

# Common Land Resource Dynamics And Its Future: A Geographical Analysis

Mohd. Sadiq Salman\*

Adnan Shakeel\*

\*Assistant Professor

Department of Geography,

Faculty of natural Science,

Jamia Millia Islamia, New Delhi

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**ABSTRACT:** The common land resources (CLR's) have "common access" to users for various economic gains. This has led to unchecked and rampant use leading to their degradation. In Indian context CLR's are referred to forests, pastures, barren land, fallow land and cultivable wastelands. The CLR's provide income, socio-economic development and sustainable livelihood to its users which are generally unprivileged groups, landless people, marginal and small farmers. Over the last 60 years since independence the population growth, urbanization and industrialization in India has led to exploitation of land resources in general and CLR's in particular. This chapter analyzes the status of CLR's in Uttar Pradesh, the most populated state of India since 1950-51. Further, a micro level study reveals the relevance of CLR for its users. The share of CLR in Uttar Pradesh was 34.28 per cent in 1950-51 and since then CLR's are declining. Considering the role of CLR's in income, livelihood and socio-economic development of users and the declining trend of CLR demands its conservation. The participatory approach of locals supported by appropriate policies of Government is the need of the time to prevent degradation and extinction of CLR and ensuring a sustainable future for users.

**KEYWORDS:** Common land resources, unprivileged, landless, livelihood, socio-economic development

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Date of Submission: 22-11-2022

Date of Acceptance: 06-12-2022

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## I. Introduction

Common property resources (CPR's) and CLR's have been the subject of various studies by scholars at national and international level. The concept of "commons" originated in an essay by a British economist W.F. Lloyd in 1833. In his essay he has used the example of unregulated grazing of common land in British Isles (Lloyd, W. F., 1833). Thus he discussed the consequences of uncontrolled resource use which finally leads to depletion and extinction of a resource. This concept became widely known over a century later by the landmark work of an American ecologist and philosopher Garrett Hardin in 1968. Hardin's (1968) paper "*The Tragedy of Commons*" describes a situation in a shared-resource system where every individual user acts for his own benefit according to self-interest rather than the "common good" thereby leading to depletion of resource. In this modern economic context, commons or common property resource (CPR) is taken to mean any shared and unregulated resource such as atmosphere, land, oceans, rivers or even an office printer.

Singh (1997) has defined the CPR's as the resource owned by an identifiable group of people regulated by social conventions and legally enforceable rules. The CPR's can be also categorized into the common property land resources (CLR) and the common property water resources (CWR). Traditionally the CPR's include community land, community pastures, community forest, wildlife, wasteland, common dumping and threshing ground, watershed drainages, village ponds, rivers and rivulets and their banks and beds which are regulated by social conventions and legally enforceable rules (Berges and Gochfield 1998).

The term "*Common Land Resources*" (CLR) is used to refer the sub-category of CPR's as to property owned and defended by a community of resource users, to property owned by no one, and to property owned by a government to which the people have "common access" (Jodha N.S., 1986). The common land resources (CLR's) as the name indicates are common to all denying any exclusive right to an individual. Mohammed N., (2001) and NSSO (1999) have specified the CLR's in Indian context into five categories of land use viz. forest, pasture and grazing land, culturable wasteland, barren and uncultivated land and fallow lands other than current fallow. The forests provide timber, the pastures support the livestock of the farmers and the uncultivated and barren lands are utilize for construction of houses, poultry farms, animal husbandry and other uses (Munir et al., 2008, Khan N et al 2010).

The CLR's in a village includes the land administered by the village panchayat or community including the land which lies within the formal boundary of the village (Jodha N.S.,1990, Arnold J.E.M. and Stewart W.C.,1991). At village level it includes village pastures, common grazing grounds, bush lands, threshing grounds, waste dumping places uncultivable fields, waste lands and rangelands. Sometimes, there is a well-defined category of land which referred to as panchayat grazing/pasture land and is known as *gauchar*, *gochar*, *gairan* and *gomol* in different agro climatic regions. Apart from that generally, there are some demarcated areas in every village for various purposes and are accessible to all the villagers. They are the areas allotted for processing of agricultural produce, storing of grains, other agricultural produce, firewood, use for other household enterprise, for recreational or religious purposes and to organize village fairs and marriages. Sometimes a portion of the land is allotted for periodic markets also. These all are constituents of CLR (Salman M.S. and Munir A. , 2010)

Thus landless people, marginal and small farmers generally utilized the common land resources for various economic gains. The users are generally resource starved and thus sometimes tend to overuse these common resources for personal gains (Ostrom, E., 1990). The most common overuse of CLR's is found in grazing of pastures (Iyengar S., 1989). Further, the roles of CLR's in providing livelihood make them more crucial for a large number of users. Salman M.S. and Munir A. (2016) studied the role of CLR and reported that landless users obtain maximum income from resources and are dependent upon CLR for their sustenance. The fragmentation of land coupled with increasing input cost, problems in marketing the produce and low remunerations to the farmers has led to declining profits in agriculture. Therefore, they supplement their income from the "common resources". The small and marginal farmers sometimes find agriculture as uneconomic for their small landholdings. They tend to utilize the small piece of land for vegetable cultivation or floriculture for better remuneration (Khan N et al ,2009). Vegetable cultivation is a caste based agricultural practice , generally done by people belonging to lower socio-economic status but recently the better returns has attracted people from higher castes also to this practice ( Khan N et al 2012).

During periods of distress the uneconomical farms coupled with drought and debts are leading to farmer's suicide in India (Shakeel A, et al 2017).The Indian government has tried to modify the farm laws and improve the income of farmers but new farm laws have faced resistance and farmer's protest(Anwar A and Shakeel A , 2021 and Shakeel A, et al 2022). Salman M.S. (2015) stated that judicious utilization of CLR is necessary for sustainable regional development. The CLR are declining in India, especially in the indo-gangetic plains, the most densely populated region of the country. The increasing population pressure upon the land resources, lack of proper government policies and rampant use are the main reasons. (Salman M.S. and Munir A., 2013).

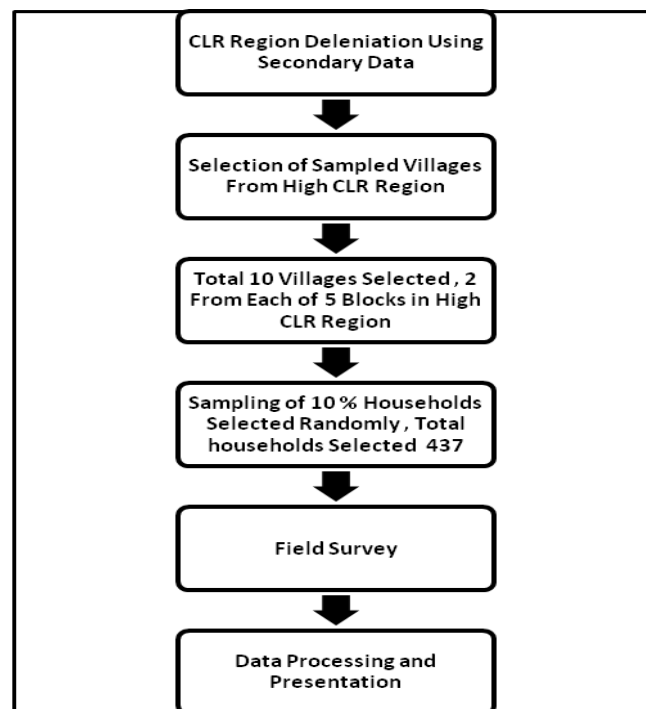
The various land use categories under the purview of CLR themselves have shown a large variation over the last decades. Hanqin T et al. (2014) have studied a detailed change in land use on India from 1880 to 2010.The study shows a significant increase of deforestation rate under British rule leading to continuous decline in forest cover in the country which was checked by government policies after the 1980s. At the same time total cropped area increased by 50 million hectares largely during 1950–1980 driven by technology and policy.Iyengar (1989) has focused upon the deteriorating condition of the grazing and pasture lands which are considered to be one of the important parts of the CLR's. The changing farming system has led to development of animal husbandry and dairy farming in rural areas (Khan N and Salman M S ,2014). This has led to income generation of farmers but has put more stress upon the existing pastures (Khan N et al 2014). Shakeel A (2018a) and Singh (1997) have emphasized that the exploitation of the land resources in a sustainable manner is necessary to ensure food security which has been emphasized in the national food security Act-2013 (Shakeel A, 2018c). Bajpai M. (2005) had studied the features promoting wasteland and methods to reclaim them. There are a number of studies undertaken by various scholars regarding the utilization of forests and grazing land. Raha S. (2003), Mathur and Bindra (1990), Gopalkrishnan K.S., Saktivel M. and Sunil K. (1997), Singh R.B.(1995), Naushad A., Kausar S. (2002) and Niyogi D. (2001) are to name a few.

