

Chapter 34

Common Land Resources: The Present Status and Need for Their Conservation in North India

Mohd Sadiq Salman and Abdul Munir

Abstract The common land resources (CLRs) as the name implies have common access to all for various economic gains. The CLRs include forests, pastures, barren land, uncultivated land other than current fallow land and cultivable wastelands. The forests provide timber and pastures support livestock. The uncultivated and barren lands support industrial and urban development. Agroforestry and social forestry are also practised. The “common access” to these resources has led to unchecked and rampant use, leading to their degradation. In general, they account for a substantial share in income, socio-economic development and sustainable livelihood of the landless people, marginal and small farmers. Over the last 50 years, the population growth, urbanization and industrialization have led to overexploitation of the resources having “common access”. The share of CLRs in the Uttar Pradesh during 1950–1951 was 34.28%; since then CLRs continue declining. Considering the declining trend of CLRs and their role in socio-economic development of the unprivileged, there is a need to manage them in a judicious way through the formulation of suitable and effective policies by the government to prevent degradation and extinction of CLRs.

Keywords Common land resources • GIS • Land use planning • Natural resources • North India

34.1 Introduction

India is a developing country, and its major population lives in rural areas, depending mainly on agriculture. Thus, the livelihood highly depends on their land resource. With continuing population growth, there is an immense pressure on the land

M.S. Salman (✉) • A. Munir

Department of Geography, Faculty of Science, Aligarh Muslim University,
Aligarh, Uttar Pradesh 202002, India
e-mail: msadiqsalman@gmail.com; Abdulmunir.amu@gmail.com

resources specially the agricultural land. The share of marginal and small farmers is maximum among the total landholders. The present era of competition and globalization has led to decline in the economic benefits through agriculture. Thus, small pieces of land give very low remunerations or have become uneconomical (Mohammad 1981). Thus, the marginal and small landholders having small piece of land rely on the “common land resources” for their livelihood. The landless people also get economic benefit through utilizing these CLR. The CLR are common to all, and no one has exclusive rights on them. They are generally utilized by the landless poor, marginal and small farmers for economic gains. The forests provide timber, the pastures support the livestock, and the uncultivated and barren lands are utilized for infrastructures such as construction of houses, poultry farms and animal husbandry (Munir et al. 2008). In India and especially in the Uttar Pradesh (the most populous state of India), the CLR are declining due to increasing population pressure, “open access” and rampant use.

34.1.1 Conceptual Base

The definition of resources has been different to different people in different ages. To state briefly we can define resource as “features of the environment which are considered to be capable of serving man’s needs”. They are given utility by the capabilities and wants of man. The “resource” to one community may not be a resource to another, and to someone else, it may be a “neutral stuff” only. Earlier the natural resources were abundant so there was no competition among the users. But gradually conflict started with the increase in the number of users. The natural resources have been thus classified into four categories by Sharma (1984) on the basis of whether the use does or does not lead to conflict between the users. The four categories are (1) resources used for individual’s benefit which do not involve conflict, (2) resources used only for social ends without conflict, (3) resources used by individuals and society with conflict if the resource used is in limited supply and (4) resources used both by individuals and society without conflict if the resource used are in abundant supply.

With the increase in the number of users, people turn towards the common property resources (CPRs). The CPRs are resources owned by an identifiable group of people who have a “common access” to it, and the resource is regulated by social conventions and legally enforceable rules (Singh 1994). These include land, water, grasslands, wildlife and forests which are regulated by social conventions and legally enforceable rules (Burgess and Gochfield 1998). Traditionally, the CPRs include land, water, grass, wildlife and forest (Berkes 1989). The CPRs have been studied by various scholars since the publication of Hardin’s paper “The Tragedy of Commons” in 1968 where he has stated “ruin is the destination towards which all men reach, each pursuing his own interest in a society that believes in the freedom of the Commons” (Hardin 1968).

The “CLR” are a part of CPRs and is used to refer to land 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”. In India, there are variety of CLRs, such as forests, pastures and grazing lands, threshing grounds, manure pits, cemeteries, cremation grounds, fallow lands, barren land and uncultivated lands. The CLRs are common to all, and no one has exclusive rights upon them.

