

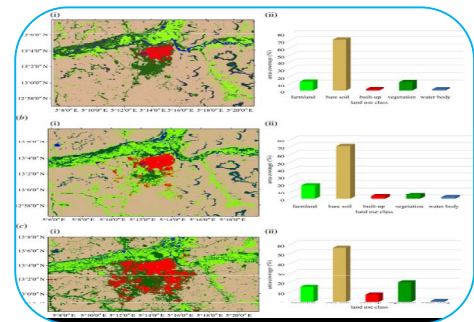


## SPATIO-TEMPORAL ASSESSEMENT OF LAND USE CHANGE IN PRAYAGRAJ DISTRICT, U.P.

**Dr. Devendra Pratap Mishra and Jai Kumar Verma**  
Associate Professor, Research Scholar (JRF)  
M.M.M. P.G. College Bhatpar Rani Deoria U.P.

### ABSTRACT:

Land use is the dynamic process in which man uses land resource to fulfil their needs. Land use is an assessment of the assigned functions of the land from the point of view of man. Land use is an important indicator of an appropriate use or misuse of land. Agriculture is still the most dominant sector of the Indian Economy and Crop production plays a vital role in determining growth and sustainability. Prayagraj District has different types of land use pattern. It has tropical climate and different physical feature such as in Northern part Trans Ganga plain, the doab and Southern part trans Yamuna par which is partly rocky and poor agricultural region. The study attempt to analysing spatio temporal assesment of land use changes in Prayagraj district during 1970 to 2018. The study shows agricultural land use change in non-agricultural land, net sown area, current fallow land, other fallow land and pasture land etc. Because of developmental activities and irregular monsoon, changing climatic condition etc. So there is an urgent need of better agricultural land use planning to sustain it.



**KEYWORDS:** Land use, Land use pattern, Land use change, spatio-temporal assessment.

### 1. INTRODUCTION

Land is the most important resource in the economy of any country and Agriculture is the mile stone in the history of human civilization, due to agriculture man settled at particular place. Land is a crucial natural resource and an important determinant of socio economic status of a country. Urban and agricultural land uses are two most common land use classes. Land use involves the management and modification of natural environment such as settlement, arable land, pastures etc. The layout or arrangement of the land use is known as 'Land use Patterns'. The enormous increase in human population and their requirements it's become complex. As a consequence of increasing pressure of population changes are occurring in the land use pattern. Owing to increasing pressure of human and livestock population on the land and over growing demand of food and raw material, there is an urgent need of scientific, rational and economic use of every piece of land without disturbing ecological as well as socio economic status of the area.

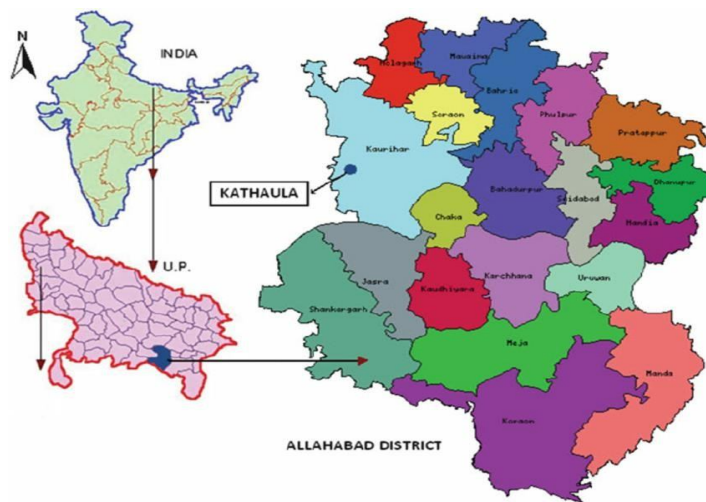
## 2.LITERATURE REVIEW

There is a lot of work done by various geographers on land use in different parts of the world. The idea of map showing the use of land was mooted by CARL. O SOUR. Land use has been an important subject of geography since 1930. The first land use survey and mapping is carried out by petrick geddis but the practical work on land use study by L.D. Stamp in Britain. Singh, S.K. (2015) Presented theoretical and conceptual understanding of land, land use, land use change and land use pattern through inter conceptual relationship model. Devi, L.M., Naqvi, H.R., Siddiqui, L. & Siddiqui, M.A. (2014) Analysed and detected the land use/ land cover of Manipur. Singh,

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## 3.STUDY AREA

Prayagraj district is situated eastern Part of the Uttar Pradesh. It is liebetween 22° 92' - 25° 28' N latitude and 81° 52' - 82° 08' East Longitude, and elevation at sea level is 98 m. The total geographical area of the district is 5482 square km. The district may be divided into 3 distinct physical parts, the Trans Ganga or the Ganga plain, the doab and trans Yamuna or the Yamuna par tract which are formed by the Ganga and its tributary the Yamuna. The latter joining the at Prayagraj, the confluence being known as Sangam. Topographically the district belongs to the central plane zone of Uttar Pradesh. Prayagraj district has such tropical climate the northern part of the district popularly known as Ganga par provides rich loam soil for cultivation of food grains. The southern part of district also known as Yamuna par is partly rocky and somewhat agriculturally backward. It consists of 7 Tehsils and 20 Blocks. The total reported area of the district during 2018 was 5,57,074 hectares. In general the largest part of the land is devoted to agriculture but a large part of land is also used for non-agricultural purpose. The utilization of land under various purposes is variable from one block to another block.



