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TAHSIL-WISE ANALYSIS OF DECADAL CHANGES IN IRRIGATION AND LAND USE IN KHANDESH REGION.

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ABSTRACT

In this study attempt has been made to see gross irrigated area {GIA} as a category of land use. The land, which is totally cropped in Kharif and Rabbi Seasons under irrigation during current agricultural year called as Gross Irrigated Area. It represents the actual physical area under all irrigated crops in Kharif and Rabbi Seasons. Gross irrigated area in west Khandesh region was 105403 hectare, 14.09 percent to gross cropped area in 1991-93 and 163722 hectare, 21.90 percent to gross cropped area in 2001-03, increased by 7.81 percent. Pearson's correlation of coefficient' r' which amount +0.77 is high positive correlation between gross irrigated area and gross cropped area during 1991-93.Its marginal increase in gross irrigated area as against of gross cropped area in decade. The first thing to emerge is that the gross cropped area has decreased due to the increasing in other use of agricultural land. During the period of triennium 2001-03, Pearson's correlation of coefficient' r' is + 0.29,indicate low positive correlation between gross irrigated area and gross cropped area. The't' value for r = +0.29 is 0.84, which is less than Critical values 1.86 and 2.31 at significant level. It is rejected at statistically.

KEYWORDS :*Gross irrigated area [GIA], Gross cropped area [GCA], Decadal, Correlation coefficient, land use.*

INTRODUCTION :

Land use is a geographical concept since it involves specific areas. The land use study in its spatial context is essential to understand the regional zonation of the areas of optimum land use, degraded areas. (Shinde, S. D., and Pawar, C. T.).Land is major natural ingredients for growing plants and play key role in agricultural practices. After evolution of agriculture man actively started to cultivation of land for sowing seeds for food purposes and put the land for different uses. Hence, its utilization becomes vital in the agricultural activities. Research connected with land utilization has two objects, scientific and practical, but it is difficult to separate them. *The most general scientific aim is, above all, the study of the ways in which man's economy utilizes its natural environment. This is essentially a geographical study, which can be greatly helped by land utilization survey. The survey can*

serve as an important foundation for the drawing of conclusions aimed towards a more rational utilization of the geographical environment (Polish Academy of Sciences, 1961). In India technical committee on co-ordination of agricultural statistics in 1950 recommended standard land use classification and uniform definitions. The revised classification has been adopted by most of the states of India. Based on uniform land use classification, the total geographical area was classified into nine categories (Ramanaiah and Reddy, 1990) namely, (1) Forest, (2) Area under non-agricultural uses, (3) Barren land, (4) Permanent pastures and other grazing land (5) Area under miscellaneous trees, crops, etc., (6) Cultivable waste land, (7) Current fallow, (8) Other fallow lands and (9) Net area sown. The land utilize for different purposes represents distribution of the total geographical area of a region. Therefore, pattern of land use studies are most important aspect in proper perspective. *The efficient use of land depends on the capacity of man to obtain maximum profits by applying irrigation facilities. The impact of irrigation on land use is best comprehended when the two aspect of net sown area and area sown more than once are considered*. A direct consequence of this is the disparity in the extent of seasonal, net and gross area irrigated constituting integral part of total land use.

OBJECTIVE

The principle objective of this research paper is to overview on tahsil wise gross irrigated area occupied by various crops in terms of their hectrage and assessment of land use.