34.1.2 Objectives

The CLRs have significant effect upon the livelihood of the landless people, small and marginal farmers. Therefore, there is a need to manage these resources in a judicious way. The present study was thus conducted with the following objectives:

1. To study the spatial distribution of the CLRs in various districts of Uttar Pradesh
2. To study the decadal change in CLRs in the various districts of Uttar Pradesh
3. To identify the problems in managing CLRs
4. To suggest possible ways for proper management of the CLRs

34.2 Database and Methodology

The present study is based on the primary and secondary data. The secondary data regarding land use of Uttar Pradesh (1995 and 2005) was obtained from State Land Use Board, Uttar Pradesh and Directorate of Economics and Statistics, Uttar Pradesh, Lucknow, India. This data was used to study the spatial distribution and decadal change in the share of CLRs in different districts of Uttar Pradesh. The primary data regarding different CLR utilization modes and problems associated with their management was collected through field survey of a sampled village of a sampled district during 2009.

The secondary data of land use was used to study the spatial distribution of the CLRs. The districts were divided into five categories on the basis of the percentage of area under the CLRs. A district from the medium category was selected for the field survey and a sample village for the collection of data regarding the utilization modes of CLRs and the associated management problems. The selection of the district was made on the basis of the percentage share of area under CLRs in the district, diversity in physiography and land use pattern and the accessibility for field survey.

The district level data regarding geographical background of the area, climatic conditions including soil characteristics, rainfall, vegetation and land use pattern including general and agricultural land use was obtained from the Statistical Booklet of the selected district. A sampled village was selected from the district selected on the criteria given above. Household level field survey was conducted in the sampled village. The data regarding the population of the sampled village and the social structure was obtained from the village pradhan (political head). The selection of the village was based on population size, distance from the nearest city/town and accessibility.

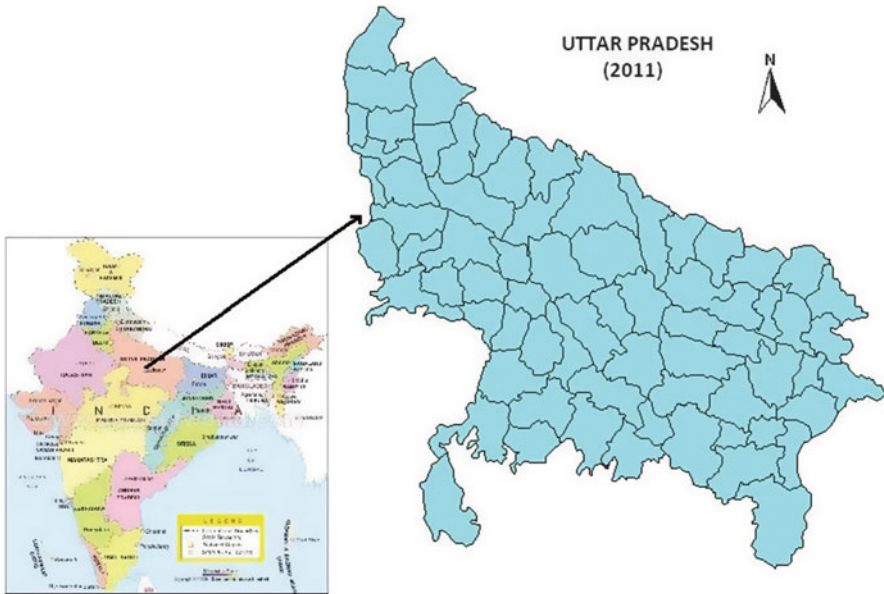


Fig. 34.1 Study area—Uttar Pradesh

Out of the total households, a 50% sample was taken for detailed field survey. The questionnaire includes the mode of CLR utilization and their associated management problems. The field survey data was thoroughly checked and processed using simple statistical and GIS techniques. The data is then presented as maps, tables and diagrams.