Many scholars have studied and suggested proper management practices at international and national scales. Ghate (2005) has stated that community integrated forest resource management is necessary for conservation and development of CLR's. Similarly Kumaria (2003) has pointed out the necessity of the role of local people along with Government agencies in the development of CLR's. Mohammed N. (1998) in his paper has studied at depth the concept, problems of CLR's, spatial distribution, management and a number of issues related to it in plains of Uttar Pradesh. Shakeel A, Jamal A and Zaidy N. (2012) had elaborated the severe drought conditions in Bundelkhand region of Uttar Pradesh thereby indicating the importance of the use of CLR. The importance of the CLR is much pronounced in district Banda of Bundelkhand region due severe drought conditions thereby leading to food insecurity (Shakeel A, 2018b). In such conditions people adopt coping strategies and the cattle are largely dependent upon the pastures for fodder which is quite scarce (Shakeel A and Shazli T. (2020). Sabarwal (1996) has studied the pastoral politics with reference to Gaddi grazing degradation and biodiversity conservation in Himachal Pradesh. Recently Munir A. et al. (2008) have attempted to study the,

impact of CLR's on the livelihood of landless, marginal and small farmers. Similarly various aspects of the CLR's have been studied by scholars like Jodha (1986), Mohammad (1981), Wade (1982), Berkes et.al. (1989), Ress (1990), Bromely D. (Ed.) (1992), Jodha N.S. (1992), Singh K.(1994), Bromley and Cernea (1996) and Singh R.B. (1995). Still there was need to study the common land resource in India in order to find out the changes in their status in the gangetic plains since the last few decades, Further, the present status of access and the various modes of utilization and its role in the income of the users in this era of globalization and industrial advancement is the need of time, Thus this study attempts to find out this aspect of the CLR's.

## II. Objectives, Research Design and Methodology

The CLR's have a significant effect upon the livelihood of the landless marginal and small farmers .Thus there is a need to manage these resources in a judicious way. The present study was thus undertaken to study temporal change in CLR's in Uttar Pradesh since last sixty years. Further, micro level study was undertaken in a selected district of Bulandshahr to understand the present status and decadal change in CLR at block level. The study also aims to find out the share of respondents using CLR, the major modes of utilization and the level of income generated from these resources. The present study is based on the primary and secondary data. The secondary data was obtained from of Directorate of Statistics and Economics, Lucknow, State Land Use Board, Lucknow Primary Census Abstract (2011), Village Directory and statistical bulletin of Bulandshahr District (1994 and 2018). The primary data was collected through the field survey of sampled villages.



**Figure 1: Methodological Framework**

The secondary data of land use was used to study the spatial distribution of the CLR's in the study area. Thus CLR regions were developed by the help of 5 variables at block level. The variables were percentage of area under forest to total reported area (X1), percentage of area under wasteland to total reported area (X2), percentage of area under other fallow land to total reported area (X3), percentage of area under barren and uncultivable land to total reported area (X4) and percentage of area under pasture/grazing land to total reported area (X5). Delineation of CLR regions was done with the help of Z Score and Composite Z Score technique. Thereafter two villages were selected from blocks of high CLR region. The selection of the village was done on the basis of population (between 1,500 and 2,500) and accessibility. Thus 10 villages from 5 blocks were finally selected for detailed survey. A detailed questionnaire was used for collecting primary data. Ten per cent households were randomly selected among the total households of each sampled village. Thus the study covered 437 total households. Finally, data was checked and processed using simple statistical techniques and were represented using appropriate tables, graphs and maps using GIS software.

### III. Study Area

The present study area historically was a single state of Uttar Pradesh since independence of India in 1947 since 9<sup>th</sup> November 2000 when it was bifurcated to form a separate state of Uttarakhand. Thus, the study includes both states which are situated between 23°52'N and 31°28'N latitudes and 77°3' and 84°39'E longitudes in north India (figure 2). Thus Uttar Pradesh in this study refers to the both states undivided. The study area can be divided into three distinct hypsographical regions i.e. the Himalayan region in the North (presently Uttarakhand State), the Gangetic Plain in the centre and the Vindhya Hills and plateau in the south.

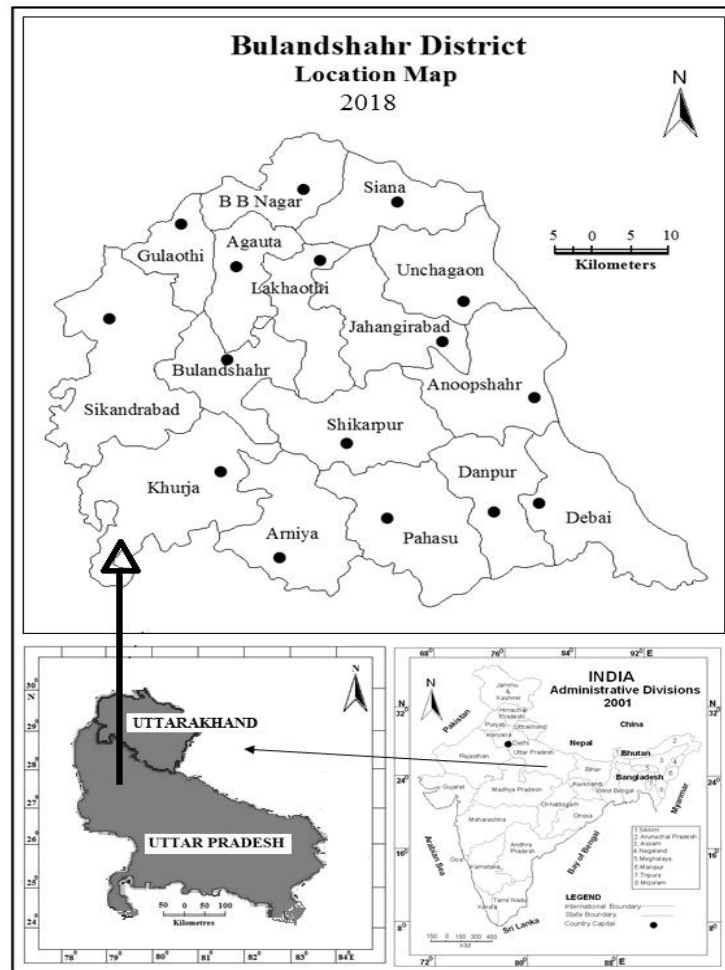


Figure 2: Study Area: UP, Uttarakhand and Bulandshahr (2018)

The northern part of the study area is Himalayan region having high mountains formed from sedimentary rocks. This region is also the source of perennial water which forms a big river system watering the entire gangetic plain. The hilly areas are sparsely populated and very few big towns are located in the region. Only few trees can grow in this terrain, where soil is subject to heavy erosion. Irrigation facilities are scarce and only a small area is under artificial irrigation. The soils in valley areas are fertile, and there is intensive cultivation on terraced hill slopes. The Gangetic plain is the most important agricultural area of the country stretching across the entire length of the state from east to west. The Gangetic plain is watered by the Yamuna, the Ganga and its major tributaries, the Ramganga, the Gomati, the Ghaghra and Gandak. This is alluvial and very fertile plain. The major crops are rice, wheat, pearl millet, gram, and barley. Sugar cane is the main cash crop of the region. The southern fringe of the Gangetic plain is demarcated by the Vindhya Hills and plateau. The climate of the study area is tropical monsoon, variations exist with altitudes. The Himalayan region is cold. The average temperature varies in the plains from 3 to 4 °C in January to 43 to 45 °C in May and June. Climate is marked by three distinct seasons i.e. Summer (March-June), Monsoon (June-September) and Winter (October-February).

