

Common Property Resources and Its Linkages with Agriculture: A Study of Lakhimpur Kheri District in Uttar Pradesh

Jai Prakash Verma*¹

Abstract

CPRs are important not only in the lives of the rural poor but also in general rural development. CPRs not only provide money and jobs to rural impoverished people, but also provide as a safety net during agricultural disasters. Common land resources are the main source of rural poverty. Rural populations, especially the poor, rely largely on common property land resources for their existence. In addition to village pastures, the fact that so many people rely on CPRs for physical and intangible services raises concerns about its long-term viability. Second, biotic pressures such as population, livestock, and human-caused problems have all had an impact on the carrying capacity and sustainability of natural resources. Industrialisation and resource nationalisation have also harmed natural resources. This brings us to long-term growth. Creating large-scale sustainable livelihoods is one of the main priorities of emerging countries. Modernization, uncontrolled development, colonialism, and rapid economic growth have badly damaged natural resources, resulting in huge destruction in India. This loss of natural assets currently hinders economic ability to meet the ever-increasing requirements of their populations. CPRs have strong linkages with agriculture and livelihood development. Present paper purports to examine the accessibility of land based CPRs, their linkages with agriculture and livelihood development. The paper is based on primary data collected through field survey in tribal concentrated areas of Lakhimpur Kheri of Uttar Pradesh.

Keywords: Common property resources, Livelihood development, Natural resources, Livestock, Rural poverty

Date of Submission: 20-06-2022

Date of Acceptance: 03-07-2022

I. Introduction:

Common Property Resources (CPRs) are natural resources belonging to every community that each member can access purposefully with specified obligations since no one can have exclusive ownership rights over them (Jodha, 1986). Common property resources are those that are shared by a community and in which no single person has exclusive ownership rights. The community may have formal ownership rights or basic user rights. Watershed drainage, ponds, tanks, rivers, rivulets, water reservoirs, canals and irrigation channels are all part of CPRs in India (NSSO, 1999). CPRs are vital to rural areas and traditional human settlements, aids in economic, cultural and social advancement. A resource is said to be common or collectively managed if its users establish a group and create rules and regulations excluding non-members from using it (Arnold, 1993). CPRs can be used in three property rights regimes: open access, communal, and state. Open access properties are non-exclusive and non-transferable. Because rights are shared, everyone has access to them. Communal property user rights belong to a group or community (Mitra, 2020). These are not privately owned or managed. The community owns, maintains, and oversees these resources, as well as their use. The State or nation owns or manages the resources in State property. These are public resources with no established access or usage permissions (Topal, 2015)..

CPRs provide rural residents with food, fuel, small timber, mulch, manure, fruits, medicinal herbs, and other requirements. CPRs also help avoid soil erosion, deforestation, and siltation. In addition to cash and job opportunities, common property resource-based activities benefits rural communities (Beck 1994). Common property resources also provide vital biomass services like fuel and fodder, as well as supplementary

¹Assistant Professor, Department of Economics, Netaji Subhash Chandra Bose Govt. Girls Post Graduate College, Lucknow Uttar Pradesh, (India)