34.2.1 *Study Area*

The state of Uttar Pradesh (UP) is situated between 23°52' N and 31°28' N latitudes and 77°3' and 84°39' E longitudes in South Asian region. The location of the study area is shown in Fig. 34.1. The UP is the most populous and fifth largest state in India having 199,581,477 population (Census of India 2011) and an area of 24,201,586 km². The UP can be divided into three distinct hypsographical regions:

1. The Himalayan region in the North
2. The Gangetic plain in the centre
3. The Vindhya Hills and plateau in the south

The Himalayan region comprises of high mountains formed from sedimentary rocks. The perpetual snows in the higher reaches are the source of perennial water which forms a big river system watering the entire plain. The hilly areas are sparsely populated. 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 Siwalik Range forming the southern foothills of the Himalayas has rich forests, cutting across it are innumerable streams which swell into raging torrents during the monsoon. The main crops are wheat, rice and sugarcane and jute is also grown. Tea is grown in the submountain area of the Dehradun.

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 Gomti, the Ghaghra and Gandak. This is alluvial and very fertile plain. The major crops are rice, wheat, pearl millet, gram, and barley. Sugarcane is the main cash crop of the region. The southern fringe of the Gangetic plain is demarcated by the Vindhya Hills and plateau. It comprises the four districts of Jhansi, Jalaun, Banda, and Hamirpur. These districts are part of the Bundelkhand division of Uttar Pradesh. The Betwa and Ken rivers join the Yamuna from the south-west in this region. Of four distinct soils found in the Bundelkhand region black, cotton soil is difficult to manage. Due to scarce rain, dry farming is generally practised in the Bundelkhand region of the state.

34.2.2 *Climate and Seasons*

The climate of UP is tropical monsoon; however, variations exist with altitudes. The Himalayan region is cold. The average temperature varies in the plains from 3–4°C in January to 43–45°C in May and June. Climate is marked by three distinct seasons:

Summer (March–June): hot and dry (temperature rise to 45°C, sometimes 47–48°C), low relative humidity (20%), and dust-laden winds, *Monsoon* (June–September): 85% of average annual rainfall (990 mm). Fall in temperature (40–45°C) on rainy days, and *Winter* (October–February): cold (temperature drop to 3–4°C, sometimes below –1°C), clear skies, and foggy conditions in some tracts

34.2.3 *Forest and Wildlife*

Most of the forests occur in the Himalayan region and the Terai and Bhabhar area in the Gangetic plain. The Vindhyan forests consist mostly of scrub. The hilly forests also have a large variety of medicinal herbs. Corresponding to its variegated topography and climate, the state has a wealth of animal life. Animals that can be found in the jungles of Uttar Pradesh include the tiger, leopard, wild bear, sloth bear, chital, sambhar, jackal, porcupine, jungle cat, hare, squirrel, monitor lizards and fox. The most common birds include the crow, pigeon, dove, jungle fowl, black partridge, house sparrow, peafowl, blue jay, parakeet, kite, mynah, quail, bulbul, kingfisher and woodpecker.