The sampled district Bulandshahr is one of the important agricultural district of Upper Ganga plain in Uttar Pradesh. It is near to Delhi and is a part of national capital region. The district has wide range of

agronomic conditions which resulted in cultivation of various kinds of crops and rearing of animals. The agronomic conditions of the district can be understood through the discussion of various attributes of physical and cultural aspects that persist in the district. It lies in Meerut division of Uttar Pradesh located in the upper doab of Ganga and Yamuna. It is situated between 28° 05' North and 28° 43' North latitudes and between 77° 33' East to 78° 27' East longitudes. The District is about 84 km in length and 62 km in breadth. On an average it is 237.44 meters above sea level. The geographical area of the district is 4352 sq km which shares 1.87 percent of the total Uttar Pradesh area. The urban and rural area of the district is 71.83 km<sup>2</sup> and 4280.17 km<sup>2</sup> respectively.

The district is divided into 7 tehsils (Sub division) for administrative convenience. Further, these tehsils are subdivided into 16 development blocks having 21 urban centers, and 1242 villages. The area, population, number of villages, occupation, industrial development, educational facilities, number of urban centres, rural markets and other parameters pertaining to economic and social domain of the local population in each block is quiet variable. Thus, each developmental block is unique in its characteristics although it bears the major characteristics of the region. The area of blocks varies from 159.44 sq kms. in block Agauta to 395.24 Sq Kms in Sikandrabad. The population of the blocks also varies from 1, 06,674 persons in B.B. Nagar to 2, 85,562 persons in Sikandrabad.

#### **IV. Temporal Change in Common Land Resources**

The table 1 below shows share of CLR in Uttar Pradesh. Thus it was observed that the share of CLR in the study area during 1951 was 34.28 per cent which continuously declined and was reported as 26.58 per cent in 2011. Further it as observed that all the categories. This decline in the CLR can be easily correlated with the decline in all the land use categories of CLR except forest and other fallow land in the study area during 1951 to 2011. The figure 3 clearly shows that there was a steep decline in total CLR during 1951 to 1971 after which a little increase was found in 1981. Thereafter decline was found in 1991 and in 2001 a little growth in CLR was registered .Finally a drop in the percentage of CLR was found in 2011. Thus overall throughout the last 60 years it can be said that a declining trend was found except a little growth at two points of time. The trend of CLR and all its constituent land use categories is shown in figures 3 to 8. All the figures have shown a declining trend during the last six decades except the forest which have shown a regular positive trend.

**Table 1: Percentage Share of Different CLR Categories in Uttar Pradesh (1951-2011)**

| Year | Forest | Barren And Uncultivable | Cultivable Wasteland | Pastures And Grazing Land | Other Fallow Land | Total CLR |
|------|--------|-------------------------|----------------------|---------------------------|-------------------|-----------|
| 1951 | 10.92  | 9.87                    | 7.90                 | 4.6                       | 0.99              | 34.28     |
| 1961 | 12.86  | 8.78                    | 5.56                 | 0.15                      | 4.27              | 31.62     |
| 1971 | 16.61  | 4.76                    | 4.51                 | 0.26                      | 1.83              | 27.97     |
| 1981 | 17.25  | 3.83                    | 3.86                 | 0.99                      | 2.41              | 28.34     |
| 1991 | 17.33  | 3.47                    | 3.47                 | 1.02                      | 2.97              | 28.26     |
| 2001 | 17.23  | 4.5                     | 2.59                 | 1.32                      | 2.85              | 29.28     |
| 2011 | 18.09  | 2.29                    | 2.39                 | 1.65                      | 2.16              | 26.58     |

**Source:** Directorate of Statistics and Economics, Lucknow, U.P. & Dehradun , Utrakhand.

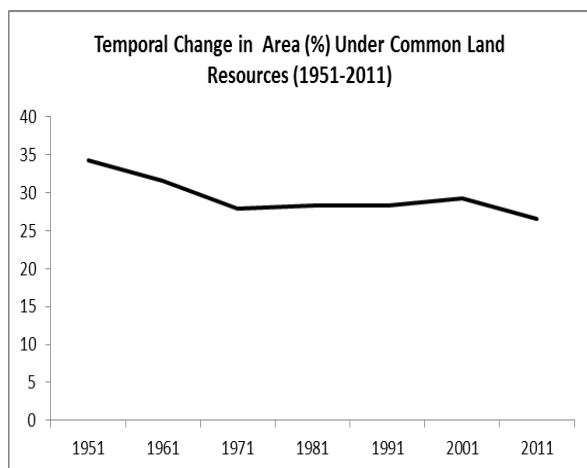


Figure 3 : Trend of CLR (1951-2011)

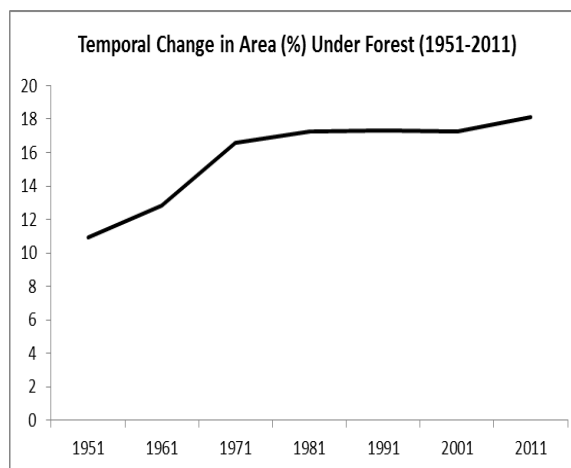


Figure 4: Trend of Forest (1951-2011)

The figure 4 shows the trend of forest and it was observed that during 1951-1971 a fair growth in share of area under forest was registered. This trend of growth was paused for next three decades which have shown minimal growth and finally in 2011 a little growth was registered in total area under forest. The overall growth in area under forest is due to the government policy to protect and conserve forest and the awareness created among the local population regarding conservation and need of forests. The forest policy of 1952 which largely advocated sustainable timber production was upgraded in 1988 by including emphasis on conservation of forests and meeting the local needs of the people along with their participation in management and protection of forest. This policy has an objective to achieve forest of India up to 33 per cent of the total area of the country. In 1999 a 20 year National Forestry Action Program (NFAP) was planned with a budget of Rs 1,339 billion to achieve the target of 33 per cent forest and tree cover and other important objectives of the national forest policy of 1988.

The Indian Forest Act 1927, The Mines Act (1952), the Wildlife Protection Act (1972), the Environment Protection Act (1986) and the Biological Diversity Act (2002) together provide basic judicial protection to the forestry sector to maintain the existing forests, setting aside lands as protected areas, ensuring environmental protection and fulfilling the needs of rural and tribal people in fulfillment of their traditional right. A large number of social forestry programs were undertaken by state governments in 1980's to bring more areas under forest and tree cover. Recently, The National Working Plan Code (NWPC) of 2004 gives detailed guidelines for preparing a working plan for integrating traditional forestry with current objectives of Sustainable Forest Management through people's participation.

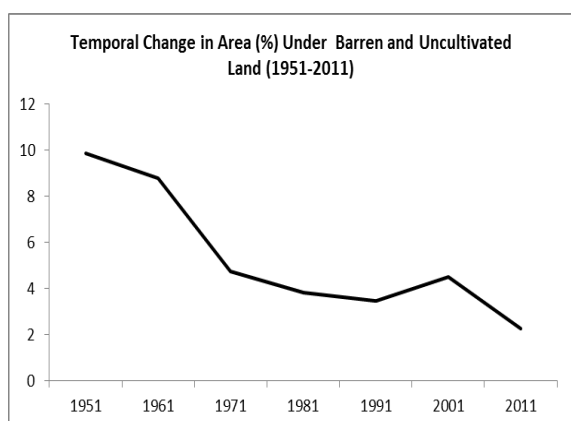


Figure 5: Trend of Barren Landt (1951-2011)

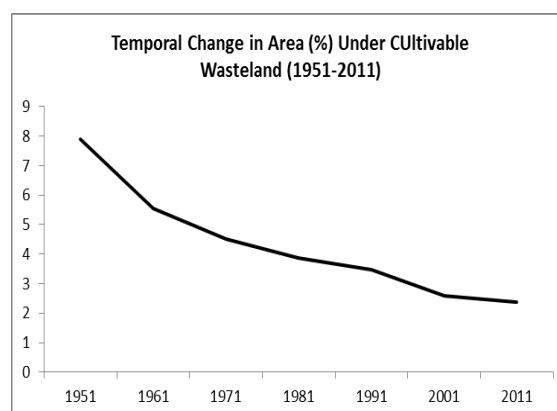


Figure 6: Trend of Wasteland (1951-2011)

Presently India is among few countries where forest and tree cover has increased in recent year. It has increased from 23.4 per cent in 2005 to 24 per cent of the geographical area in 2013. These efforts of forest conservation have been amplified by policies like National Agro-forestry Policy (NAP), Joint Forest Management and National Afforestation Program. The forest not only control global warming but are also important to generate millions of livelihoods opportunities the dependent rural and tribal communities through MNREGA, Management Plan for Non-Timber Forest Products, agro forestry and eco-tourism (Das R., 2016).

