www.eprawisdom.com e-ISSN : 2347 - 9671, p- ISSN : 2349 - 0187
EPRA International Journal of Economic and Business Review | Vol - 4, Issue- 10, October 2016
Inno Space (SJIF) Impact Factor : 5.509 ISI Impact Factor : 1.259 (Dubai, UAE)

# LAND USE ANALYSIS OF PEENAR RIVER BASIN

**Dr.G.Rambabu[1]**
[1]Department of Geography, S.K. University, Ananthapuramu, Andhra Pradesh, India
**Prof.A.Krishna Kumari[2]**
[2]Department of Geography, S.K. University, Ananthapuramu, Andhra Pradesh, India.

## ABSTRACT

*Land resources play an important role in the development of man's economic, social and cultural activities. Due to mis-utilization of the land resources, it is prone to irre-replaceable damage. Hence the conservation of land resources has become an utmost priority in a developing country like India, where the population is increasing enormously. In order to feed the millions of its population there is a need for rational agriculture and optimum use of every piece of land. To achieve this, land use studies play an important role in the formulation of suitable planning strategy. Hence in the present study, land use study of Pennar river basin has been attempted for the year 2010-2011 at the mandal level..*

**KEY WORDS**: *Barren lands,Area Under non-agricultural use, Permanent pastures and other grazing lands, Area under miscellaneous tree crops etc., Cultivable waste land, Other fallow lands, Current fallow, Net area sown.*

## INTRODUCTION

Land is the most important among the natural resources of any country. Land resources play a strategic role in the determination of man's economic, social and cultural progress. It is necessary for human existence, since it provides him with living space, food and with its vast variety of raw materials used in the satisfaction of human wants. Because of mis-utilization of this basic resource in has gradually deteriorated. Hence the conservation of land resources came into existence ina country like India, where the ever increasing human population and ever growing demand for food and raw materials, there is an accentuated need for rationalized agriculture in order to use every piece of land properly at optimum level. This calls for scientific study of different landuse types in general and crop land utilization in particular. Land use surveys play a strategic role in the determination of the area of over-utilization, underutilization and mis-utilization of land. To keep the ecological and socio-economic balance of an area, the study of landuse is more imperative.

Land use data are needed in the analysis of environmental processes and problems that must be understood if living conditions and standards are to be improved or maintained at current level (Anderson etal. 1971). Information on the rate and kind of change in the use of land resource is essential to the proper planning, management and regulations of the use of land resources. Knowledge of existing land use and trends of change if any, is essential to combat the problems associated with natural hazards and uncontrolled growth of population.

## STUDY AREA

The Pennar River basin covers an area about 55,213km$^2$ and lies in between 10$^0$and 16$^0$ North latitude and 77$^0$ and 81$^0$ East longitude. The river originates in

south-eastern part of Karnataka state in Nandi hills and passes through the Anantapuramu and Cuddapah districts of Rayalaseema region and empties into Bay of Bengal, 30km ENE of Nellore after passing through the Pennar delta of Nellore district. The average annual rainfall of the Pennar basin is 732.11mm. The average minimum temperature is about 18$^0$C and the average maximum temperature is about 42$^0$C. The basin enjoys semiarid, dry sub-humid and wet sub-humid types of climate.

## OBJECTIVES

1. To study the land use in the Pennar river basin
2. To bring out the maps for different land use categories

## LAND USE CLASSIFICATION

The Technical Committee on Co-ordination of Agricultural Statistics (T.C.C.A.S) in 1950 recommended standard classification and uniform definitions of landuse and the same to be adopted by the states all over India. Based on the uniform Indian landuse classification, the total land area geographically accessible for major uses is classified into nine broad categories as follows:

1. **Forest:** cover any land classified or administered as a forest under legal enactment.
2. **Barren lands:** which are bare rocky outcrops of hills, plateaus, mountains, deserts etc.. This land cannot be cultivated under any circumstances but at a very high cost, very little proportion may be cultivated.
3. **Area Under non-agricultural use:** cover all lands occupied by settlements, road and railway, beds of streams, ponds and canals.
4. **Permanent pastures and other grazing lands:** Embrace all grazing lands which may be permanent meadows and village common pastures.
5. **Area under miscellaneous tree crops etc.:** Covers all cultivable land which is not included in the net area sown, but is put to some agricultural use other than seasonal cropping.
6. **Cultivable waste land:** Denotes land considered by present judgments as cultivable but actually not cultivated during the current year and last five years or more in succession. It is left untilled on account of physical and socio-economic limitations.
7. **Other fallow lands:** Comprise all lands which were taken up for cultivation but are temporarily unsown for a period of not less than one year and not more than five years.
8. **Current fallows:** Means the lands left unsown during the current agricultural year only to regain fertility and also that which remained un-cropped in the short term for want of moisture and economic reasons.
9. **Net area sown:** Represents the extent of the cultivated area actually sown during the agricultural year. It may be referred to as net cropped area.