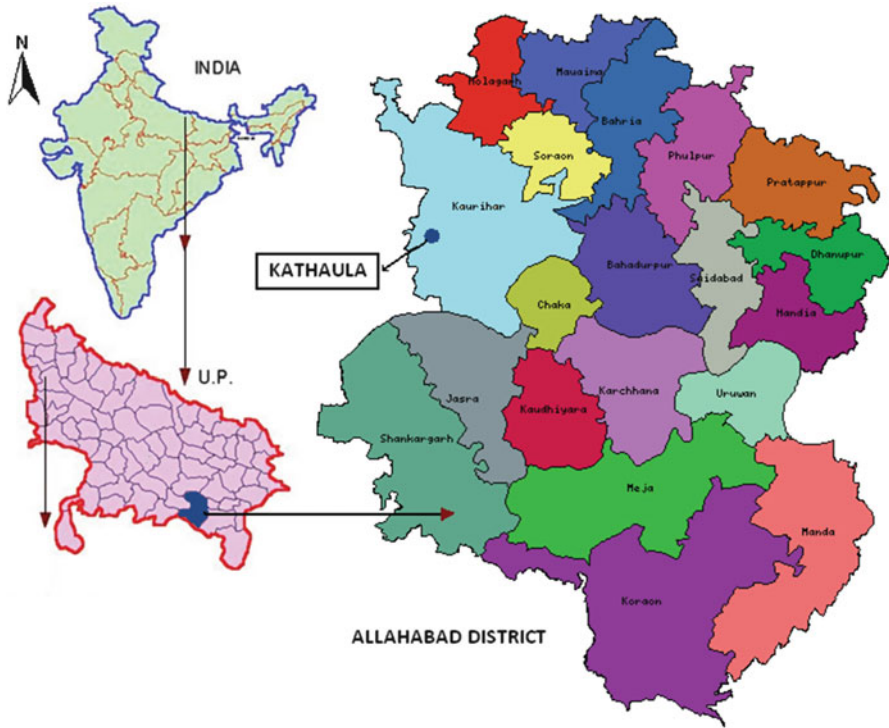


Fig. 34.2 Sampled village of Allahabad district

34.2.4 Sampled District and Village

Allahabad district is selected as study area. It is located in the eastern part of Uttar Pradesh between $24^{\circ}47' N$ and $25^{\circ}43' N$ latitudes and between $81^{\circ}31' E$ and $82^{\circ}21' E$ longitudes. It covers an area of $5,482 \text{ km}^2$. The total rural area is $5,339.28 \text{ km}^2$, and the urban area is 142.72 km^2 . The River Ganga and Yamuna flow through the district. From administrative point of view, the district has been divided into 7 Tehsils and 20 blocks which include 3,065 villages (District Statistical Booklet 2005). On the basis of physiography, the district can be divided into three parts, that is, Gangapaar, Yamunapaar and Doab regions. The Gangapaar region has “Khadar” soil formed by floods, Doab has fertile alluvial soil, and “Yamunapaar” possesses gravelly light sandy soil. All the blocks of the district are well connected to other parts of the district and the state through the network of rail and road. The Grand Trunk Road connecting the capital city of New Delhi to other parts of the country cross the district from west to east.

The sampled village Kathaula selected for the field survey lies in the Kaurihar Block falling in the Doab region of Allahabad district (Fig. 34.2). The village is located at a distance of 11 kms from the Allahabad city which is also the headquarters

Table 34.1 Decadal population change in Uttar Pradesh (1951–2011)

Year	Population (In 000's)	Population growth (In 000's)	Percentage change
1951	60,274	–	–
1961	70,144	9,870	14.07
1971	83,849	13,705	16.34
1981	1,05,137	21,288	20.24
1991	1,32,062	26,925	20.38
2001	1,66,198	34,136	20.53
2011	1,99,581	33,384	20.09

Source: Directorate of Statistics and Economics, Uttar Pradesh, Lucknow

of the Allahabad district. The village is well connected to nearby town, Allahabad and the nearby villages with metalled and unmetalled roads. Total population of the village is 1,700 with approximate 300 households. Hindus and Muslims are two major communities in the Kathaula village. Bhartiya, Brahman, Chamar, Khurmi, Lohar, Madari, Nai and Pasi are the main Hindus castes living. The people are generally illiterate, and a large number of the residents are landless. A large number of people have small or marginal farms, and very few have big landholdings.

34.2.5 Temporal Change in Population of Uttar Pradesh

The population of Uttar Pradesh is continuously increasing over the last few decades. This continuing population growth has led to immense pressure on CLRs of the state. The area being the same, increasing population has led to rampant use of CLRs which have an “open access”. Since independence the decadal population change is inconsistent (Table 34.1).

34.3 Common Land Resources (CLRs) of Uttar Pradesh

The CLRs in UP are comprised of 3,460,826.8 ha area, which is 14.30% of the total state area, divided into different CLR categories (Table 34.2) varying in size from 0.28% (pastures and grazing land) to 6.98% (forest).