E-mail: jaydc2012@gmail.com

*Corresponding Author

E-mail: jaydc2012@gmail.com

occupations like animal husbandry, dairying, and modest forest product gathering. As a result, common property resources can improve rural poor livelihoods. CPRs (common property resources) are common in rural India. Forests and water resources have always been important CPRs in rural India. The landless, which are usually the poorest and most vulnerable, rely heavily on common property resources. The CPRs are often the poorest's only source of food and income. During periods of low agricultural output or periodic food shortages, CPRs help to ensure rural household food security by providing an alternative source of income. Village institutions set standards and constraints for obtaining CPRs, ensuring that the resources are fully utilized. Common property resources are slowly disappearing as natural resources are used and rural institutional processes erode, endangering the rural economy and household food security (Mitra, 2020). Rural populations rely on CPR goods for work and income, especially when other opportunities are limited (Jodha, 1990). Well-managed CPRs benefit local people's long-term livelihoods. It allows people to diversify their income and hence improve their living situations. CPRs support communities in three ways: by providing fuel and feed, by providing income, and by providing capital goods or savings that may be cut and cashed to cover unexpected expenses. Inaccessible or damaged forests, CPRs, and loss of forest cover would negatively affect the poor's life (Chambers, Saxena and Shah, 1991). Woody plants and animals provide a variety of food for rural communities. They can eat these goods all year round and meet their nutritional demands. It also serves as a food safety net in case of seasonal food shortages, low agricultural output, crop loss, or natural calamities. CPRs are vital in providing the villagers' wood needs. Many village houses still use biomass for cooking. Livestock is prized in rural homes. Landless people, often the lowest of the poor, keep cattle and rely entirely on it for their livelihood. It is a secondary source of income for many households. Having access to pasture or community grazing area ensures grass for the livestock. Without CPR fodder and feed supplies, users would have to convert large areas of agricultural land from food and cash crops to cow fodder/feed production, or reduce their cattle herd size (Jodha, 1990). The CPRs are decreasing due to resource deterioration and misuse, and they currently do not deliver significant returns to communities. Globalization has opened the market, putting pressure on the country's natural resources (forest, water, minerals, and land). Land is purchased for industrial reasons, displacing local and indigenous communities. This affects rural communities' individual and common property rights. During industrialization, communities lose ownership of these resources to the state. Privatisation has harmed tribal people in India. They've always been close to nature, and natural resources are significantly more valuable to tribal people than anything else. These materials shape their lives and civilizations. Alienation and exclusion from CPRs impact food and livelihood security, as well as socio-cultural sustainability (Behera & Basar, 2014). Displacement causes loss of social capital, including social integration, culture, community life, and involvement. Certainly, industrialization is required for the country's economic growth, but not at the expense of the country's tremendous natural resources.

Common land resources are the main source of rural poverty. Rural populations, especially the poor, rely largely on common property land resources for their existence. In addition to village pastures, CPRs cover protected and unclassified government forests, wasteland, common threshing grounds and watershed drainage (NSSO, 54th Round). Although the common property land resources have continuously degraded due to factors such as population growth, economic hardship, privatization/commercialization, market pressures, state involvement, and most importantly, local elite invasion, Poverty is still a major issue today. The government's strategies did not work as intended. A multi-pronged strategy is essential to address poverty's multi-dimensionality, as poverty calculus differs throughout locations and time, regardless of social classifications. The link between livelihood security and poverty dynamics is a common theme in the literature. Few studies have examined the relationship between poverty and the use of Common Property Resources (CPRs). Theoretical and empirical study on CPRs management and poverty alleviation are scarce. The ongoing decrease of CPRs due to a lack of institutional procedures to preserve them has led in growing deprivation of the poor, it is asserted. Degradation of the state's forests has hampered local communities' access to vital supplies. Among them are timber and non-timber forest products for direct use and profit. The forest's ability to provide local ecological services (such as drinking and irrigation water, as well as fertiliser to hills farms and shifting cultivation regions) has also declined, limiting rural households' livelihood options. In addition to poverty, forest degradation has intensified economic inequality and misery among hill women. However, forest regeneration is achievable if concerned stakeholders work together to decentralise forest management to local people. The fact that so many people rely on CPRs for physical and intangible services raises concerns about its long-term viability. Second, biotic pressures such as population, livestock, and human-caused problems have all had an impact on the carrying capacity and sustainability of natural resources. Industrialisation and resource nationalisation have also harmed natural resources. This brings us to long-term growth. In 1987, the World Commission on Environment and Development published "Our Common Future" defining sustainable progress as "development that meets current demands without jeopardising future generations' ability to meet their own". As a result, maintaining CPRs in the current era is vital for our generation and future generations. CPRs can provide flows or other resources. This is crucial in promoting their long-term use. In India, they are mostly

