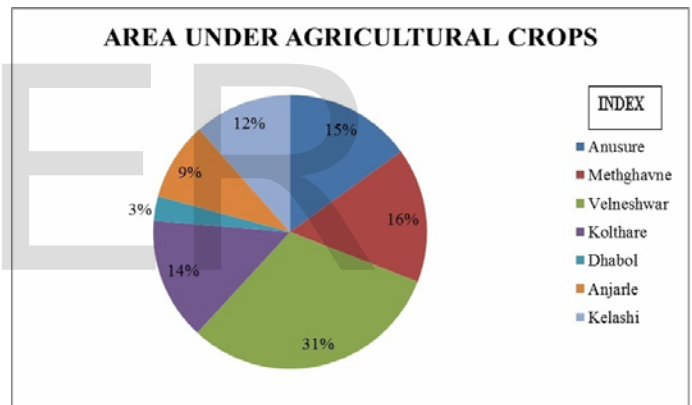


Figure : 4 : Village wise area under Agricultural crops

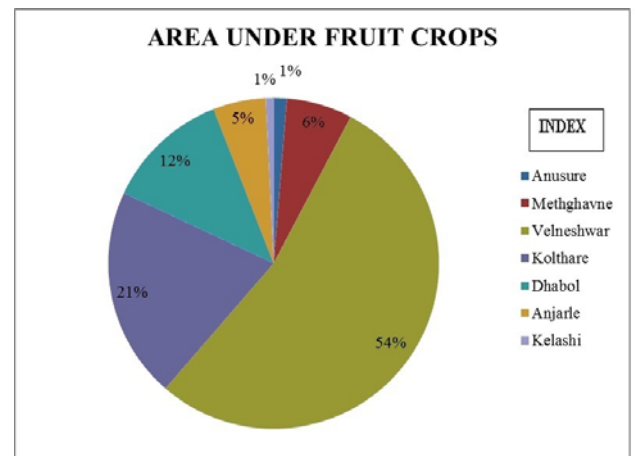


Figure : 5 - Village wise area under Fruit crop/ Plantation

4 CASE STUDY VILLAGES

Results of village survey shows that, the Jiryat land is found more in Velneshwar, Dhabol and Mithghavne villages that is 38.74% and 37.33% and very less area is found in Kolthare village that is 3.21% (table 2). In case of bagyat (irrigated land) land, the highest (38.63%) observed in Velneshwar village and

Area under fruits is occupied more in Kolthere village. In

kelashi village, area under fruits is very less. Fodder crops are 100% present in Dhabol village. Oil seed crops are not found in any village. It also shows that, the area under Mango is more than other fruits in Velneshwar and Kolthare villages. Area under Mango is high. Area under Cashewnut is more in Velneshwar village (fig 4, 5). Area under coconut is high in Dhabol and Kolthare villages and other various fruits present in Kolthare, Dhabol and Kelashi villages [7].

5 CONCLUSION

Ratnagiri district produces Rice, Nachani, Pulses, Oilseeds, Spices, Fruits, Vegetables and Fodder crops in its differentiate regions. Rice is the major food crop grown in the study region. Rice covered more of the total cropped area and shown declining inclination in some of years. It has also concluded that, coastal agricultural tracts of the study area are more vulnerable to salinity. New varieties of salinity tolerant crops should be introduced for cultivation in these areas. There is a need to change the cropping pattern scientifically. After harvesting of kharif crops, rabbi crops should be introduced with some vegetables that favours climate and soil type. In some part of the study area, coconut plantation is the appropriate option. According to the villagers, whose agricultural land has affected due to salinity aggressively wants to proper management of bundings and weirs. It has also observed that, pulses, spices and fruit crops/plantation is affected due to climate change.

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