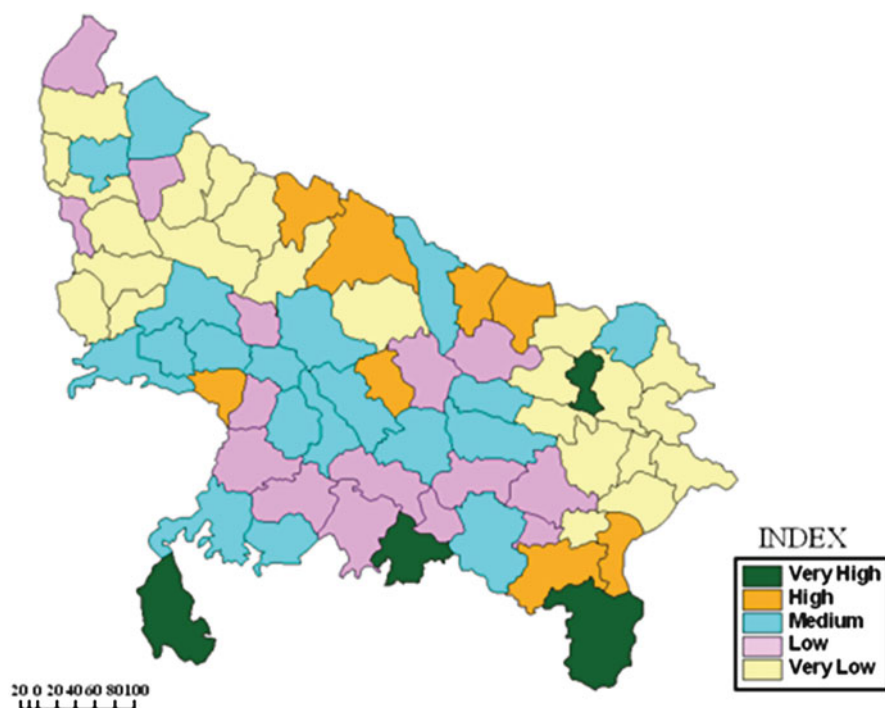
34.3.1 Spatial Distribution of Common Land Resources

The CLRs in 70 districts of UP vary from 2.07% in Moradabad district to 59.09% in Sonbhadra district. The CLR difference is being due to difference in physiography, land use pattern, population and urbanization. The spatial distribution of CLRs in

Table 34.2 Share of different categories of common land resources in Uttar Pradesh (2001)

Category	Area (ha)	Percentage of total area of UP
Forest	1,689,270.7	6.98
Barren and unculturable	575,997.74	2.38
Culturable wasteland	498,552.67	2.06
Pasture and grazing land	67,764.44	0.28
Other fallow land	629,241.24	2.60
Total CLR	3,460,826.79	14.30
Total area of UP	24,201,586.00	100.00

Source: State Land Use Board, Uttar Pradesh, Lucknow (2005)

**Fig. 34.3** Common land resources of Uttar Pradesh (2005)

different districts and the number of districts in different categories are shown in Fig. 34.3 and Table 34.3, showing largest number of districts in the north-western and eastern part falling in very low category (24 districts). The western and eastern parts are formed from fertile alluvium and have dense population. Thus, most of the forests and grazing lands have been cleared for agriculture or urbanization. There are 15 districts under the low category, generally lying in the south-central part of UP. The next largest share is the medium category with 19 districts mostly located in the central part of the state. This region has a large share of barren and uncultivable land, culturable wasteland and other fallow land. The numbers of districts in high and very

Table 34.3 Number of districts under different category and share of CLRs

Category	Range (share of CLRs to total area)	No. of districts
Very high	(37.05–64.05)	04
High	(18.74–37.05)	08
Medium	(11.41–18.74)	19
Low	(7.94–11.41)	15
Very low	(0–7.94)	24
Total		70

Source: Directorate of Statistics and Economics, Uttar Pradesh, Lucknow

high categories are 8 and 4, respectively. The districts under high category lie mostly in the northern part of the state, whereas those in very high categories are in the southern part of the state which forms the part of the Vindhya Hills and plateau.

34.3.2 Temporal Change in Common Land Resources

The CLRs in the UP are changing continuously. The forest cover and the pastures are continuously decreasing at a fast rate; however, the change in uncultivable land, fallow land and the cultivable wasteland has been observed at different rates. Thus, the CLRs are in a dynamic state.