## LAND USE ANALYSIS IN PENNAR BASIN

### Forest land:-

The land use of the Pennar basin has been studied for the year 2010-2011 at mandal level. Out of the total geographical area of 5,521,300 hectares of the land in Pennar basin about 1,059,537 hectares of land is under forest cover. It accounts for 19.19% of the total geographical area of Pennar basin. The concentration of forest cover is high in Nallamalai, Palakonda, Thirumala, Seshachalam, Bukkapatnam, and Penukonda hills. In these hills mostly dry deciduous forests are found. In Erramalai hills the forests are covered with scrubs, bushes and grasses. The forest cover concentration is low in central part and western part of the basin. The forest concentration is medium in southern parts of the basin (Fig.1).

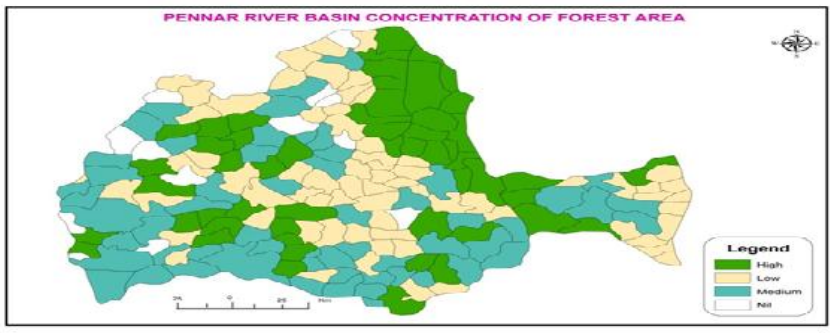


**FIG .1**

## Barren and cultivable land:-

The total land under barren and uncultivable land is about 570,350 hectares in Pennar basin. It accounts for 10.33% of the total geographical area of Pennar basin. The concentration of barren land and uncultivable land is high in the eastern, northern and parts of western, central and southern parts of the basin. The concentration of barren land and uncultivable land is medium in the central, eastern, western and southern parts of the basin (Fig.2).

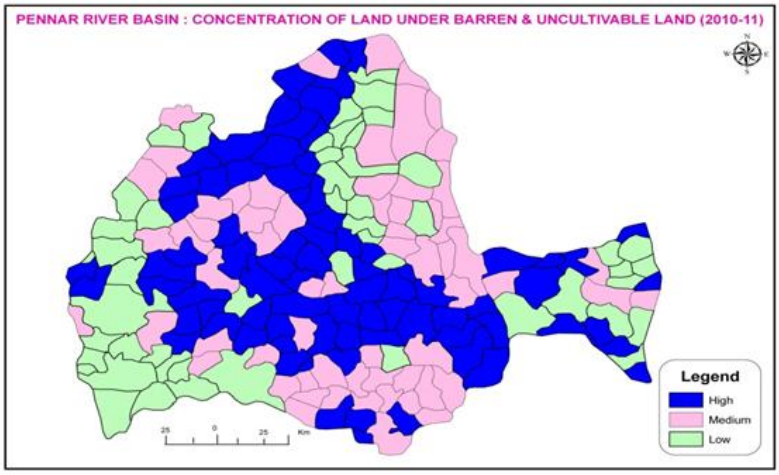


**FIG .2**

## Land put to non-agricultural use:-

The concentration is low in southeastern and northeastern parts of the basin. The total land under put to non- agricultural use is about 934,756 hectares of land and accounts for 16.93%of the total geographical area of the Pennar basin. The spatial distribution of land put to non-agricultural use shows that the concentration is high in the western, southeastern and eastern mandals of the basin. The concentration is medium in parts of the eastern and central mandals of the basin(Fig.3).