wastelands, biodiversity hotspots, forests, fisheries, NTFPs, and water systems. Because CPRs are part of natural resource systems, they must be managed sustainably. The first worry is the efficiency and profitability of resource management under alternative property regimes, considering the close relationship between CPRs and livelihoods (Kadekodi 2004). CPRs-livelihood links are special in that they relate to the current generation's needs, as well as their quality of life. According to Jodha's (1986) famous study of seven states and 20 districts in India, the rural poor depended on common property resources for fuel, fodder and food, while rich farmers depended on them only 20 percent (except in Rajasthan's very dry villages), and a middle class of farm households depended on them more than the rich. Rural poverty and the failure of poor-focused development strategies are connected. The status and productivity of common property resources so directly affect the rural poor's economy. Thus, changes in ownership, reduced area and lower quality of produce directly influenced the income of impoverished households who benefited from commons such NTFPs collecting, fodder and fuel wood. Privatisation and the decrease of commons added to household costs, disproportionately affecting the poor. For example, potters used to get mud from the CPRs, but after privatisation, they had to rely on landowners or pay for it. Increased pressure from market-oriented land, water, and forest privatisation policies led to overexploitation and degradation of CPRs. Their bodily decline is obvious, but quantification is difficult due to a lack of comparative data. Case studies and close monitoring provide the necessary details. Physical depletion causes a reduction in available items and their yields. The lack of effective CPRs management under the panchayati system, which took charge of CPRs in the neighbouring villages in the new government setup, led the drop in product quality (Jodha, 1992). Traditional management has stalled, contributing to degradation. Traditional institutions with hereditary leadership patterns were replaced with Panchayati Raj Institutions (PRI) or administrative systems like Joint Forest Management or irrigation committees since they did not always adhere to democratic norms. Traditional leaders refused to participate in the new process, while new leaders lacked the abilities to manage resources collaboratively and effectively, leading to degradation and decline. Government activity until 1990 changed CPRs ownership and administration, and decreased local engagement reduced resource monitoring and protection. Second, the new system's sanctions and conflict resolution framework allowed free-riders to depart, making CPRs public. Reduced land and water CPRs areas, inadequate management, and reduced carrying capacity reduced product availability for people who relied on those common property resources. Given the rural poor's reliance on these resources, their loss is a clear step toward increased poverty. The prior decades of growth and Jodha's (1986) work on their impact on CPRs prepared the stage for participatory management in 1990. The vicious circle of poverty and resource degradation reinforced each other, presenting chances for sustainable management of CPRs to solve poverty issues, which are at the basis of the development planning process.

Changing Land Use Pattern:

Climate, soil type, topography, water resources, and irrigation infrastructure were integrated into agro-climatic regional planning to improve resource utilisation (Pangare, et. al., 2006). In addition, the country is divided into 15 agro-climatic zones and 73 sub-regions. Uttar Pradesh has nine agricultural climatic zones. The Indo-Gangatic plains cover nearly half of Uttar Pradesh. It encompasses the entire western half of the country. Canals used to water most of the region's districts. The Ganga-Yamuna Doab encompasses Awadh, Kanpur, Fatehpur and Allahabad. The terrain was once thought to be fertile and well-cultivated. The state's eastern territory floods frequently, while the southern region, which includes Mirzapur, Sonbhadra, sections of Allahabad, and Bundelkhand, dries out. Uttar Pradesh's land use has changed dramatically in recent decades. Between 1990-91 and 2017-18, the state's common property land resources area and ratio dropped. It has policy implications and has harmed the poor, disadvantaged, and weaker sectors' lives by restricting their access to and use of common land resources. Changes in forest cover and other green areas harm ecosystems and ecology. Natural resource depletion is directly connected to migration. Indeed, overexploitation of natural resources, especially in rural areas, causes distress migration. This link has been widely studied from both an economic and ecological perspective.