To investigate the temporal change in CLRs, their spatial distribution was analysed for the years 1995 and 2005. The share of CLRs in UP during 1995 was 14.88% which decreased to 14.30% in 2005. Thus, a decline of 20,765 ha has taken place. The share of CLRs during 2005 among various districts varied between 4.12% (Deoria district) to 64.06% (Sonbhadr district) in 1995 (Fig. 34.4). The data revealed a decrease in the CLRs. A variation recorded in the number of districts under various categories in 1995 and 2005. There is a shift in the number of districts from very high and high categories to medium and from low to very low categories (Fig. 34.5).

Further analysis of the district wise decadal change in CLRs was made, and an increase of CLRs in only seven districts was observed, in others CLRs declined. The increase (Muzaffarnagar and Maharajganj districts) was due to the increase of barren and unculturable land area and creation of new districts (Ambedkar Nagar and Baghpat). In other districts, the increase in barren and unculturable land, culturable wasteland and fallow land is the main reason of CLR increase.

The significant decrease in CLRs is recorded in Moradabad (–68.52%), Gorakhpur (–53.69%), Varanasi (–75.07%), Saharanpur (–44.56%) and Gonda (–45.98%) districts; this is due to the increase in population and urbanization, the high price of land in the National Capital Region being the reason of agricultural land transformation to urbanization, industry and even to institutional area and other factors being decrease in pastures, uneconomic animal rearing, and low economic return from agricultural practices, leading to investment in other sectors and selling of land for nonagricultural purposes.

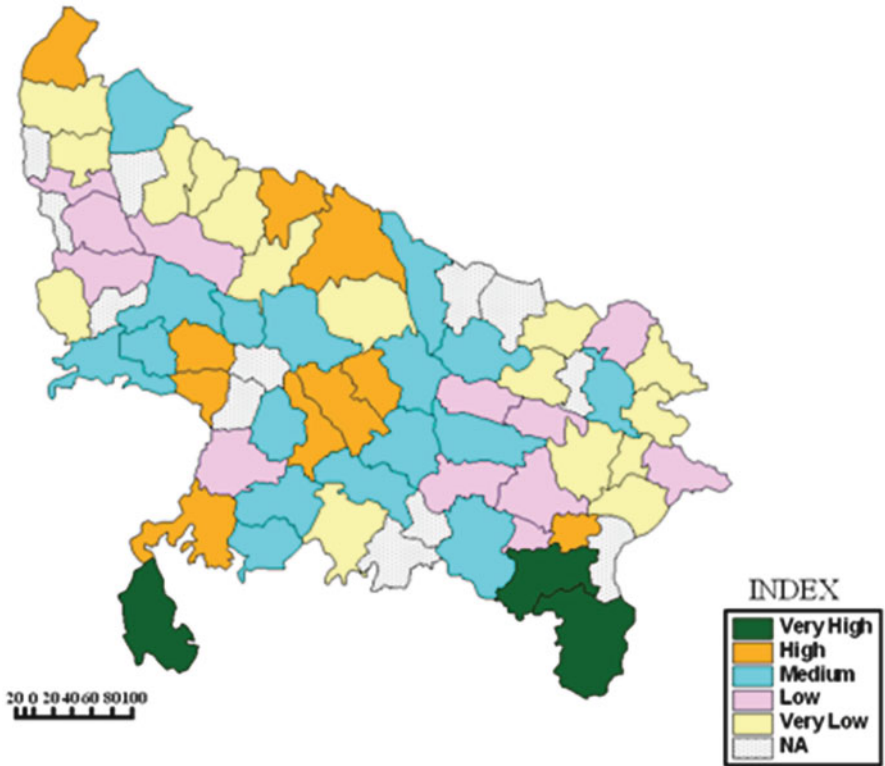


Fig. 34.4 Common land resources of Uttar Pradesh (1995)