Still, lots of efforts are needed to ensure forest conservation and increase in forest cover to obtain the target of 33 per forest cover in the country.

The figure 5 shows a steep decline in area under barren and uncultivated land. This is mainly due to the increasing anthropogenic pressure coupled with industrialization and increasing demand for food for large population in the study area. Thus, land from this category has shifted to either area under cultivation or land under non-agricultural uses. The decline in Barren land was steep since 1951 to 1971 after which a gradual decline was found since 1991. In 2001 a growth was registered and further a decline was seen in 2011. Similarly figure 6 shows the similar trend in temporal change in area under cultivable wasteland. Although the decline is not as steep as in case of Barren land but there is still a gradual and regular decline in cultivable wasteland. The reasons for this decline are similar to that of barren land. The figure 7 shows the percentage of area under pastures and grazing land. The pastures are indispensable for the large population of livestock in the region. Still, the decline in pasture is an issue of serious concern. Pasture support the livestock and livestock rearing is a major economic activity among the poor and landless people in India. The figure 7 shows a steep decline in pastures from 1951 to 1961 and thereafter a very slow growth inn pastures have been registered. The figure 8 reveals the temporal change in percentage of area under fallow land in the study area. There is an overall increase in other fallow land although it is very small. This increase is due to loss of agricultural land due to degradation and it is converted to fallow land. Since 1991 there is a declining trend because the fallow land is also being used for nonagricultural purposes in the study area. Thus, during the last 3 decades a declining trend is seen although an overall growth is registered since 1951 to 2011.

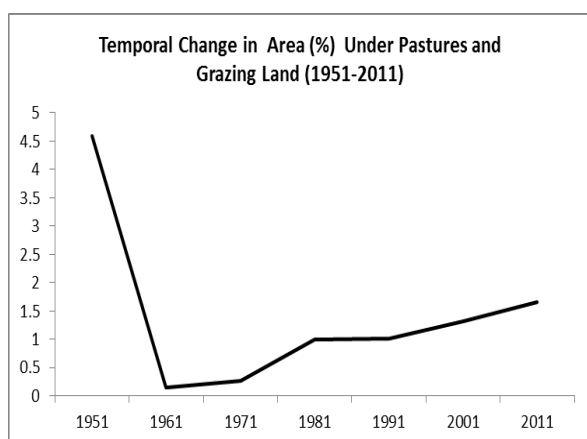


Figure 7 :Trend of Pastures (1951-2011)

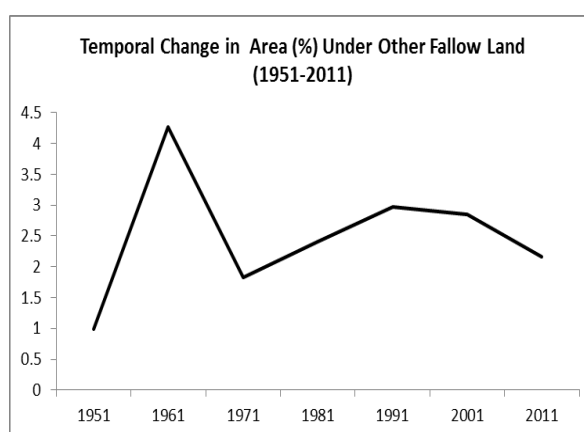


Figure 8: Trend of Fallow land (1951-2011)

### V. Land Use Pattern of Bulandshahr District

The land use pattern of a place is highly determined by the physical profile, population pressure, level of industrialization and the levels of development of that place. Thus, it reflects the social characteristic of the population and the economy of that place. Similarly, the land use pattern of Bulandshahr district is also governed by the social, political and cultural factors. The total reported area of the Bulandshahr district during 2018 was 3, 64,974 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 purposes. The utilization of land under various purposes is variable from one block to another. The net sown area (NSA) of the district was 2, 98,076 hectares during 2018. It accounted for 81.67 percent of total reported area of the district. The table 2 shows that after NSA the next major share was of area put to non-agricultural use covering 42,631 hectares (11.68 per cent) followed by forest with 7,795 hectares (2.14 per cent) and barren and uncultivated land covering 5,922 hectares (1.62 per cent).

Table 2: Land use Pattern of Bulandshahr District (2018)

| S. No. | Category                         | Area (In Hectares) | Share in TRA (In %) |
|--------|----------------------------------|--------------------|---------------------|
| 1      | Net sown area                    | 298076             | 81.67               |
| 2      | Land put to non-agricultural use | 42631              | 11.68               |
| 3      | Present fallow land              | 3363               | 1.00                |
| 4      | Other fallow land                | 1035               | 0.28                |
| 5      | Forest                           | 7795               | 2.14                |
| 6      | Barren and uncultivable land     | 5922               | 1.62                |
| 7      | Barren and cultivable waste land | 4280               | 1.17                |

|                     |                               |        |        |
|---------------------|-------------------------------|--------|--------|
| 8                   | Area under bushes and gardens | 619    | 0.17   |
| 9                   | Pastures/grazing land         | 953    | 0.26   |
| Total Reported Area |                               | 364974 | 100.00 |

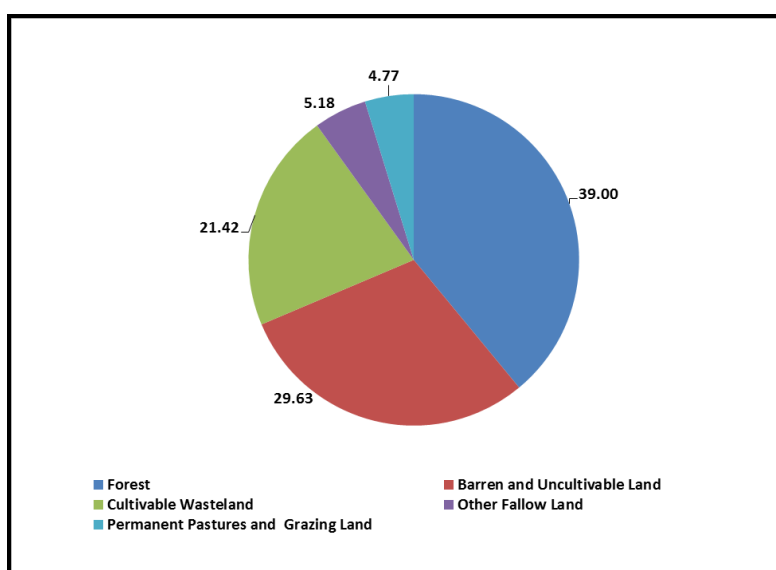
Source: Statistical bulletin of Bulandshahr district (2018)

TRA=Total Reported Area

### 5.1 Spatial Distribution of Common Land Resources

The total reported area of the Bulandshahr district during 2018 was 3, 64,974 hectares. The CLR include the area under forest, barren and uncultivable land, cultivable wasteland, permanent pastures and grazing land and other fallow land. The area under forests, pastures and grazing land, cultivable wasteland, barren and uncultivated land and fallow land other than current fallow is found to be 2.14 per cent, 0.26 per cent, 1.17 per cent, 1.62 percent and 0.28 per cent of the total reported area respectively. The rest is the land under the category of miscellaneous uses, current fallow land and the land put to non-agricultural uses. Thus the total are under the CLR during 2014 was calculated to be 5.48 per cent (19985 hectares) of the total reported area of the district. The figure 9 shows the percentage share of different categories of CLR in Bulandshahr district. The CLR covers 5.48 per cent area of total reported area in Bulandshahr district during 2018. The block wise variation as shown in table reveals that CLR in different blocks vary from 1.58 per cent in Syana to 11.96 per cent in Anupshahr blocks. The Anupshahr block is followed by Arniya (10.28 per cent), Khurja (7.49 per cent) and Sikandrabad (6.67 per cent) blocks. The detailed analysis of table 3 shows that most of the blocks lie below the average share of CLR in the District. Only 6 blocks have CLR more than the average (5.48 per cent) share of CLR in the district. Most of the four blocks having more than the average CLR lie in the southern part of the district. The variation in the share of CLR in any block is dependent upon the share of the constituent CLR categories.