Common property resources include forest, rubbish, and non-agricultural land. The forest cover has shrunk in the Vindhya, Eastern Plain, Bundelkhand, and South Western Dry Plain zones. However, it has increased dramatically in the Tarai, Bhavar, and North Eastern and Western Plain zones. Similarly, waste land has grown rapidly in the Eastern, Western, Vindhya, and Central Zones. However, it has declined in the Tarai, Bhavar, Bundelkhand, and North Eastern zones. The area under forest cover has expanded significantly in the Tarai and Bhavar zones, the North Eastern Zone, and the Western Plain zone, whereas the area under non-agricultural uses has increased significantly in all of the state's agro climatic zones. Negative growth has been observed in areas that are barren and uncultivable. Similarly, culturable waste land experienced negative growth from 2001 to 2015. In the Bundelkhand zone, Vindhya zone, and South-Western Dry Plain zone, the area used for diverse purposes, trees, and groves has increased significantly. In the Vindhya zone, the amount of fallow and present fallow land has increased significantly.

II. Review of Literature:

According to 1999 National Sample Survey Organization research on the importance of land, water, and forest commons in rural Indians' lives and economics, CPRs offer up to 58 percent of firewood and 25 percent of feed needs. It also demonstrates that CPRs lands in rural India have declined by almost 2 percent in five years (Goswami, 2011). Because poor people rely on forest resources, deforestation increases poverty. Rural residents derive most of their income from private and public property. Rural residents' earnings decline when common property resources dwindle, compelling them to seek jobs in adjacent cities. As a result, degradation of common property resources, poverty, and migration are linked (Mahanta and Das, 2012; Suresh et al., 2010). The Central Plateau and Hills, Eastern Plateau and Hills, Southern Plateau and Hills, and Middle Gangetic Plains have all seen the greatest loss of forest and grazing land in India (Menon and Vadivelu, 2006). As a result, the research area (Gondia) is shrinking. These include common pastures, forests, wastelands, dumping and threshing sites, watershed drainage, village ponds, rivers and their banks and beds (Gowda and Savadatti, 2004). Unlike open access resources, which are utilised by anybody without regard for property rights, CPRs are exclusive to the defined community. The resources have two broad characteristics. For starters, preventing potential beneficiaries from using them would be prohibitively costly. In addition, the use of one user influences the availability of resources for others. These two characteristics necessitate collaboration among the resource's beneficiaries. Despite the fact that over 75 billion Indians survive off CPRs (Pradhan and Patra, 2011), land use planning in CPRs has been largely overlooked due to the protected nature of these resources, which forbids any change in land use (forests) or features (as in case of village ponds, common grazing land). In practise, each society has its own local resource management system based on users' expertise and experience (Adhikari, 2004). However, greater CPRs use for livelihood security requires better land use planning. In actuality, many of these CPRs have a big impact on land use decisions. Systematic CPRs research and use can significantly enhance people's lives, especially in developing nations.

Boserup (1970) contends that pre-industrial agriculture shaped gender roles and ultimately defined male resource management. And it gave rise to cultural views and practises about property rights that exist today, especially in less evolved cultures. According to Alesina et al. (2013), existing inequalities in gender attitudes and female behavior are based in traditional farming practices. Other examples indicate how women earned property rights due to their comparative advantages in labour specialization. Agarwal (1994) explains the previous female-biased system within the Garos ethnic group in northeastern India by the fact that women were heavily involved in grain cultivation and forest harvesting. Similarly, Fleck and Hanssen (2009) found that ancient Sparta's private land inheritance system paralleled occupational specialization. However, as Humphries (1987) points out, the demand for human muscle power in pre-industrial cultures declined following the industrial revolution, making the biological argument less relevant in some cases. Thus, cultural attitudes may better explain sexual differences. Property rights discrimination can be de jure or de facto. Women's access to resources for domestic production and reproduction outnumbers their control over these resources (Meinzen-Dick et al., 1997). Soliciting land from their husbands or dads is common in many traditional communities. Female land ownership is considered as a productivity-enhancing element (Agarwal, 1994). According to Lastarria-Cornhiel (1997), ensuring women's land rights was and is crucial to promoting long-term land investment and consequently agricultural output and development. According to Geddes and Lueck (2002), women's incapacity to own and control property leads to inefficient effort, which grows with money. Inheritance is still the most prevalent means to acquire property control, especially in Africa. Sadly, women's land inheritance rights are frequently denied, citing the husband's family's eventual dominance (Lastarria-Cornhiel, 1997).