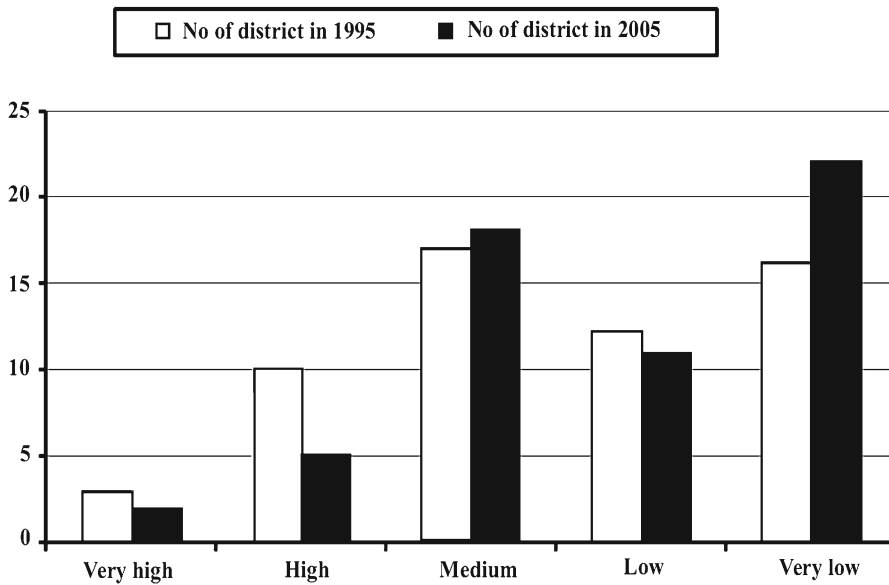


Fig. 34.5 Categorical change in the districts of Uttar Pradesh (1995–2005)

Table 34.4 Landholding wise share of total respondents using CLR

Category	Size of landholding (ha)	Respondents		Respondents using common land resources	
		Number	Percent	Number	Percent
Landless	–	55	36.67	44	38.26
Marginal	<1	73	48.67	62	53.91
Small	1–2	14	9.33	6	5.22
Medium	2–10	8	5.33	3	2.61
Total	–	150	100.00	115	100.00

34.3.3 Socio-economic Profile of the Respondents

The respondents include Bhartiya, Brahman, Chamar, Khurmi, Lohar, Madari, Nai, Pasi and Muslims. The largest share being of Khurmi (15.00%) followed by Muslims (13.97%) and Brahman (11.02%). The respondents have joint family system and variable family size (3–14 persons). People are generally illiterate and not inclined to education for earning money. Thus, the educated are not interested to live in village, but prefer to work as office clerks or teachers to supplement income from agriculture. The landless are engaged in rickshaw pulling (taxi driver), labour, agricultural labour, private business and shopkeeping, etc.

The families with more than 10 members have 3–4 earners, and the families with 10–15 persons have 5–6 earners. The families with very large landholdings enjoy the benefits of agricultural mechanization, and sufficient income is generated from very large landholdings; thus, there is no social or economic pressure on other family members.

34.3.3.1 Size of Landholding

Table 34.4 illustrates the status of landholdings by 150 respondents. Only 95 (63.33%) respondents have landholdings, others are landless, and 115 (76.67%) were actually using the CLRs of different sizes. Of 115 households using CLRs, the largest share was of marginal farmers (53.91%) followed by the landless people (38.26%) and small category (5.22%). A continuous decrease in the total number of households with the increase in the size of landholdings was observed (Table 34.4).

34.4 Utilization Mode of Common Land Resources

The respondents were using CLRs in various ways, the most common being grazing and pastureland (92.17%) followed by crop cultivation (78.26%) and other uses (77.39%). The CLRs were also used for agroforestry and as manure pits, cemeteries, storage grounds, playgrounds, temporary construction of sheds for animals, storage of fodder and agricultural produce, etc. (Table 34.5).

Table 34.5 Landholding wise share of the Respondents under various modes of Common Land Utilization

Category of landholders	Respondents using CLR	Number of respondents utilizing common land resources under different modes			
		Grazing/pasture	Agroforestry	Crop cultivation	Other
Landless	44 (38.26)	44 (41.51)	12 (29.27)	36 (40.00)	36 (40.45)
Marginal	62 (53.91)	55 (51.89)	23 (56.10)	51 (56.67)	48 (53.93)
Small	6 (5.22)	6 (5.66)	5 (12.20)	3 (3.33)	3 (3.37)
Medium	3 (2.61)	1 (0.94)	1 (2.44)	0 (0.00)	2 (2.25)
Total	115 (100.00)	106 (92.17)	41 (35.65)	90 (78.26)	89 (77.39)

Source: The figures in bracket shows percentage

34.4.1 *Grazing and Pastures*

This is most common use by 92.17% respondents. This mode is widely practised among all categories of CLR users. The landless people and all landholders especially marginal and small farmers generally keep cows and buffaloes for agricultural, domestic and business purposes. The landless people depending upon drought animals generally utilize the CLRs as grazing and pasture land.