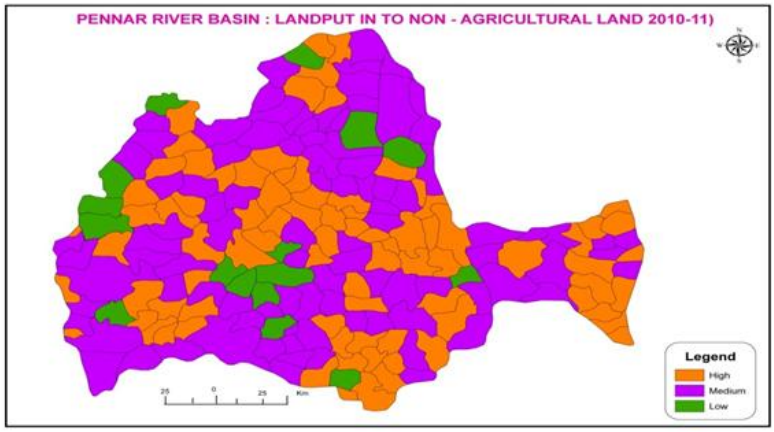


**FIG .3**

## Land under permanent pastures:-

The land under permanent pastures amounts to 123,677 hectares of land and accounts for 2.24% of the total geographical area of the Pennar basin. The concentration of land under permanent pastures is high in the northern, central, southeastern and parts of eastern mandals of the basin. The concentration of land under permanent pastures is medium in the eastern and western mandals of the basin and the concentration is low in the parts of central mandals of the basin. (Fig.4).

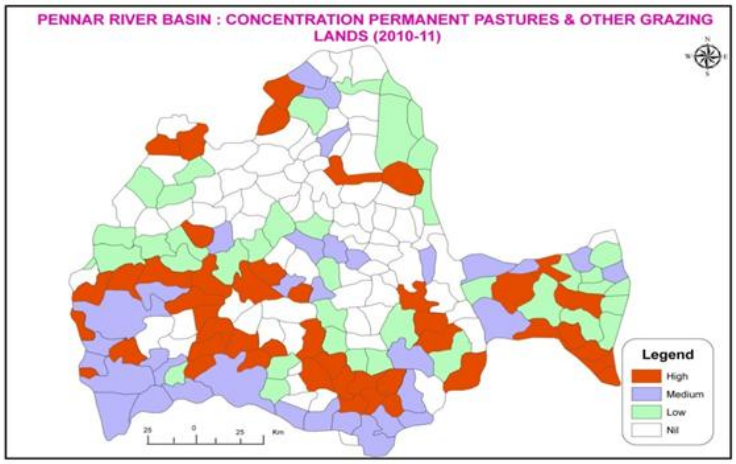


**FIG .4**

## Land under Miscellaneous Trees & Groves:-

The total land under miscellaneous trees and groves is about 65,151 hectares of land and accounts for 1.18% of the total geographical area of the Pennar basin. The concentration of land under miscellaneous trees and groves is high in the central, western and eastern mandals of the basin. The concentration is medium in the western, southern and eastern mandals of the basin. In western, northern and a few central mandals the concentration is low (Fig.5).

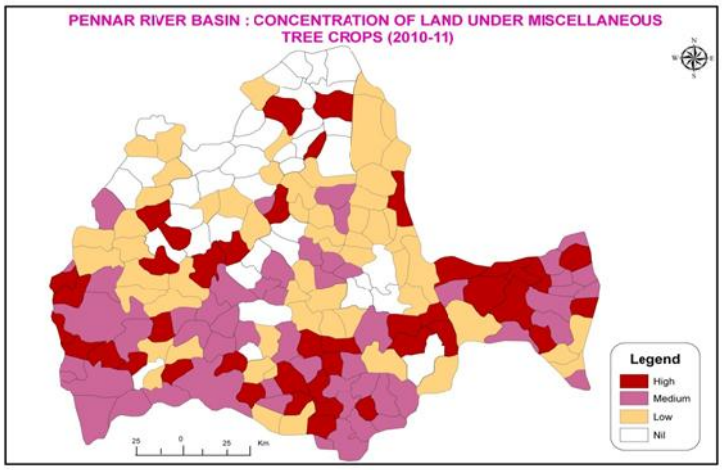


**FIG .5**

## Cultivable waste:-

The total land under at cultivable waste land is about 65,151 hectares of land and accounts for 1.18% of the total geographical area of the basin. The concentration of cultivable waste land is high in the western, central, southern and eastern mandals of the basin. The concentration is medium in a few mandals and low in a mandals of western, central and eastern parts of the basin (Fig.6).

