Agricultural Land Use Efficiency of Latur and Nilanga Taluka of Latur District

Mr. O.W. Jadhav
Shivneri Mahavidyalaya, Shirur Anatpal, Latur,
Maharashtra, India.

Abstract: *Today finding valuable land for agricultural is major challenge but with the help of agricultural land use efficiency level it is very easy. Other side improving the land use efficiency is chief goal of every government to increase production and productivity of region. Agricultural land use efficiency play major role in agricultural development and management. In this study an attempt has been made to find out circlewise Agricultural use efficiency. In this study Jasbir Singh's Method of Land Use Efficiency is used to measure the land use efficiency. Latur and Nilanga Taluka of Marathwada region are chosen as study area. The regional variations in spatial pattern of land use efficiency are examined from 1993-96 to 2010-2013. The emphasis is on highlighting the basis of agriculture which influences agricultural efficiency. Agricultural efficiency is the levels of existing performance of unit at land which differentiate from one area to another. This study also helps for agricultural planning for sustainable development of this area.*

Keywords: Agricultural Land Use Efficiency

1. Introduction

Agricultural land use efficiency is indictors of land utilization for agriculture. Agricultural land use efficiency represents the degree of optimum use and performance of cultivated as well as cultivable land. It is a dynamic but complex phenomenon. The efficiency of land use in a study region is determined by the interaction of physical, socio-economic and technological factors. A combination of natural and manmade factors makes land use efficiency a complex device. Agricultural land use efficiency is not new concept in the field of Geography. M. G. Kenall (1939) was the first to develop a measure for agriculture land use efficiency on the basis of output per unit area and he devised the system of ranking coefficient method. Previously this method was applied in different countries of the world by L. D. Stamp (1960). In Indian region Shafi (1960), Sapre and Deshpande (1964), Bhatia (1967), Gupta (1968) and M. Ali (1972) geographers paid attention to the study of land use efficiency. Jasbir Singh (1972) explained intensity of cropping level with help of ratio between net sown area and cropped area here the total area cropped as a percentage of the net sown and it indicates the intensity of cropping (Land use efficiency level).

2. Study Region

Study region is part of Latur district. Latur district is included ten tahsils. This study area consist current Latur tahsil and area of Nilanga tahsil before 23 June 1999. These are important tahsils of Latur district. Latur tahsil is divided into following five revenue circles. These are Kasarkheda, Latur, Gategaon, Tandulja and Murud. Nilanga tahsil is divided into following eight revenue circles. These are Nilanga, Shirur Anantpal, Hisamabad, Ambulga, Kssarshirshi, Kasar Balkunda, Madansuri and Aurad Shahajani. Latur tahsil is located in the north western part of Latur district. Nilanga tahsil is located in the southern part of latur district. Study area North side is bounded by Renapur and Chakur tahsil. East side is bounded by Udgir and Deoni tahsil. South and West side is bounded by Ausa tahsil and Osmanabad district. Study area lies between

17^0 52′ north to 18^0 32′ north latitudes and 76^0 12′ east to 76^0 41′ east longitudes. The total area of study is 2577.35 sq. km.

The height of study region is in-between 510 to 700 meters from sea level. The main river is the Manjra flowing in the northern and eastern part of study area. Other important rivers are the Terna and Tawarja. Both rivers flow west to east direction through the study region. Study region is covered by deep black soil and medium black soil. The average normal rainfall of study region is 714 millimeters. There is lot of variation in temporal and spatial distribution of rainfall in study area.

3. Objectives:

1) To find out circlewise land use efficiency in Latur and Nilanga Taluka from 1993-96 to
   2010-2013.
2) To evaluate spatial and temporal change in land use efficiency.

4. Methodology:

This study is depended on past 20 years data of agriculture. As per availability of data and its format Jasbir Singh's Index of Intensity of Cropping method is very useful hence here this method is applied to calculate level of agricultural land use efficiency. The land use efficiency is refers to the number of crops grown on the area in any agricultural year (**Singh, 1976**). The Index of land use efficiency is calculated by using the following formula.

$$\text{Index of Land Use Efficiency} = \frac{\text{Gross Cropped Area}}{\text{Net Sown Area}} \times 100$$

Here, The higher the index of the efficiency means higher the agriculture land use efficiency and the lower the index of the efficiency means the lower the agriculture land use efficiency and less utilized of net area sown area for cropping.