34.4.2 *Crop Cultivation*

Crop cultivation is next important use of CLRs (78.26%) among the total modes of utilization of common land resources. These lands are either Gram Smaaj land or surplus land acquired during land ceiling act. This land is sometimes given on lease by village administrative bodies to the landless villagers for a fixed period of time; often, the land is grabbed by rich and politically influential farmers, should it occur adjacent to their agricultural fields. If such land is taken by rich farmer, these CLRs are very well utilized with high inputs. The marginal (56.67%) farmers are the largest beneficiaries from this mode of CLR utilization.

34.4.3 *Other Uses*

The miscellaneous uses of CLRs are housing, poultry farms, playgrounds, quarrying and resting grounds for animals. The proper use of CLRs can provide many socio-economic benefits.

34.4.4 Agroforestry

About 35.65% respondents use CLRs for agroforestry. There are two types of agroforestry: (1) planting eucalyptus or Babool trees around the cultivated areas as shelter belts and as source of fuelwood and fodder, and (2) plantation of fruit trees on the borders of agricultural fields, providing timber, small quantity of fuelwood and fruits.

34.5 Problems in CLR Management

The role of CLRs in providing economic benefits to landless people, small and marginal farmers, is evident. There is a need for optimum use of CLRs for improving livelihood; however, there are many major constraints as described below:

Open access: The CLRs due to open access to all lead to the problem of their preservation and management.

Lack of suitable laws: Lack of laws for those who degrade or misuse the CLRs. The government should take action against those doing undue activities and rampant use.

Awareness among masses: The people are unaware of the environmental problems caused due to soil resources degradation and depletion, and the processes and factors causing loss of land resource.

Lack of participation by local people: The lack of people interest has adversely affected many government schemes of land reclamation, afforestation and soil conservation.

Social injustice: The CLRs are not given to the needy people and often encroached by the wealthy and large farmers who hardly care for these resources.

Political problems: There are many political issues related to the allotment, management and control of the CLRs. Thus, the proper management is lacking.

34.6 Conclusion and Recommendations

Considering the present situation, the urgent need to preserve and manage CLRs and to address associated problems following recommendations are made. A 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 situation. There is an urgent need to formulate laws to 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, and the landless people should be allotted

these lands for a small period of time. The local people should be involved for protection of forests and pastures by giving some incentives. Agroforestry should be encouraged as modes of CLR utilization to protect them from depletion.

References

- Berkes F (1989) The benefits of the commons. *Nature* 340:91–93
- Burges J, Gochfield M (1998) The tragedy of the commons thirty years later. *Environment* 40:4–27
- Census of India (2011) Provisional population totals. Office of the Registrar General and Census Commissioner, India, Ministry of Home Affairs, 31 Mar 2011
- District Statistical Booklet, Allahabad 2005 and 1995. Directorate of Statistics and Economics, Lucknow, Uttar Pradesh
- Hardin G (1968) The tragedy of the commons. *Science* 162:1243–1248
- Mohammad N (1981) Perspective in agricultural geography-framework for agriculture, vol 3. Concept Publications, New Delhi
- Munir A, Salman MS, Toufique M (2008) Impact of common land resources on the livelihood of landless, small and marginal farmers: a study of Allahabad district. *The Geographer* 55(2):1–15
- Sharma PR (1984) Resource: its concept, classification and appraisal. In: Rameah A (ed) *Resource geography*. Heritage Publishers, New Delhi
- Singh K (1994) *Managing common pool resources*. Oxford University Press, New Delhi
- State Land Use Board (2005) Department of planning. Government of Uttar Pradesh, Lucknow