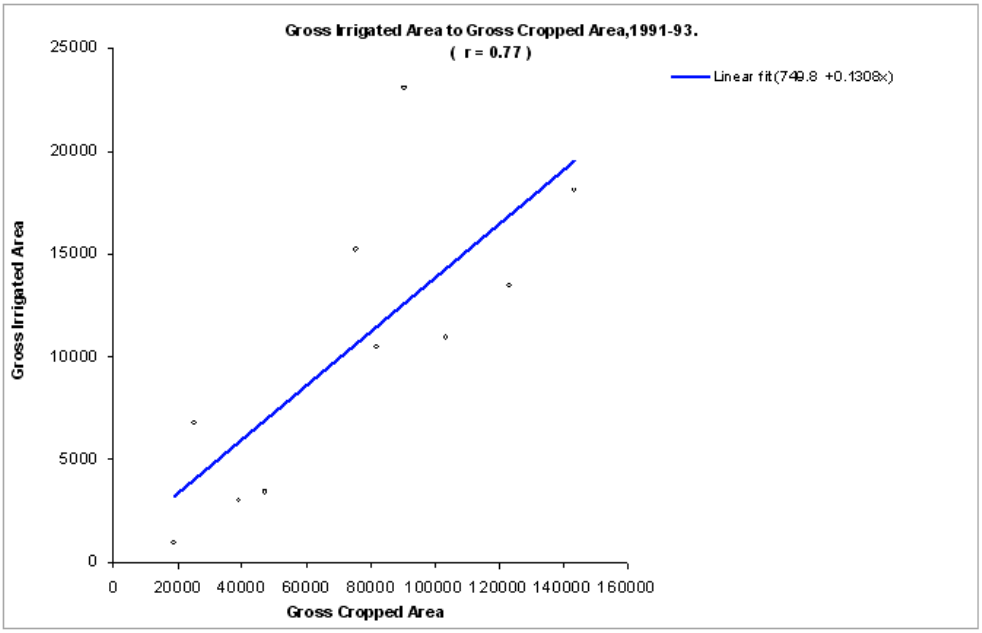
DATABASE AND METHODOLOGY

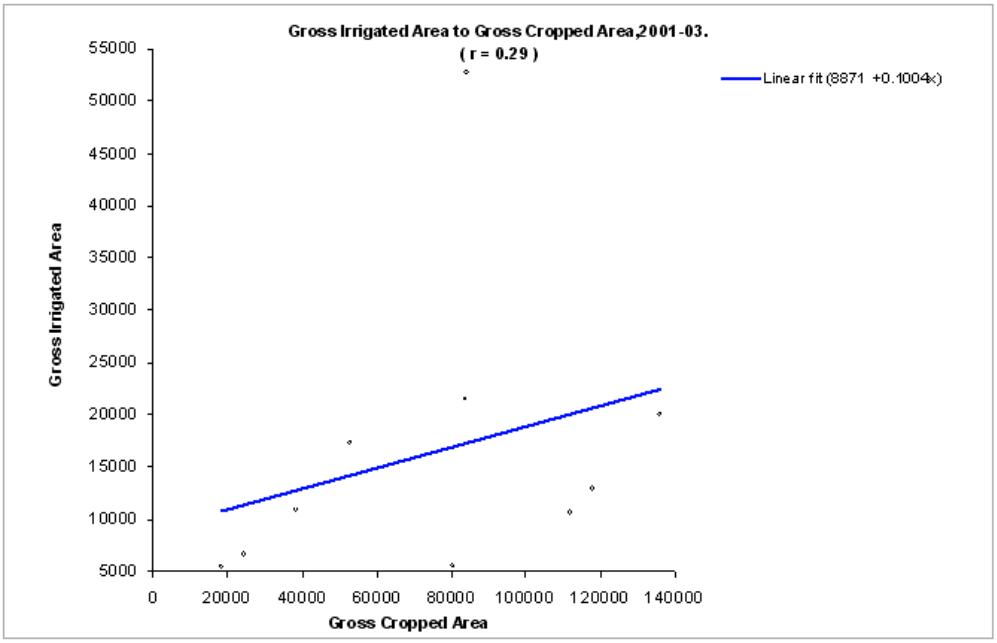
This study is entirely based on secondary data. A tahsil wise data has been obtained from socio – economic review published by directorate of economic and statistics, Government of Maharashtra. Triennium average is calculated for avoiding seasonal fluctuations [199-93 and 2001-03]. Regression and correlation coefficient has used for data analysis. For the assessment of land use, gross irrigated area as a percentage to gross cropped area. The analysis is based on tahsil level data. The year 1991 considered as a base year. The triennium average calculated for the year 1991-93 and 2001-03 at tahsil and districts level data regarding land use. Following table indicate Salient features on area under irrigated crops and gross irrigated area [GIA] and gross cropped area [GCA] prepared by available data for analysis.

Tahsil	1991-93			2001-03			Volume o f Change 1991-93 to 2001-2003
	GIA	GCA	% of GIA to GCA	GIA	GCA	% of GIA to GCA	
Dhule	13473	122983	10.96	12970	117810	11.01	+0.05
Sakri	18096	143151	12.64	20024	135717	14.75	+2.11
Nawapur	3449	47137	7.32	17360	52837	32.86	+25.54
Nandurbar	10467	82094	12.75	5519	80422	6.86	- 5.89
Taloda	6796	25504	26.65	6674	24274	27.49	+0.84
Akkalkuwa	2994	39133	7.65	10911	38336	28.46	+20.81
Akrani	937	18928	4.95	5378	18222	29.51	+24.56
Shahada	23065	90506	25.48	52678	84088	62.65	+37.17
Shirpur	15185	75389	20.14	21527	83777	25.70	+5.56
Shindkheda	10941	103429	10.58	10681	112019	9.53	-1.05
Total	105403	748254	14.09	163722	747502	21.90	+7.81
Correlation	r = +0.77 and t value = 3.32			r = +0.29 and t value = 0.84			

(Compiled By Research)

Gross Irrigated Area (GIA): The land, which is totally cropped in Kharif and Rabbi Seasons under irrigation during current agricultural year called as Gross Irrigated Area. It represents the actual physical area under all irrigated crops in Kharif and Rabbi Seasons. Gross Irrigated Area of district as a whole depicted in table 4.1. The total gross irrigated area of Dhule and Nandurbar districts occupied about 105403 hectare, which was14.09 percent to gross cropped area in triennium 1991-93. During triennium 2001-03 occupied 163722 hectare, which is 21.90 percent to gross cropped. It was increased by 7.81 percent. It's marginal growth in gross irrigated area of gross cropped area in decade. Pearson's correlation of coefficient' r' which amount +0.77 is high positive correlation between gross irrigated area and gross cropped area during 1991-93.