The Anupshahr block has the largest share of area under forest and other Fallow land. Similarly Arniya , having the largest share of CLR in Bulandshahr district after Anupshahr block has the second largest share of area under forest. Further, Khurja block having 7.48 per cent area under CLR has significant share of area under forest, cultivable wasteland and barren land. The table 3 shows the block wise distribution of CLR in Bulandshahr district in 1994. It reveals that the total share of CLR in the district was 8.37 percent. The block wise variation was also found in the district. The share of CLR was found to be least in Syana (2.58 per cent) while the maximum share was found in Khurja (15.95 per cent) block. The blocks having larger share of CLR were generally located in the southern part of the district. The basic cause for the higher share of CLR in these blocks is the presence of large areas under forest, pastures and barren and uncultivated land. Total 6 blocks were identified having more share of CLR than the average share (8.37 per cent) of CLR in Bulandshahr district in 2018.



Source: Statistical bulletin of Bulandshahr district, U.P. (2018).

Figure 9: Percentage Share of Different Land use Categories among Total Common Land Resources of Bulandshahr District (2014)



**Table 3: Block-wise Distribution and Change in CLR in Bulandshahr District (1994-2014)**  
(Area in Hectares)

| S. No.       | Block        | Common Land Resources |                     |                       |
|--------------|--------------|-----------------------|---------------------|-----------------------|
|              |              | 1994                  | 2018                | Change                |
| 1            | Sikandrabad  | 3828 (10.97)          | 2521 (6.67)         | -1307 (-34.14)        |
| 2            | Gulaothi     | 559 (3.70)            | 311 (2.34)          | -248 (-44.36)         |
| 3            | Lakhaothi    | 1682 (7.75)           | 804 (4.61)          | -878 (-52.20)         |
| 4            | Bulandshahr  | 1367 (6.14)           | 712 (3.98)          | -655 (-47.92)         |
| 5            | Shikarpur    | 2960 (11.11)          | 1719 (6.44)         | -1241 (-41.93)        |
| 6            | B.B. Nagar   | 491 (2.79)            | 285 (1.75)          | -206 (-41.96)         |
| 7            | Syana        | 477 (2.58)            | 286 (1.58)          | -191 (-40.04)         |
| 8            | Jahangirabad | 2456 (11.27)          | 903 (4.10)          | -1553 (-63.23)        |
| 9            | Khurja       | 4527 (15.95)          | 2583 (7.49)         | -1944 (-42.94)        |
| 10           | Araniya      | 3181 (13.00)          | 2492 (10.28)        | -689 (-21.66)         |
| 11           | Pahasu       | 1462 (5.33)           | 525 (1.95)          | -937 (-64.09)         |
| 12           | Unchagaon    | 883 (4.28)            | 1101 (5.23)         | 218 (24.69)           |
| 13           | Danpur       | 1557 (7.14)           | 673 (3.10)          | -884 (-56.78)         |
| 14           | Dibai        | 1283 (5.32)           | 1406 (5.96)         | 123 (9.59)            |
| 15           | Anupshahr    | 2800 (10.31)          | 3189 (11.96)        | 389 (13.89)           |
| 16           | Agauta       | NA                    | 475 (3.00)          | 475 (100.00)          |
| <b>Total</b> |              | <b>29513 (8.37)</b>   | <b>19985 (5.48)</b> | <b>-9528 (-32.28)</b> |

**Source:** District Statistical Booklet (1994 & 2018).

Figures in Bracket show percentage to total reported area (TRA) of District Bulandshahr, U.P.

Further on analyzing the status of CLR in 1994 it was revealed that there is an overall decline in CLR of Bulandshahr district. The total area under CLR during 1994 was calculated to be 29,513 hectares. It declined to 19,985 hectares in 2018. Thus, there is an overall decline of 9,528 hectares (-32.28 per cent) in last twenty five years. The block wise analysis reveals that all the blocks have shown a declining trend in the CLR except four blocks which have shown a positive change during the same period. The increase in CLR in this block is due to increase in area under forest in all the blocks. Further, there is an increase in the wasteland, barren land and fallow land in Unchagaon, Dibai and Anupshahr blocks respectively. The decline in the CLR of other blocks was recorded maximum in Pahasu (-64.09 per cent) followed by Jahangirabad (-63.23 per cent) and Danpur (-56.78 per cent) whereas least decline is observed in Arniya (-21.33 per cent).

The table 4 and figure 10 show the land use category wise change in percentage and area of CLR in the district during last two decades. It was observed that all the CLR categories have shown a decline except forest which has shown a positive change during the same period (71.85 per cent). The largest decline was seen in other fallow land which declined from 5876 hectares in 1994 to 1035 hectares in 2018. Thus, it declined by -82.39 per cent. The next category having a declining trend was cultivable wasteland which decline from 8413 hectares in 1994 to 4280 hectares in 2018 amounting to a decline of -49.13 per cent. It was followed by Barren and Uncultivated land showing a change of -38.61 per cent followed by permanent pastures and grazing Land having a little decline of -8.54 per cent.

Figure 10: Change in Area under various Land use Categories of CLR (1994-2018)

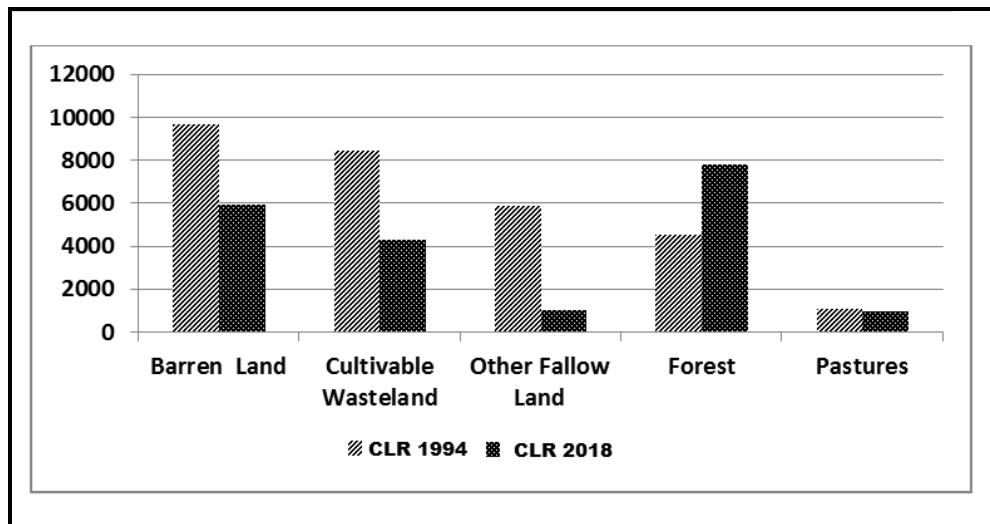


Table 4: Change in Different Land use Categories among total Common Land Resources of Bulandshahr District (1994-2014)

| S. No.           | CLR Categories                      | Common Land Resource |              |                    |               |
|------------------|-------------------------------------|----------------------|--------------|--------------------|---------------|
|                  |                                     | 1994                 | 2018         | Change ( Hectares) | Change( %)    |
| 1                | Forest                              | 4536                 | 7795         | 3259               | 71.85         |
| 2                | Other Fallow Land                   | 5876                 | 1035         | -4841              | -82.39        |
| 3                | Cultivable Wasteland                | 8413                 | 4280         | -4133              | -49.13        |
| 4                | Barren and Uncultivable Land        | 9646                 | 5922         | -3724              | -38.61        |
| 5                | Permanent Pastures and Grazing Land | 1042                 | 953          | -89                | -8.54         |
| <b>TOTAL CLR</b> |                                     | <b>29513</b>         | <b>19985</b> | <b>-9528</b>       | <b>-32.28</b> |

Source: District Statistical Booklet (1994 & 2018)

### 5.2 Common Land Resource Regions: A Spatial Analysis

The spatio-temporal analysis of the various variables is highly significant in getting the appropriate common land resource regions of any particular time. The Common Land Resource regions derived by the composite index of five variables during 2018 are shown in figure 11. It reveals that the Bulandshahr district can be divided into 5 regions on the basis of the composite effect of the five variables. The five regions are:

