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APPLICATION OF BHUVAN THEMATIC SERVICES FOR LAND USE AND LAND COVER STUDY

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ABSTRACT

The land use and land cover pattern of a region is an outcome of both natural and socio-economic factors and their utilization by man in time and space. Land is a very important natural resource. Land use is an important aspect of geographical particularly relevant to agriculture (Nagarale and Jadhav, 2012). Also land use and land cover plays important role in water and forest resources development, distribution and management. The present paper is attempted to analyzing land use- land cover pattern in Ahmadpur tahsil using Bhuvan thematic services. Ahmadpur tahsil covers 783.15 Sq. km area. It is part of drop prone area of Marathwada region. There agriculture field has covered 587.12 Sq.km area. It is 74.97 percent of the tahsil area. Ahmadpur tahsil total settlements have covered near about one percent of the area. It is occupied 8.27 Sq. km area of study area. Considering the environment, agricultural field, population and settlements there water resources body and forest area is limited. Water Bodies have occupied only 2.49 percent of the study area. It has covered 19.46 Sq.km area of study area. The forest area covered only 0.57 Sq. km. it is 0.07 percent of the study area which is very less for sustainable development. This situation needs to rectify using tree plantation and water conservation techniques.

KEY WORDS: *Application of bhuvan thematic services. Land Use and Land Cover, Water and forest resource,*

INTRODUCTION

Land use refers to man's activities and various uses which are carried on land. Land Cover refers to natural vegetation, water bodies, settlement, soil etc. Although land use is generally inferred based on the cover, yet both the terms are related and interchangeable. Land utilization requires proper planning for being finite resource. Today land is becoming a scarce commodity due to immense agricultural and demographic pressure. Hence, information on land use and land cover and possibilities for their optimal use is essential for the selection.

STUDY AREA

Ahmadpur tahsil is selected as a study area, which is one of the tahsil of Latur district in the eastern Maharashtra. Its latitude and longitude extends is about 18° 30' 28" to 18° 50' 20" North latitude and 76° 40' 34" to 77° 10' 20" East longitude covering an area of 783 sq. km. It is situated on 450 m to 600 m above mean sea level. Ahmadpur tahsil lay in the Monsoon climate region and it's having 852 mm annual average rainfall. There most of the annual rainfall receives in the four rainy months (June to September). This region is of basalts rock and black soil. The major perennial rivers systems are Manar and Waki passes through the Ahmadpur tahsil.

OBJECTIVES

- To study the existing land use and land cover pattern using Bhuvan thematic services.
- To evaluate water body and forest area reference to sustainable development.

MATERIALS & METHODOLOGY

The present study is based on secondary sources. In this study Survey of India (56 B/10, B/13, B/14 and 56 F/1, F/2) Topographic maps of 1:50000 scale and National Remote Sensing Centre (NRSC) / Indian Space Research Organisation (ISRO): thematic Services, Bhuvan's land use land cover map of 1:50000 scale are used. Digital data has been processed in GIS software for analysis of land use and land cover pattern.

RESULT & DISCUSSION

Ahmadpur tahsil area is classified in seven land use and land cover class as bellow.

Agriculture: The land primarily used for farming and for production of food, oil seed and other commercial and horticultural crops comes under this category. This class covers 74.97 percent of the tahsil area. It has covered 587.12 Sq. km area of study area.

Agriculture Fallow: The land, which is temporarily lying vacant in both kharif and rabi seasons due to one or other reason, is called fallow land. The fallow land has occupied 12.01 percent of the area. It has covered 94.02 Sq. km area of study area.

Settlement: Settlement land is an area of human habitation, which has a cover of buildings and network of transport, and other civic amenities. Here total settlements have covered near about one percent of the area. It is occupied 8.27 Sq. km area of study area. 5.22 Sq. km area has covered by rural settlement and 3.05 Sq. km area has covered by urban settlement out of total settlement area.

River: River class includes all major stream of area, which are having average width more than 15 meters. The Rivers have occupied only 1.05 percent of the study area. It has covered 8.22 Sq. km area of study area.