The‘t’ Regression analysis shows linear growth in gross irrigated area. It is noted from table indicate that during the period of triennium 2001-03, Pearson’s correlation of coefficient’ r’ which amount +0.29 is low positive correlation between gross irrigated area and gross cropped area. The‘t’ value for r = +0.29 is 0.84, which is less than Critical values 1.86 and 2.31 at significant level. It is rejected at significant level after that regression line shows declined trend in gross irrigated area with gross cropped area. After an examined the percentage values depicted in table, classified into three major groups

High irrigated zones (> 20% GIA): During the period of 2001-03, the three tahsil are included in this category namely Taloda, Shahada and Shirpur tahsil. Taloda tahsil has constituted about 26.65 percent to total cropped area and ranked first amongst all tahsils followed by Shahada (25.48%) and

Shirpur (20.14%). These tahsils have consistently maintained increasing growth in irrigated area during study period. The physical features of these tahsil are favourable for applying irrigation inputs such as abandoned ground water, unique piedmont location and presence of canal irrigation and received assured rainfall. These entire features are helpful for the development of irrigation. During triennium 2001-03, six tahsil has come into this category. Nawapur tahsil has reported first in this category with occupied about 32.86 percent gross irrigated area of gross cropped area. The area under irrigation is increased from 7.32 in 1991-93 to 32.86 in triennium 2001-03, absolute increased by 25.54 percent. Akrani tahsil has occupied 29.51 percent; Akkalkuwa tahsil has 20.81 percent area under gross irrigated area. Shahada tahsil ranked first amongst all tahsil in this category, that occupied 62.65 percent irrigated land to gross cropped area, followed by Taloda 27.49 percent and Shirpur 25.70 percent. These tahsil reveal a similar pattern to that of during triennium 1991-93.Ironicaly, Nawapur and Akrani tahsil indicate dynamic increased in area under irrigation.

Moderate Irrigated Zones (10 - 20%): During the triennium 1991-93, four tahsil are included in this zone such as Dhule, Sakri, Nandurbar and Shindkheda tahsil. These tahsils have partially irrigated and partially none irrigated. These tahsil have dotted with few hills further few patches of coarse soil did not permit irrigation. During said period all crops are grown under rain fed condition. Meanwhile less canal irrigation facilities was observed in this tahsils. In the above circumstances area under irrigation was moderate. Dhule and Sakri tahsils reported in this category. Sakri tahsil occupied 14.75 percent gross irrigated area, followed by Dhule tahsil with 11.01 percent gross irrigated area of gross cropped area of tahsil during the period of 2001-03. These tahsil shows similar geographical condition to that of the tahsils whose fallen in this category.

Poorly Irrigated Zone (< 10%): Tahsils located in Hilly areas such as Nawapur, Akrani and Akkalkuwa during triennium 1991-93. These tahsils has recorded below 10% irrigated area of gross cropped area. The main physiographic features of these tahsil have hilly location, received assured rainfall of about above 1200 mm, Tribe's dominated areas thereby less dependency on farming resulted slow development in irrigation facilities. During triennium 2001-03, Nandurbar and Shindkheda tahsil reported in this category. Nandurbar tahsil has occupied 6.86 percent and Shindkheda tahsil has 9.53 percent irrigated area to gross cropped area. In overall situation all tahsils has increased in area under irrigation except Nandurbar and Shindkheda tahsils has decreased in area under irrigation. During the period triennium 1991-93, districts as a whole occupied 14.09 percent irrigated area of gross cropped area while 21.90 percent during 2001-03.It is increased by 7.81 percent. It indicates that increased in irrigation facilities which will helpful for dynamic transformation in agricultural practices.

CONCLUDING REMARKS

The first thing to emerge is that the gross cropped area has decreased due to the increasing in other use of agricultural land and seasonal fluctuations. Meanwhile, gross irrigated area has been increased from 14.09 % in 1991-93 to 21.90 % during 2001-03; it's increased by 7.81 %, in a region as a whole in triennium 2001-03 with respect to base year 1991-93.But correlation between GIA to GCA indicate decadal fluctuation. It occurred due to decrease in GIA in certain tahsils of study region.

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