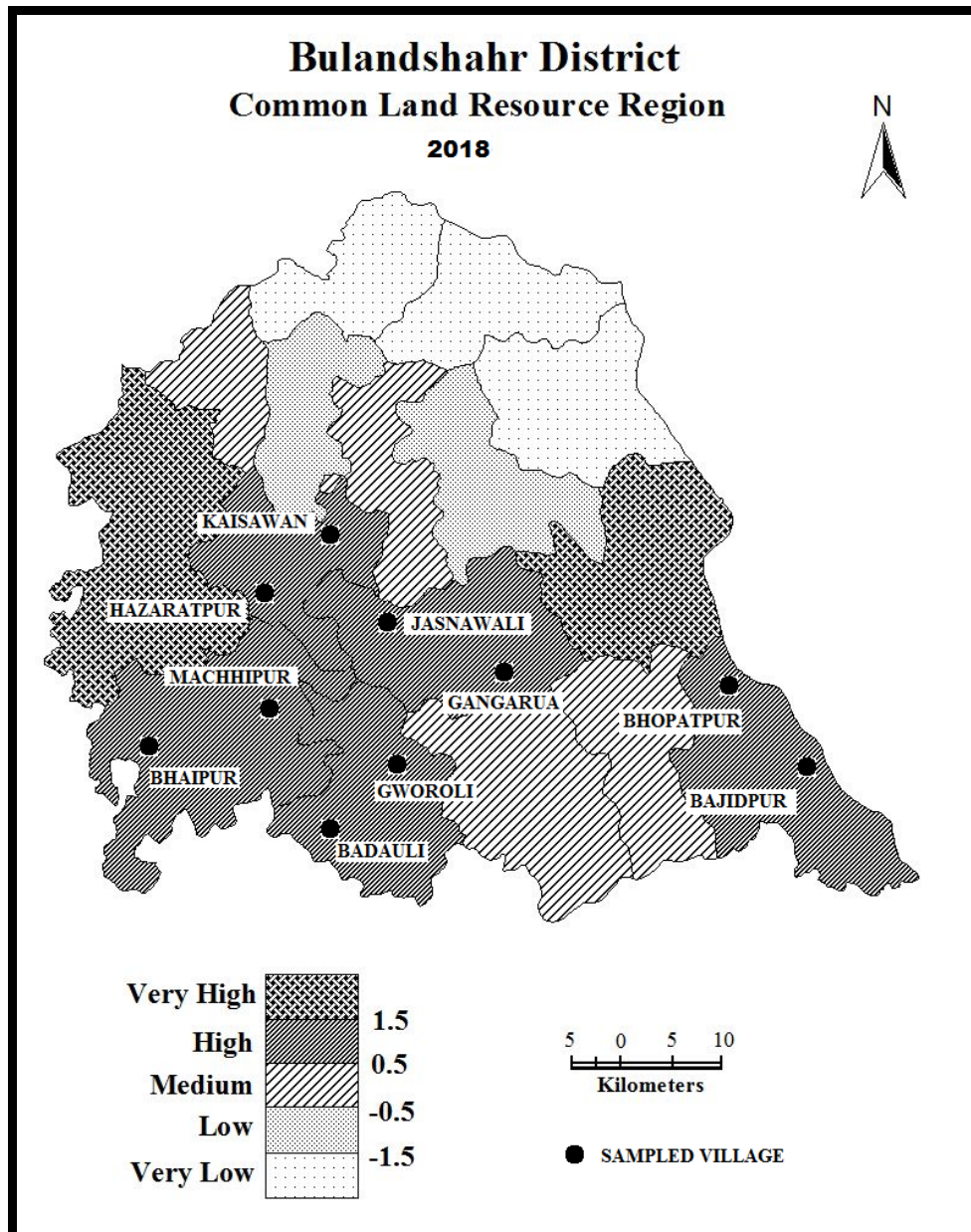


Figure 11: Common Land Resource Region and Sampled Villages (2018)

**1.2.1 The Region of Very High Concentration:** The region of very high concentration of common land resources includes only two blocks namely Sikandrabad and Anoopshahr. These blocks lie on the western and eastern boundaries. The in depth analysis of the 5 constituent variables reveal the presence of large area under forest, barren land, fallow land, wasteland and grazing land and pastures. The physical features of the region are also found in conformity with the presence of large percentage of common land resources. Further, lack of industrialization and low urban growth especially in Anoopshahr has also prevented the decline of common land resources in the region.

**1.2.2 The Region of High Concentration:** The region of high concentration of common land resources includes five blocks namely Khurja, Arniya, Bulandshahr, Shikarpur and Dibai. These blocks lying in the central and southern region have the same characteristics as the region of very high common land resources but at smaller scale. Another major reason is the difference in population, agriculture and urbanization which is more in these blocks especially Bulandshahr block.

**1.2.3 The Region of Medium Concentration:** The region of medium concentration of common land resources includes four blocks namely Lakhaoti and Gulaothi in central and western part of the district and Danpur and Pahasu in the southern part of the district. Lakhaoti and Gulaothi have smaller area under the

different categories of CLR but Pahasu and Danpur blocks have large area under other fallow land. Thus, the composite effect of various variables has resulted in the present scenario.

**1.2.4 The Region of Low Concentration:** The region of low concentration of common land resources includes two blocks namely Agauta and Jahangirabad. Jahangirabad block has a significantly large area under Grazing land and pasture but it has very small area under different CLR categories. Similarly Agauta also shares a small proportion of area under CLR. Therefore, both these blocks lie in low concentration region

**1.2.5 Very Low Concentration:** The area of very low concentration of common land resources comprise of three blocks. These three blocks of the district make a contiguous region in the north eastern part of the district. They are Syana, B.B. Nagar and Unchagaon. All the blocks have negligible or no forests cover and Grazing land or pasture except Unchagaon where small area under forests and grazing land is present. Further analysis reveals that the share of wasteland is very small in these blocks whereas other fallow land is negligible in B.B. Nagar and Unchagaon. Barren and uncultivable land occupies a very small area in all these blocks. The absence of forest cover in this region is mainly due to presence of good alluvial soil and high level of agricultural activities. Thus the forests were mainly cleared for agriculture and residential purpose. Further, all the other categories also have a very small proportion with respect to total reported area of the blocks.

**Table 5: Block wise Distribution of Sampled Villages of High CLR Region in Bulandshahr District (2014)**

| S. No.                        | Block       | Sampled Village   | Total Households | Total Population | Sampled Households |
|-------------------------------|-------------|-------------------|------------------|------------------|--------------------|
| 1                             | Arniya      | Badauli           | 371              | 2407             | 37                 |
| 2                             | Arniya      | Gworoli Bhojgarhi | 509              | 3224             | 50                 |
| 3                             | Bulandshahr | Jasnawali Kalan   | 237              | 1222             | 23                 |
| 4                             | Bulandshahr | Gangarua          | 529              | 3209             | 52                 |
| 5                             | Debai       | Bajidpur          | 304              | 1682             | 31                 |
| 6                             | Debai       | Bhopatpur         | 583              | 3312             | 60                 |
| 7                             | Khurja      | Machhipur         | 227              | 1206             | 22                 |
| 8                             | Khurja      | Bhaipur           | 473              | 2750             | 50                 |
| 9                             | Shikarpur   | Hazaratpur        | 385              | 2325             | 40                 |
| 10                            | Shikarpur   | Kaisawan          | 726              | 4153             | 72                 |
| <b>TOTAL SAMPLED VILLAGES</b> |             |                   | <b>4344</b>      | <b>25490</b>     | <b>437</b>         |

**Source:** PCA and Village Directory of Bulandshahr District (2018) and Field Survey (2017-18)

### 5.3 CLR: ACCESS AND MODES OF UTILIZATION

The use of CLR is influenced by the various socio-economic factors. The mode and intensity of using CLR at any place is highly determined by the total number of users and their socio-economic profile. Thus, proper utilization and long term economic benefits from CLR are determined by the number of users and the level/degree of utilization of CLR. Further, the number of users and the degree of CLR utilization by an individual is governed by the size of land holding, agricultural and non-agricultural income, caste, availability of technology, family size, educational status and other socio-economic parameters pertaining to the users. Thus, these factors not only affect the mode and intensity of utilization but also lead to difference in economic benefits obtained from CLR by an individual. The socio-economic development of the users is directly related with these parameters effecting the use and income from the CLR. Therefore, it is worthwhile to analyze the number of users, their socio-economic characteristics, farming status and mode of utilization of CLR for assessing the economic gains and their role in managing of CLR in the study area.