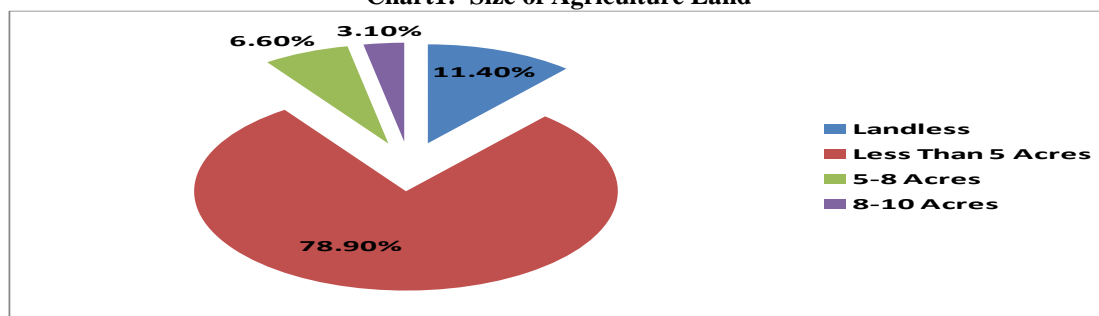
III. Objectives and Research Methods:

Present paper purports to examine the accessibility of land based CPRs , their linkages with agriculture and livelihood development . The paper is based on a major research study conducted by the author of the paper. The paper is based on mainly primary data collected through field survey in Pallia development block of Lakhimpur kheri of Uttar Pradesh. Overall, 351 Tharu households were randomly selected for field suvey. The field survey was conducted with help of structured interview schedule . The data has been processed and tabulated with the help of SPSS besides relevant statistical tools were used for drawing out inferences and results.

IV. Discussion of Results:

Size of agriculture land is shown in Chart 1. About 11 per cent respondents were landless. It was found more pronouncing in North Sonaripur (15.6 per cent). About 80 per cent respondents reported that they have landholdings less than 5 acres. Thus, about 10 per cent respondents had medium and large landholdings. The size of landholdings was recorded high in Dudhwa forest range.