#### 4.OBJECTIVES, METHODOLOGY

The main objectives of the study are:-

- I. To analyze the spatio-temporal variation of land use change in the study area.
- II. To investigate the factor influencing of agricultural land use pattern in the study area.

The work has been carried out with the help of secondary data collected from District Statistical Handbook published by Economic and Statistics Division, State Planning Institute and Internet. All the collected data analysed or tabulated by using EXCEL-13 software to obtain the relative proportion of different land use categories at the district level during 1970 to 2018.

#### 5.RESULTS & DISCUSSION

The land use changes of a place is highly determined by the physical profile, population pressure, level of industrialization and the levels of development of that place. The total reported area of the Prayagraj District during 2017-18 was 5,57,074 hectares. The total rural and urban area are 5,30,907 and 26,167 hectares respectively.

**Table.1 Spatio-temporal study of land use changes in Prayagraj District during 1970-2018 (Area wise in hectares).**

Year	Total reporting area (in hect)	Forest	Barren and unculturable land	land put of non agri uses	Cultivable waste	Pastures and other land	Land under misc tress crops and groves	fallow current land	other fallow land	net sown area
1970-71	742412	20045	38086	75500	48034	890	21530	40910	20490	476777
1980-81	737206	20126	36492	79250	28900	1327	18356	55733	30889	471000
1990-91	730242	20155	32058	81276	25632	2191	14824	44545	33956	475534
2000-01	549589	19840	19236	66885	13520	1649	8574	27480	23467	368939
2010-11	557014	21445	15820	79876	13536	1615	8243	74640	25511	316328
2017-18	557074	21463	15358	91780	12796	1763	7960	54222	26262	325470

Source:-Compiled from District Statistical Handbook of Prayagraj, 1970 to 2018

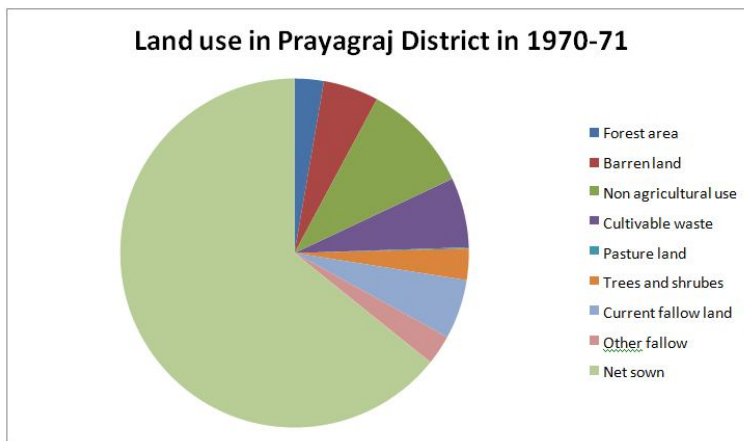
**Table.2 Spatio-temporal study of land use changes in Prayagraj District during 1970-2018 (percentage wise).**

Year	Total reporting area (in hect)	Forest	Barren and unculturable land	land put of non agri uses	Cultivable waste	Pastures and other land	Land under misc tress crops and groves	fallow current land	other fallow land	net sown area
1970-71	742412	2.70	5.13	10.17	6.47	0.12	2.90	5.51	2.76	64.22
1980-81	737206	2.73	4.95	10.75	3.92	0.18	2.49	7.56	4.19	63.89
1990-91	730242	2.76	4.39	11.13	3.51	0.30	2.03	6.10	4.65	65.12
2000-01	549589	3.61	3.50	12.17	2.46	0.30	1.56	5.00	4.27	67.13
2010-11	557014	3.85	2.84	14.34	2.43	0.29	1.48	13.4	4.58	56.79
2017-18	557074	3.85	2.76	16.48	2.30	0.32	1.43	9.74	4.70	58.42