5. Result and Conclusion

5.1 Agricultural Land Use Efficiency
As per the index of land use efficiency the land use efficiency of study area has been changed in into major three groups.

5.1.1 Circles of Low Agriculture Land Use Efficiency (50% to 130%)
It ranges from 50 % to 130 % in the study region. Low agricultural land use efficiency was observed in Murud, Nilanga, Shirur Anatpal, Kasar Balkunda, Aurad Shahajani and Ambulga circles during the period of 1993-96. Low agricultural land use efficiency were observed in Murud , Gategaon, Tandulja, Shirur Anatpal, Latur, Hismabad, Ambulga and Nilanga circles during the period of 2010-13.

5.1.2 Circles of Medium Agricultural Land Use Efficiency (130% to 160%)
It ranges from 130 % to 160 % in the study region. Medium agricultural land use efficiency was observed in Latur, Gategona and Kasarshirsi circles during the period of 1993-94. Medium agricultural land use efficiency was observed in Kasarkheda, Kasarshirsi, Kasar Balkunda, Madansuri and Aurad Shajani circles during the period of 2010-13.

5.1.3 Circles of High Agricultural Land Use Efficiency (130% to 160%)
It ranges from 160 % to 190 % in the study region. High agricultural land use efficiency was observed in Kasarkheda, Hismabad and Tandulja circles during the period of 1993-94. High agricultural land use efficiency was not observed during the period of 2010-13

Table No. 1
Land Use Efficiency in Latur and Nilanga Taluka

Name of Circle	1993-94 To 1995-96			2010-11 To 2012-13			Change In Land Use Efficiency in %
	Gross Cropped Area	Net Sown Area	Index of Land Use Efficiency in %	Gross Cropped Area	Net Sown Area	Index of Land Use Efficiency in %	
Latur	31416	23118	135.89	20394	23486.68	86.83	-49.06
Kasarkheda	24373	14129	172.50	20491	14821.11	138.26	-34.24
Murud	22214	20247	119.44	20372	21908.17	92.99	-26.45
Gategoan	24346	15338	158.73	19902	16246.33	122.50	-36.23
Tandulja	24772	14468	166.61	20411	16529.15	123.48	-43.13
Nilanga	16788	30532	54.98	20067	29962.7	66.97	11.99
Shirur A.	17085	19122	89.35	20308	18184	111.68	22.33
Hisambad	16920	9826	172.20	20224	9534	112.12	-60.04
Ambulga	16909	16034	105.45	20073	15621.63	128.49	23.04
Kasarshirsi	16748	12715	131.72	20070	12555.7	159.84	28.12
Kasar Balkunda	16923	14998	112.84	20147	14825.29	135.90	23.06
Madansuri	16886	12548	108.61	20212	12284.95	141.12	35.58
Aurad Sha.	16785	14345	117.0	20097	14322.76	140.31	23.31
Study Region	257354	217800	118.16	263470	220682	119.39	1.23

Source: Computed by the researcher (2017).

5.2 Change in Agricultural Land use efficiency

The index of agricultural land use efficiency has been decreased in Latur taluka and increased in Nilanga taluka excepted Hismabad circle. Agricultural land use efficiency