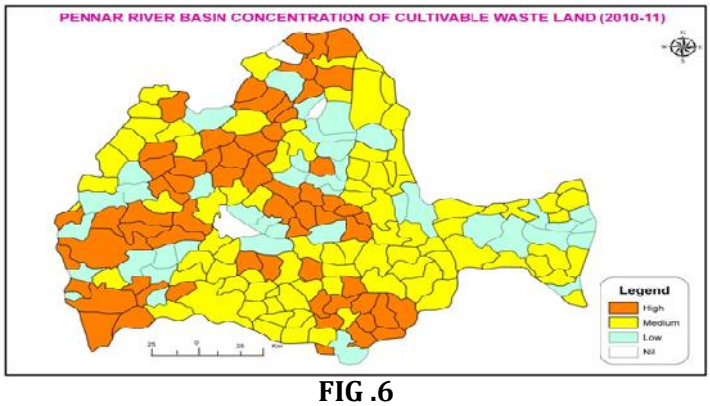


**FIG .6**

## Other fallows:-

The total land under other fallows is about 296,478 hectares of land and accounts for 5.37% of the total geographical area of the basin. The concentration of other fallows is high in the central, northern, southern and eastern mandals of the basin. The concentration is medium in a few mandals in the northern, western, central, and southern parts and low in western, southern and eastern mandals of the basin.(Fig.7 ).

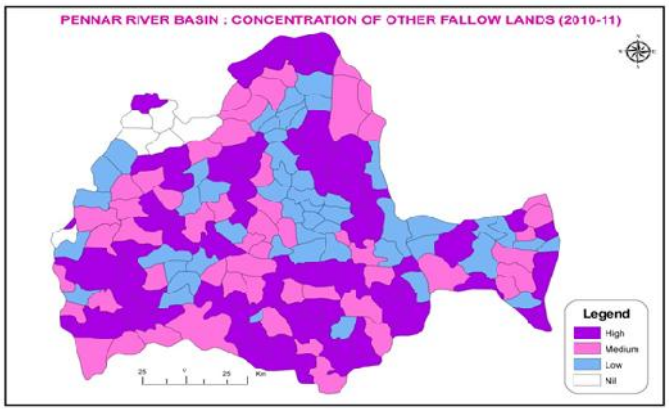


FIG .7

## Current Fallows:-

The current fallow land is about 247,906 hectares of land during 2010-11 and accounts for 4.49% of the total geographical area of the basin. (Fig.8).

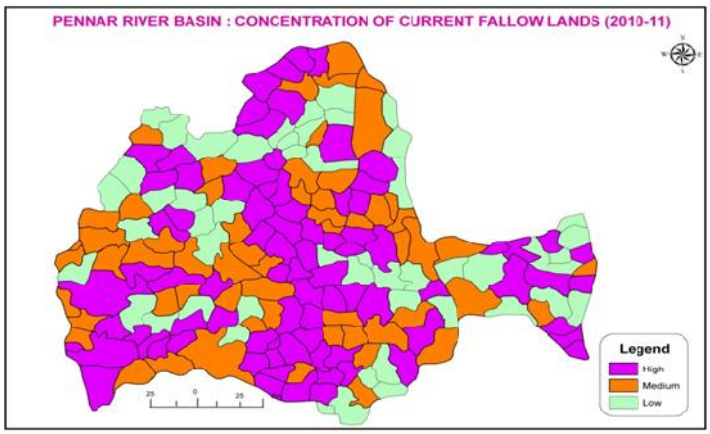


FIG .8

## Net Area Sown:-

The land under net area sown is about 2,163,797 hectares of land and accounts for 39.19% of the total geographical area of the basin. The concentration of net area sown is high in northern and parts of the western, central, southern and eastern mandals of the basin. The concentration of net area sown is low in central, southeastern and parts of the eastern mandals of the basin. The concentration is moderate in a few mandals in the northern, western and eastern mandals (Fig.9).