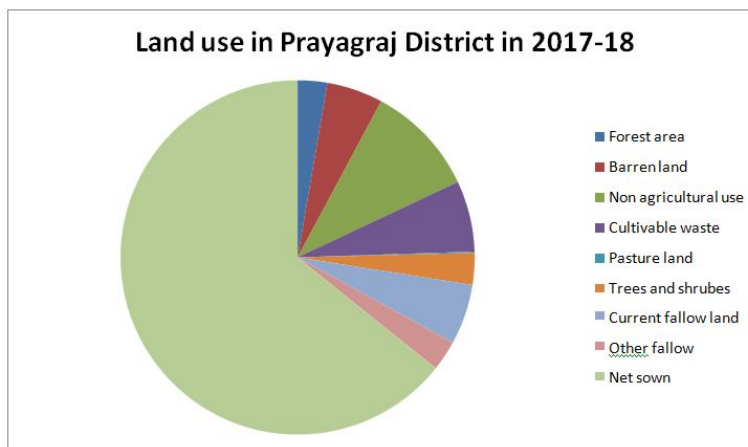
Source:-Compiled from District Statistical Handbook of Prayagraj, 1970 to 2018

**SPATIO - TEMPORAL ASSESSEMENT OF LAND USE CHANGES**

Present spatio and temporal variations of agricultural land use have studied for net sown area, area not available for cultivation, cultivated waste, fallow land and forest etc. Temporal variation is the change in general land use in a given period of time. The agricultural land use was studied for year 1970 to 2018. In order to find out general land use change in 1970-71 total net sown area was 64.22% after forty eight year in 2017-2018 net sown area has reduced 58.42%, showing decrease of 5.80%. The net sown area has decreased by 5.80% from 1970-71 to 2017-18 due to urbanization and industrialization and increasing pasture land, fallow land etc. The cropping pattern in the district has vastly changed during the last 48 years. Because of climate change, increasing global warming, irregular monsoon, changing climatic condition etc. that effect on agricultural land use. Present scenario of land use mostly determine by environmental survival. The importance of agriculture has been study, the population of country is increasing at a very fast rate exerting a great pressure on land and adversely affecting the man land ratio and agricultural production. The study of land uses present a clear picture to the potentialities of land use and provide a fruitful planning for a massive agriculture turnover.



**Figure.1**



**Figure.2**

Comparing Land use changes of Prayagraj District from 1970-2018.

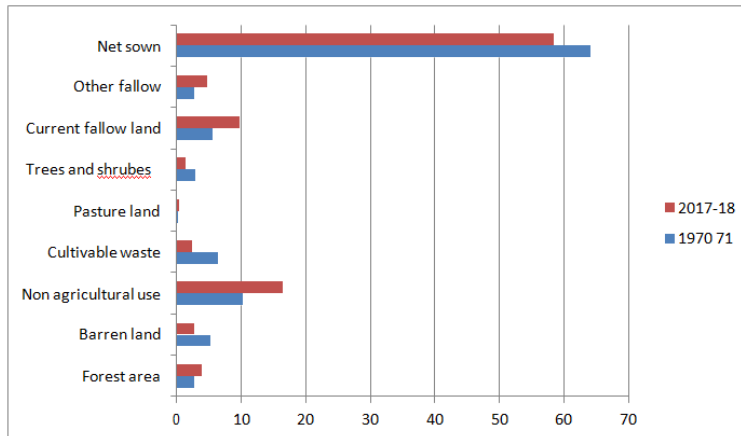


Figure.3

Comparing Land use changes of Prayagraj District from 1970-2018.

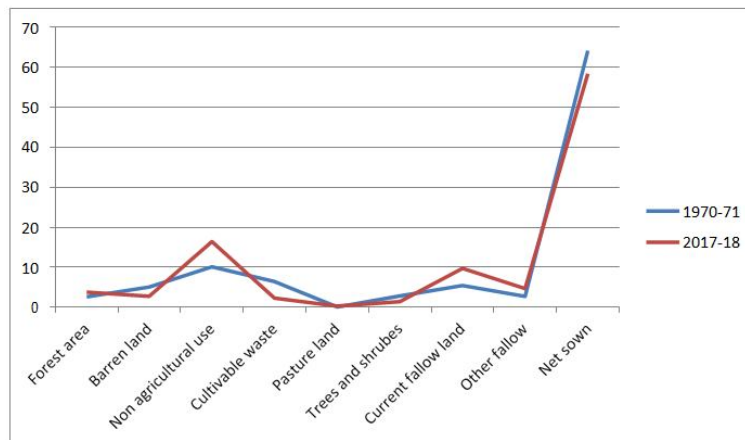


Figure.4

**6.CONCLUSION**

Growing population and limited of land resource is obvious the study of land use planning. Land has limited carrying capacity beyond which there will be degradation and loss in productivity due to excessive use. Prayagraj district has witnessed a significant change in land use in past five decade between 1970-71 to 2017-18. The major changes in net sown area which has declined from 64.22% 1970-71 to 58.42% in 2017-18 at district level. It is mainly due to increase in area under current fallow land, other fallow land and forest area. So there is an urgent need of comprehensive and integrated land use planning for better agricultural land use to allocate the agricultural land for the better management.

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