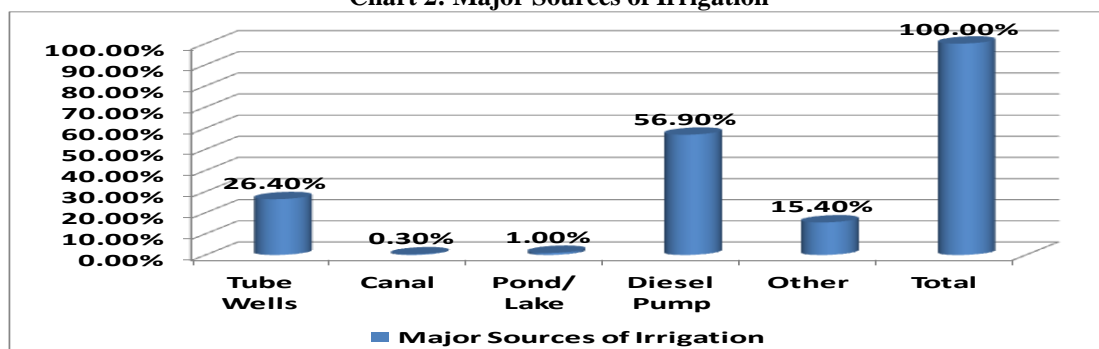
Chart1: Size of Agriculture Land



Source: Field Survey

The respondents were asked that whether they have orchard of mango, guava, leechi, etc. Majority of the respondents reported that they own orchard of mango, guava and leechi. It was found more pronouncing in North Sonaripur (80.9 per cent). The overwhelming majority of respondents revealed that they are cultivating their agriculture land through tractor. It was found more pronouncing in Bankati and Dudhwa forest range as compared to North Sonaripur forest range. However, 21 per cent respondents are still depending on bullock pairs for cultivation. . About 57 per cent respondents revealed that diesel pump is the major source of irrigation. It was found more pronouncing in Dudhwa forest range (69.9 per cent). However, about 2/5th respondents in North Sonaripur reported that they are depends on tube wells for irrigation of crop land (Chart2). .

Chart 2: Major Sources of Irrigation

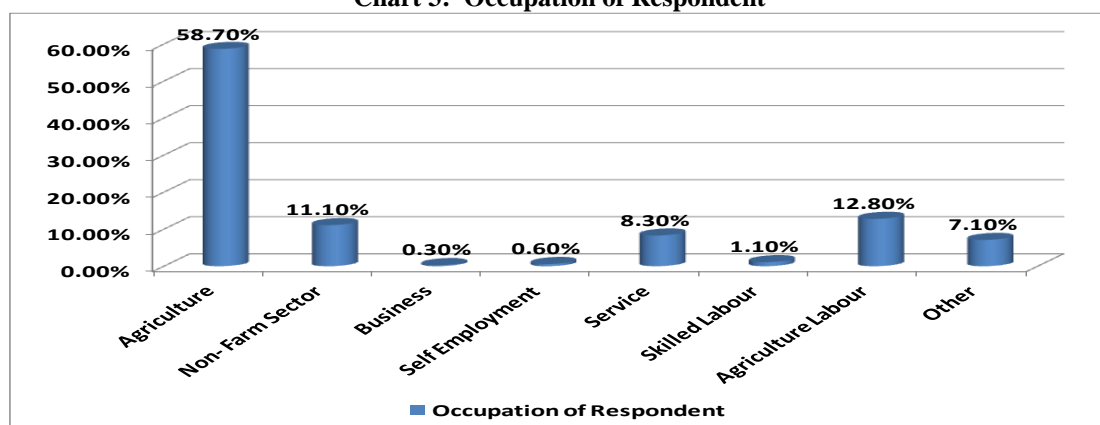


Source: Field Survey

The respondents were asked that whether traditional cropping pattern has changed due to climate change. About 57 per cent respondents reported that traditional cropping pattern has changed due to climate change. It was found more pronouncing in North Sonaripur (63.8 per cent) . The respondents were asked that whether they use sprinkle /drip irrigation system. Most of respondents reported that they are not using sprinkle/ drip irrigation system as plenty of water resources are available in the area. The respondents were asked that whether they grow commercial and high valued crops. Slightly more than 1/4th respondents reported that they are growing commercial and high valued crops. It was reported slightly high in Dudhwa forest range (31.4 per cent). The respondents were asked that whether they practice organic farming. Most of the respondents reported that they are not practicing organic farming. However, they are still using organic manure in their crop land. The respondents were asked that whether they use traditional variety of seeds for crops. Slightly less than 2/5th respondents reported that they are using traditional variety of seeds for agriculture crops. It was found more pronouncing in North Sonaripur forest range as compared to other forest ranges. About 20 per cent respondents reported that they have compost pit for preparing of organic manure. It was found more pronouncing in Dudhwa forest range (30.6 per cent) .

Majority of the respondents reported that their occupation is agriculture and agriculture labour. Agriculture as occupation was recorded high in Dudhwa forest range (71.1 per cent) while agriculture labour as occupation was recorded high in North Sonaripur. About 11 per cent respondents further reported that they had occupation in non-form sector while about 8 per cent respondents reported that they are in service (Chart 3). .