The CLR utilization refers to the economic benefits or the economic utility of the CLR. The rampant use of CLR is due to the virtue of uncontrolled economic gains obtained from them. The abundance of any resource is diminished by the increasing number of users. Thus, in case of CLR also the increase in population over the period of time has led to immense competition and thereby leading to degradation and depletion of these resources. The CLR as discussed before are common to all and no one has individual property rights upon them. This type of land generally belongs to *gram panchayat* where every individual living nearby utilizes the CLR for various purpose of their utility. The CLR are thus mostly utilized for grazing the livestock, agro-forestry, cultivation of crops and social forestry. They are also used as play grounds, cemeteries, cremation grounds etc. The use of common land may also change from season to season. Sometimes a single piece of "common land" is used for number of purposes like playground for children, pastures, resting ground for cows or celebration grounds for various social and religious functions like marriages and *Raam-leela*.

**Table 6: Access to CLR by Respondents in Sampled Villages of Bulandshahr District (2017-18)**

| S. No.       | Sampled Village   | CLR Utilization              |                              | Total Respondents             |
|--------------|-------------------|------------------------------|------------------------------|-------------------------------|
|              |                   | Using CLR                    | Not Using CLR                |                               |
| 1            | Badauli           | 31<br>(83.78)                | 6<br>(16.22)                 | 37<br>(100.00)                |
| 2            | Gworoli Bhojgarhi | 37<br>(74.00)                | 13<br>(26.00)                | 50<br>(100.00)                |
| 3            | Jasawali Kalan    | 17<br>(73.91)                | 6<br>(26.09)                 | 23<br>(100.00)                |
| 4            | Gangarua          | 38<br>(73.08)                | 14<br>(26.92)                | 52<br>(100.00)                |
| 5            | Bajidpur          | 23<br>(74.19)                | 8<br>(25.81)                 | 31<br>(100.00)                |
| 6            | Bhopatpur         | 49<br>(81.67)                | 11<br>(18.33)                | 60<br>(100.00)                |
| 7            | Machhipur         | 15<br>(68.18)                | 7<br>(31.82)                 | 22<br>(100.00)                |
| 8            | Bhaipur           | 34<br>(68.00)                | 16<br>(32.00)                | 50<br>(100.00)                |
| 9            | Hazaratpur        | 33<br>(82.50)                | 7<br>(17.50)                 | 40<br>(100.00)                |
| 10           | Kaisawan          | 59<br>(81.94)                | 13<br>(18.06)                | 72<br>(100.00)                |
| <b>TOTAL</b> |                   | <b>336</b><br><b>(76.88)</b> | <b>101</b><br><b>(23.12)</b> | <b>437</b><br><b>(100.00)</b> |

Source: Field Survey (2017-18)

The CLR are generally utilized by a large part of the rural population. The access to the CLR is sometimes limited to a certain social group of people or denied to a particular social group. Thus, the benefits of CLR can be obtained only after an individual is privileged with the access to CLR. The role of social customs and the influential people has a major role in determining the number of users and the extent of use by the people accessing CLR. The primary field survey of the sampled villages in the high common land resource region of Bulandshahr district reveals that among the total respondents 76.88 per cent were engaged in utilizing CLR (table 6) for various purposes.

The use of CLR is variable by the different users. The economic gains obtained from CLR utilization are dependent upon their mode and intensity of utilization. The primary survey of sampled villages reveals that the respondents utilize the CLR in various ways. On analyzing the questionnaire five major categories CLR utilization were found. These categories were agro forestry, social forestry, crop cultivation, pastures/grazing land and other uses. The figure 12 gives the number of respondents in various modes of CLR utilization. The most preferred use of CLR was found to be as pasture/grazing land. Thus, among the total 437 respondents using CLR the largest proportions (77.04 per cent) of respondents were utilizing CLR as pastures/grazing land. The household economy in Indian villages is highly influenced by the livestock of an individual. The increasing rearing cost has led to decline in the profit obtained by livestock rearing. The poor people try to use the CLR in order to save the cost of fodder. Some of the households are fully dependent upon the CLR in order to feed their animals. The next important use of CLR is social-forestry (30.17 per cent) followed by crop cultivation (28.75 per cent), agro-forestry (17.07 per cent) and other uses (9.89 per cent). The village wise analysis of CLR reveals that level of utilizing CLR under different modes is not same.

This is most common use of CLR. The share of respondents involved in utilizing CLR as pasture/grazing land is found to be 77.04 per cent. The village wise share is also found to be largest among other modes of uses in all the sampled villages. This mode has a wider distribution in all the sampled villages because the farmers are generally keeping cows, buffaloes, sheep and goats for agricultural, domestic and business purposes. The landless people are sometimes dependent upon the drought animals for their livelihood and utilize the CLR as pastures/grazing land. Thus, it has an economic significance for the landless people and marginal farmers.

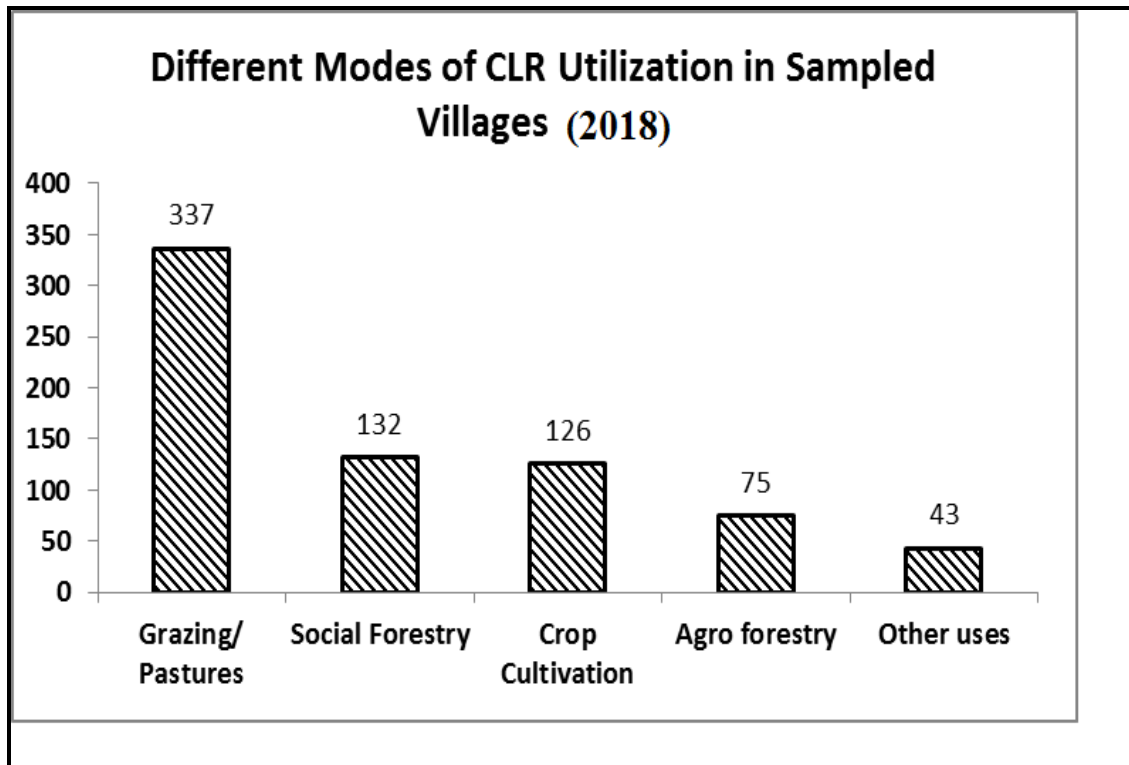


Figure 12: Modes of CLR Utilization

Social forestry is next important mode of utilizing CLR. Thus, 30.17 per cent of respondents using CLR are involved in social-forestry. This is practiced in all the sampled villages. The people plant various plants which grow fast and thus give quick returns. Eucalyptus, Mahua (*Modhucaindica*), Sheesham (*Dalbergiasissoo*), Babul (*Acacia nilotica*) and poplar are such plants. However, Kikar or Babool are also being planted if the land is less fertile. This mode of utilizing CLR is generally found in the villages where the land is quiet infertile and irrigation is poor. Social forestry is practiced either near railways tracks, along the roads, canals or at *gram panchayat* land. In some cases such land is given by village *pradhanto* low or middle income class people for limited period of time.