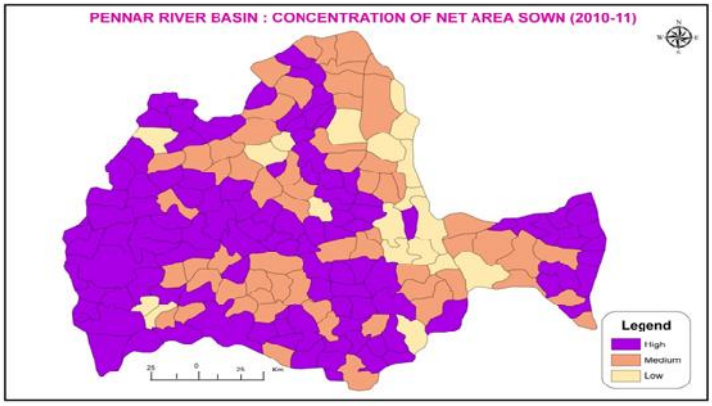


FIG .9

## CONCLUSION

The land use of the Pennar basin has been studied for the year 2010-2011 at mandal level. Out of the total geographical area of 5,521,300 hectares of the land in Pennar basin about 1,059,537 hectares of land is under forest cover. It accounts for 19.19% of the total geographical area of Pennar basin. The concentration of forest cover is high in Nallamalai, Palakonda, Thirumala, Seshachalam, Bukkapatnam, and Penukonda hills. The total land under barren and uncultivable land is about 570,350 hectares in Pennar basin. It accounts for 10.33% of the total geographical area of Pennar basin. The total land under put to non -agricultural use is about 934,756 hectares of land and accounts for 16.93%of the total geographical area of the Pennar basin. The land under permanent pastures amounts to 123,677 hectares of land and accounts for 2.24% of the total geographical area of the Pennar basin. The total land under miscellaneous trees and groves is about 65,151 hectares of land and accounts for 1.18% of the total geographical area of the Pennar basin. The total land under at cultivable waste land is about 65,151 hectares of land and accounts for 1.18% of the total geographical area of the basin. The total land under other fallows is about 296,478 hectares of land and accounts for 5.37% of the total geographical area of the basin. The current fallow land is about 247,906 hectares of land during 2010-11 and accounts for 4.49% of the total geographical area of the basin. The land under net area sown is about 2,163,797 hectares of land and accounts for 39.19% of the total geographical area of the basin.

## REFERENCES


1. *Anderson, J.R.(1971): Land use classification schemes. Journal of Photogrammetric engineering pp. 379-380.*
2. *Anderson, J.R., Etc.,(1976) A land use and land cover classification System for use with remote sensing data. Professional paper 964, USGS.Reston.Virginia.*
3. *Arunachalam,B.(1966) : Kelya-Mazagan valley- A study in land use, Bombay Geographical magazine 14(1)p. 1-20.*
4. *Bailey, R.G.(1971) : Forest land use implication and landslides hazards Related to land use planning in Teton National Forest, Northwest Wyoming.pp.101-120.*
5. *Ganguli,B.N.(1964): Land use and agriculture planning, Geographical review of India, Vol.26,pp.53-72.*
6. *Messina, J.P., and S.J. Walsh 2001 Simulating Land Use and Land Cover Dynamics in the Ecuadorian Amazon Through Cellular Automata Approaches and an Integrated GIS. Proceedings, Open Meetings of the Human Dimensions of Global Environmental Change Research Community, Rio de Janeiro, Brazil.*
7. *NageswaraRao, K., and Vaidyanadhan (1981): Land use capability studies from aerial photo interpretation. A case study from Krishna Delta, Geographical review of India.Calcutta, 43(3).pp. 226-236.*
8. *Ramanaiah and Reddy (1990): Land use Pattern and Dynamics of Land use in Andhra Pradesh, Land Utilization and Management in India, By B.N Mishra, Chug Publications, Allahabad, India.*
9. *Singh (1975): Land use Orientation in Central India, Geographical Review of India, Vol. 37,No. 4, pp. 356-363.*
10. *WodeTsadik, M., 2001. Impact of population pressure on land resources as reflected in land-use/landchanges in Ethiopia: Lessons learned from west Gurageland, in Food Security through Sustainable Land Use: Population, Environment and Rural Development Issues for Sustainable Livelihood in Ethiopia, editorTayeAssefa, NOVIB Partners Forum on Sustainable Land Use, Addis Ababa.*