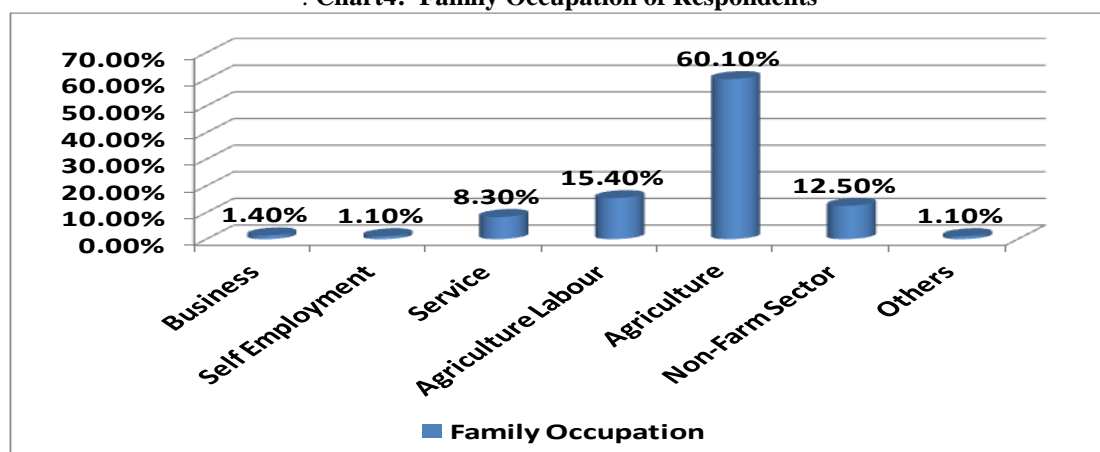
Chart 3: Occupation of Respondent



Source: Field Survey

About 60 per cent respondents reported that their family occupation is agriculture. It was found more pronouncing in North Sonaripur (64.5 per cent). About 12 per cent respondents further reported that their family occupation is non-farm sector while about 8 per cent respondents reported that their family occupation is service (Chart 4).

Chart4: Family Occupation of Respondents



Source: Field Survey

Most of respondents had no access to NTFP, tendu leaves, seeds, plants, manure, and water from river for irrigation, washing of clothes, herbs and medicinal plants and mahuwa flowers/seeds. However, accessibility for common property resources to some extent reported mainly for forest produce, fuel woods, timber, fishing and aquatic resources, fire wood and raw materials for cottage industries as well as water for irrigation from pond/lake. Majority of respondents reported that they collect common property resources occasionally and sometimes mainly for forest produce, fuel wood, wire wood, timber, bamboo, fishing and aquatic resources, water for irrigation and grazing of livestock. However, NTFPs, herbs and medicinal plants, raw materials for cottage industries, manure, seeds, and water from river for irrigation of crop land and mahuwa flowers/seeds are never collected by the local people.

Collection of common resources for agriculture is shown in Table 1. Most of respondents reported that they never collect plants and seeds for agriculture purposes. However, majority of respondents reported that they occasionally and sometime collect wood for agriculture implements, water for irrigation and manure for agriculture. More than half of the respondents reported that they collect fodder for draught animals occasionally and sometimes.

Table1: Collection of Common Resources for Agriculture

Particulars	Always	Sometimes	Occasionally	Never	Total
Wood For Agricultural Implements	67 19.1%	65 18.5%	193 55.0%	26 7.4%	351 100.0%
Water For Irrigation	20	124	143	64	351

	5.7%	35.3%	40.7%	18.2%	100.0%
Fodder For Draught Animals	29	53	134	135	351
	8.3%	15.1%	38.2%	38.5%	100.0%
Manure For Agriculture	35	91	95	130	351
	10.0%	25.9%	27.1%	37.0%	100.0%
Plants And Seeds	0	5	26	320	351
	0.0%	1.4%	7.4%	91.2%	100.0%
Other	0	6	22	323	351
	0.0%	1.7%	6.3%	92.0%	100.0%

Source: Field Survey.=

The respondents were asked that whether agricultural risks have affected common property resources. The overwhelming majority of respondents were found agreed and strongly agreed on the view point that agriculture risk have affected common property resources mainly in terms of reclamation of sodic land, fragmentation of land, distribution of surplus land, climate change, increase pollution, development of barren / fallow land, distribution of gram samaj land, change of land use, reduction in agricultural productivity, soil erosion, change in water logging/flood affected area and decrease in rainfed agriculture (Table 2).