increase due to the decrease of non cultivable land in Nilanga taluka. Overall the gross cropped area was 257354 hectares in 1993-96 and it was 263470 hectares in 2010-13. The gross cropped area has been increased by 6116 hectares. Net sown area was 217800 hectares in 1993-96 and it was 220682 hectares in 2010-13. During the period of twenty years the index of land use efficiency has been increased by only 1.23%.
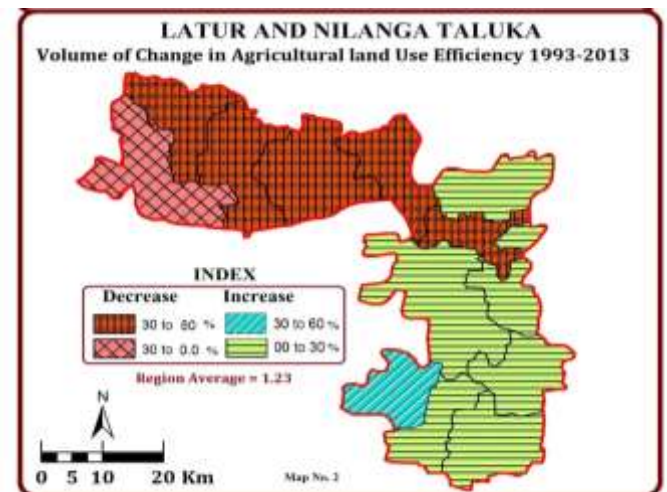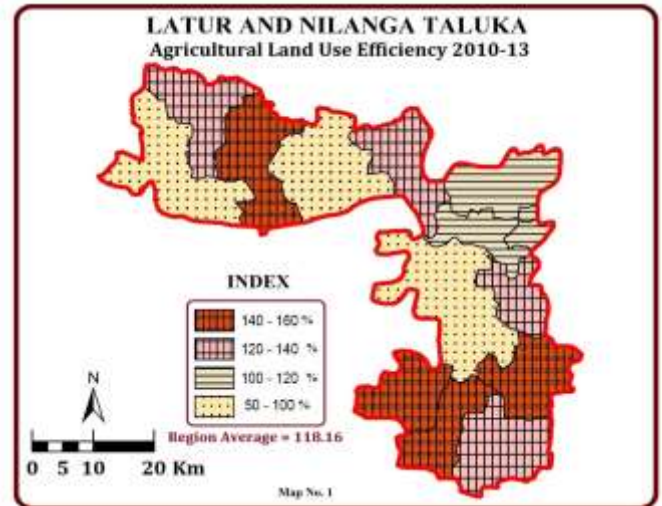

The highest agricultural land use efficiency has been recorded in Kasarkheda (172.50%) circle and the lowest index of agricultural land use efficiency has been observed in Nilanga (54.98%) circle during the period 1993-96. During the period 2010-13 the lowest index of land use efficiency was again recorded in Nilanga (66.97%) and the highest index of land use efficiency has been noticed in Kasashirsi (59.84%) circle.

The positive change in agricultural land use efficiency was observed in Nilanga (11.99%), Shirur Anatpal (22.33%), Ambulga (23.04%), Kasarshirsi (28.12%), Kasarbalkunda (23.06%), Madansuri (35.58%), and Aurad Shajani (23.31%) circles. The highest positive change in the index of agricultural land use efficiency has been observed in Madansuri (35.58%) circle and the lowest positive change in index of agricultural land use efficiency has been recorded in Nilanga (11.99%) circle during the period under study.

The highest negative change in agricultural land use efficiency has been observed in Hismabad (60.04%) circle and the lowest negative change in index of agricultural land use efficiency has been recorded in Murud (26.45%) circle during the period under study. The negative change in agricultural land use efficiency was observed in Latur (49.06%),

Kasarkheda (34.24%), Murud (26.45%), Gategoan (36.23%), Tanduja (43.13%) and Hismabad (60.04%). Due to urbanization, physiography, soil types, nature of rainfall and irrigation land use efficiency has been changed in different circles of Latur tahsil.

6. References

[1] Census of India (1991, 2001 and 2011): District census handbook of Latur District.

[2] Das, M. M. ,*"Land Use Pattern in Assam"*, Geographical Review of India, Vol.43, No.3, pub by Calcutta, Geographical society of India, 1981,Pp. 243-244.

[3] Gathde, D.G and et.al , "Agricultural Land Use Efficiency of Ratnagiri District, Maharashtra, Research Front journal, ISSN-2320 – 8341 ,Special Issue No. 1, Feb., 2017, Pp.139-142.

[4] Government of Maharashtra Gazetteer of Latur District.

[5] Jasbir Singh & Dhillon, S. S, "Agricultural Geography", Pub by Tata McGraw Hill publishing company limited, New Delhi, 2006, Pp.3.

[6] Jasbir Singh, "An Agricultural Atlas of India", Vishal Publication, Kurukshetra, India, 1976, p. 1.

[7] Majid Hussain, "Systematic Agricultural Geography", pub. by Rawat Publications, Jaipur, 2007, Pp. 1 to 430.

[8] Rayamane, A. S. , "A Spatio-Temporal Analysis of Crop Combinations in Sedawgyi Region, Myanmar (Burma)", The Deccan Geographer, Vol.41, No-1,2003, Pp.55-63.