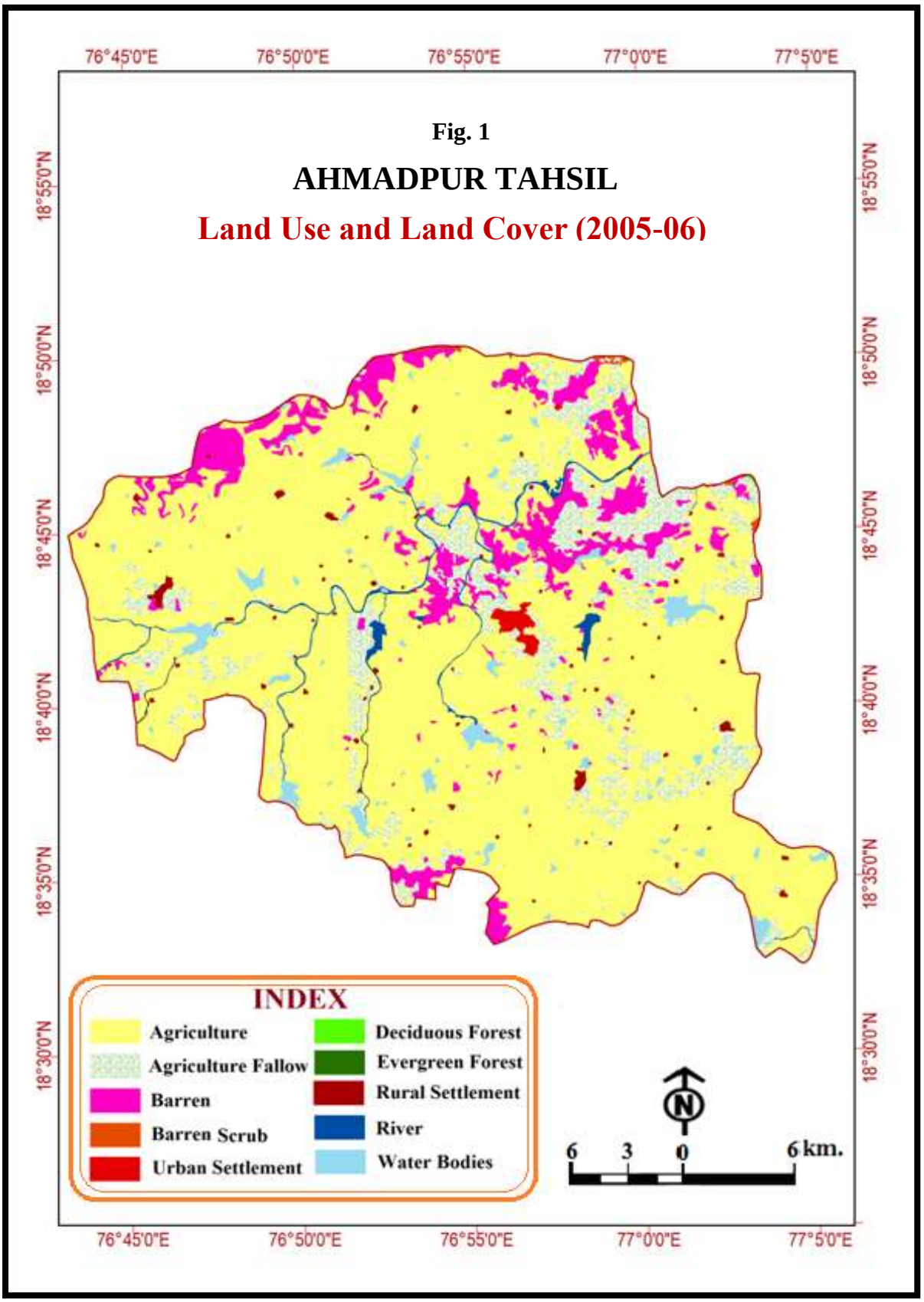
Water Bodies: The village ponds, lakes, reservoirs and manmade tanks are included in this category. Water Bodies have occupied only 2.49 percent of the study area. It has covered 19.46 Sq. km area of study area.

Barren: Barren are those lands, which are currently unutilized or underutilized and can be brought under vegetation cover or cultivation with reasonable efforts. Barren land has occupied only 8.20 percent of the study area. It has covered 64.19 Sq. km area of study area.