Crop cultivation is another important use of CLR in the sampled villages. The CLR used under the crop cultivation category in most of the villages are either the *gram panchayat* land or surplus land acquired during land ceiling act. This type of land is sometimes given on mutual consent by village administrative body to the landless people for a fixed period of time. Sometimes, such land is also grabbed by rich and politically influential farmers if it occurs to be adjacent to their agricultural fields. If a well to do or rich farmer takes such land on lease then the CLR are well utilized because of input of many techno-economic resources. Crop cultivation was found to be undertaken by 28.75 per cent of the respondents using the CLR. It is generally practiced in the villages having fertile soil.

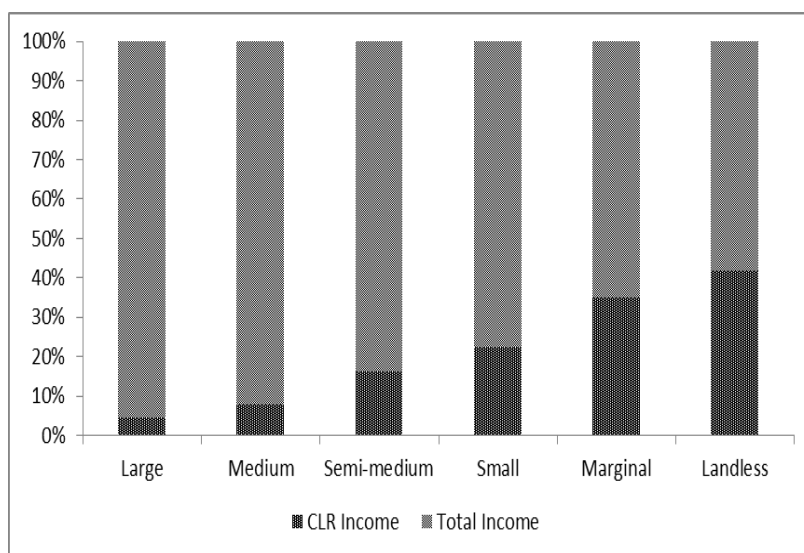
Agro-forestry is the next important mode of utilization of CLR. The share of respondents practicing agro-forestry was found to be 17.07 per cent among the total users. Generally, there are two types of tree plantation in agro-forestry. First one is that is which trees like Eucalyptus or Babool are planted on boundaries of cultivated land areas to protect the crop form winds and animals. This also provides fodder for the animals, fuel-wood and timber for the household or commercial activities. In second type, fruits trees are used on borders of agricultural fields. They provide not only timber and small amount of fuel-wood but also fruits for household use and commercial purpose also. Sometimes the farmers use CLR for agro-forestry on commercial basis. Thus, they plant trees which grow quickly and obtain the benefit by selling the wood at short intervals. The different type of agro-forestry is found in the different blocks. In general, fruit trees are used in agro-forestry in the blocks where the soil is fertile. In these blocks availability of moisture to facilitate fruit trees of Guava, Papaya and Mango etc. The agro-forestry is widely practiced in the villages lying in the blocks having good soil and proper irrigation facilities.

The CLR are utilized in many other ways in the villages. Other miscellaneous uses of CLR include housing activities, poultry farms and use of CLR as playgrounds and resting ground for animals. Generally, there are some areas in every village for various purposes and are accessible to all the villagers. There are the areas used for processing of agricultural produce, storing of grains, other agricultural produce, firewood, etc.,

use for other household enterprise, for recreational or religious purposes, to organize village fairs and marriages. Sometimes a portion of the land is allotted for periodic markets also. These all are the functions of CLR other than the above modes of utilization. Hence, it is observed that a proper utilization of CLR can result in many socio-economic benefits. The share of respondents involved in other uses is 9.89 per cent.

#### 5.4 CLR: Income and Economic Gains

The use of CLR leads to economic benefits to the users. The extent of benefit depends upon the mode and intensity of utilizing the CLR. The respondents using the CLR can be broadly divided into two categories. The first category includes those users who are not dependent upon the CLR and the second category includes the users which are dependent upon them for their sustenance. Thus, the mode of utilization is variable for the different types of users. The people who are dependent upon CLR are generally landless poor, marginal and small farmer. They generally use the CLR for grazing their animals. Sometimes, they also practice social forestry. The non-dependent category generally uses these resources for crop cultivation, agro forestry and other uses. The intensity of using the CLR is more in case of dependent users than the non-dependent ones. Thus, the benefit obtained from these resources varies with the mode and intensity of utilizing the CLR.



Source: Field survey (2017-18)

**Figure 13: Landholding wise Share of CLR income in Total Annual Income (2014)**

The landholding wise proportion of CLR income of respondents is shown in figure 13. The annual average income from CLR is quiet varied for different categories of landholding but they have a significant share in the total income of landless, marginal and small farmers therefore, the share of CLR income varies from 4.40 per cent in large farmers to 41.91 per cent for landless people. It is observed that smaller the landholding status of respondent the larger is the share of CLR income. The income from CLR finds a significant share in the total income of landless people, marginal and small farmers. Thus, it is observed that a significant share of total income is obtained from CLR by the landless people, marginal and small farmers and the share of income from CLR in semi medium, medium and large farmers is much lower. The large share of income from CLR is an indicator of dependency of the landless people, marginal and small farmers upon the CLR for their livelihood and sustenance.

#### 5.5 Conclusions and Suggestions

The present study reveals that there is a regular decline in the CLR's in the study area. It was reported to be 34.28 percent in 1951 which declined to 26.58 per cent in 2011. Thus, the anthropogenic pressure, increasing demand of land agriculture, industrialization and other non-agricultural use of land has led to encroachment and transfer of CLR's to different purposes. The change in the various land use categories of CLR result in the final change in the CLR's. Thus, it is the combined effect of decline in barren land, waste land, pastures, and fallow land along with increase in area under forest.

The detailed study of CLR, its temporal change, access, modes of utilization and economic gains reveals that the decline in CLR is in conformity with the decline in the whole study area. Further, the access and use of CLR was found to be undertaken by 76.88 per cent respondents although village wise share of

respondents using CLR as variable. The most favorite use of CLR was found to be grazing (77.04 per cent) followed by social forestry (30.17 per cent), crop cultivation (28.75 per cent), agro-forestry (17.07 per cent) and other uses (9.89 per cent). The study shows that respondents from all the landholding categories are using CLR's but their mode is different as per their requirement. Further, the income from CLR's is also variable with respect to the mode and intensity of using CLR. Thus, maximum share of CLR income was found for landless respondents followed by marginal and small land holders. Thus, a declining trend is observed in share of CLR income with increasing land holding.

The study thus envisages the importance of CLR for providing economic benefits to its user especially landless people, small and marginal farmers. In this context the present declining trend of CLR is of great concern. The study reveals that there are many major constraints in conserving and protecting the CLR's. The first problem is of "open access" causing rampant use. Secondly lack of suitable laws to punish those who degrade or misuse of CLRs is another hindrance. The masses and the users both are not aware of the environmental problems caused due to depletion and degradation of soil and the processes and factors causing loss of land resource. The local people do not take interest in these issues and it has adversely affected many government schemes of land reclamation, afforestation and soil conservation. The lack of interest by local people in the "common resources" is also due to injustice by wealthy and politically powerful and influential people of the village or region. Thus, sometimes CLRs are not allotted to the needy people and often encroached by the wealthy and large farmers who are concerned with extracting maximum profits and hardly care for these resources.

Considering the present situation thorough survey of the Common Land Resources should be undertaken by the government through State Land use Boards and other agencies to know the actual state of these resources. The encroached CLR's should be made free from encroachments at the earliest. Further, there is an urgent to formulate laws against those mis using the common property resources especially CLR's. This will protect the CLRs and livelihood of the unprivileged people. Environmental awareness should be encouraged through electronic media and by other suitable means. The encroachment of CLRs should be controlled by local administration. A suitable and effective method to control depletion, degradation and over use of common resources is formation of local committees. Thus, participation of local people coupled with observation by local administration is the need of the time to ensure preservation of CLR's and livelihood and economic gains to the users.

#### **Acknowledgments**

I am highly thankful to Indian Council of Social Science Research (ICSSR) New Delhi for funding the present study. I am also thankful to my teacher and supervisor Prof. Abdul Munir and for his guidance and support throughout the study.

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