Fig. 1

AHMADPUR TAHSIL

Land Use and Land Cover (2005-06)



Source: *LULC, 50K, MAHARASHTRA, NRSC, ISRO, Thematic Services, Bhuvan*

Fig. 2

AHMADPUR TAHSIL : Land Use and Land Cover

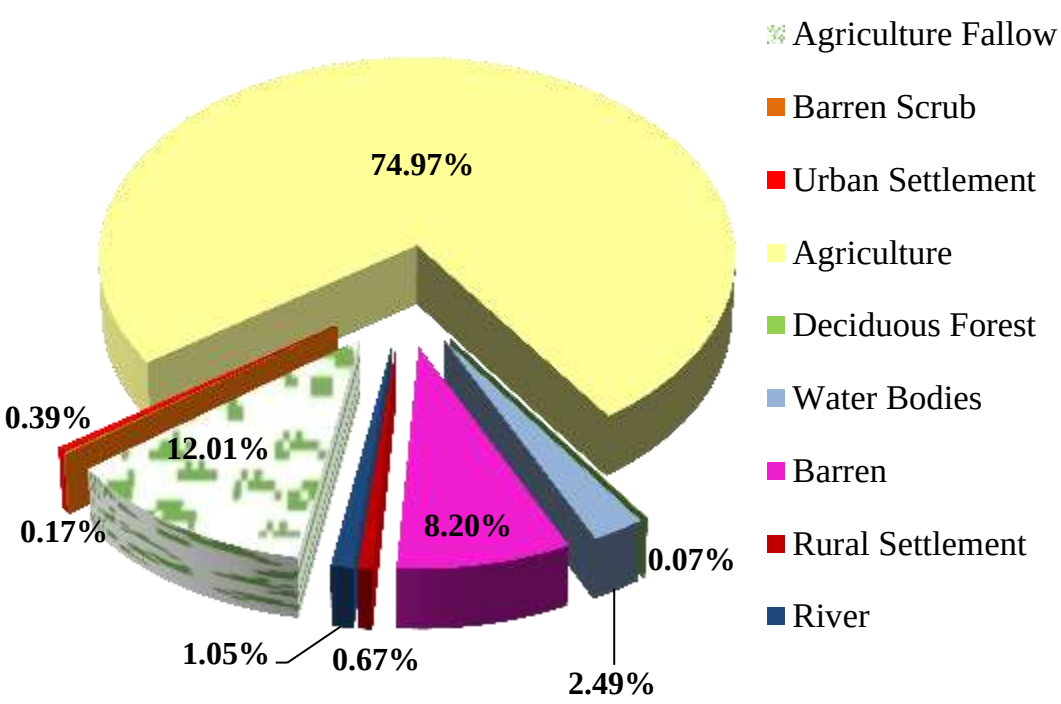


Table 1: Land Use and Land Cover Area of Ahmadpur Tahsil (2005-06)

Class Name	Area in Sq.km	Area in %
Agriculture Fallow	94.02	12.01
Barren Scrub	1.30	0.17
Agriculture	587.12	74.97
Deciduous Forest	0.57	0.07
Water Bodies	19.46	2.49
Barren	64.19	8.20
Urban Settlement	3.05	0.39
Rural Settlement	5.22	0.67
River	8.22	1.05
Total	**783.15**	**100.00**

Source: *LULC, 50K, MAHARASHTRA, NRSC, ISRO, Thematic Services, Bhuvan*

Barren Scrub: The area covers with mixture of scrub and bush type of forest species have classified under this category. Barren scrubland has occupied only 0.17 percent of the study area. It has covered 1.30 Sq. km area of study area. Besides this, scrubs vegetation occurs over extensive areas. The important species of grasses are Poonya, Kausal and Sheda.

Deciduous Forest: Deciduous forest is those lands, which are under deciduous vegetation. Deciduous forest has occupied only 0.07 percent of the study area. It has covered 0.57 Sq. km area of study area. Dense forest does not found in study area just some small cluster natural vegetation found in Mulki, Umrga Kort, Umrga yell, Sunegaon Sangvi, Rui tanda, Gangahiprga and rudha villages other scatter natural vegetation found in cultivated and streamside area. In the cultivated areas number of mixed trees such as Neem, Bor, Pipal, Mango, Babhul etc. are situated.

CONCLUSION

The proportion of water bodies and forest area is very low in Ahmadpur tahsil. To keep the balance in environment tree plantation and water conservation techniques should be applied. Hence, proper management of these water and forest resources is required because without proper management, this valuable resource will soon be lost or will no longer be able to play its required role in sustainable development of the area. There are several recommendations based upon the conclusion of the present study for the proper management and conservation of the forest and water resources. Thematic data of Bhuvan thematic service helps the users to visualize and apply thematic datasets such as Land use and land cover along with various statistics generation modules facilitates the researchers, planners, and administrators etc to water and forest resource management.

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