Table2: Whether Agricultural Risks Have Affected Common Property Resources

Particulars	Strongly Agree	Agree	Do Not Agree	Strongly Disagree	Total
Reclamation Of Sodic Land	117	196	38	0	351
	33.3%	55.8%	10.8%	0.0%	100.0%
Development Of Barren / Fallow Land	102	205	44	0	351
	29.1%	58.4%	12.5%	0.0%	100.0%
Distribution Of Surplus Land	153	173	20	5	351
	43.6%	49.3%	5.7%	1.4%	100.0%
Redistribution Of Gram Samaj Land	130	179	39	3	351
	37.0%	51.0%	11.1%	0.9%	100.0%
Change Of Land Use	126	168	52	5	351
	35.9%	47.9%	14.8%	1.4%	100.0%
Fragmentation Of Land	140	173	34	4	351
	39.9%	49.3%	9.7%	1.1%	100.0%
Reduction In Agricultural Productivity	120	187	41	3	351
	34.2%	53.3%	11.7%	0.9%	100.0%
Soil Erosion	100	185	62	4	351
	28.5%	52.7%	17.7%	1.1%	100.0%
Change In Water Logging / Flood Affected Area	119	191	35	6	351
	33.9%	54.4%	10.0%	1.7%	100.0%
Decrease In Rainfed Agriculture	120	178	45	8	351
	34.2%	50.7%	12.8%	2.3%	100.0%
Climate Change	127	193	29	2	351
	36.2%	55.0%	8.3%	0.6%	100.0%
Increased Pollution	110	208	29	4	351
	31.3%	59.3%	8.3%	1.1%	100.0%
Other	93	224	31	3	351
	26.5%	63.8%	8.8%	0.9%	100.0%

Source: Field Survey.

The size of agriculture land-wise distribution by accessibility level of CPRs is given in the table. The chi-square test has been applied to test the relation between the size of agriculture land and the accessibility level of CPRs. The value of chi-square has been found not significant at the desired level of significance. It can be concluded that there is no relation between the size of agriculture land and the accessibility level of CPRs (Table 3).

Table3: Size of Agriculture Land Wise Accessibility Level To CPRs

Size of agriculture land	Accessibility Level to CPRs			Total
	Low	Medium	High	
Landless	6	16	18	40
	15.0%	40.0%	45.0%	100.0%
Less than 5 Acres	23	143	111	277
	8.3%	51.6%	40.1%	100.0%
5-8 Acres	1	13	9	23
	4.3%	56.5%	39.1%	100.0%
8-10 Acres	1	7	3	11
	9.1%	63.6%	27.3%	100.0%
Total	31	179	141	351
	8.8%	51.0%	40.2%	100.0%
Chi-Square Test	4.482 ^{NS}			

NS indicates the value is not significant at the desired level of significance

Source: Field Survey

The size of agriculture land wise distribution by the perception level of the respondent about environmental degradation is given in the table. The chi-square test has been applied to test the relation between the Size of agricultural land and the perception level of the respondent about environmental degradation. The value of chi-square has been found significant at 5% level of significance. It can be concluded that there is a significant relationship between the Size of agriculture land and the perception level of the respondent about environmental degradation level (Table 4).

Table 4: Size of Agriculture Land Wise Environmental Degradation Level

Size Of Agriculture Land	Perception Level Of Environmental Degradation			Total
	Low	Medium	High	
Landless	13	22	5	40
	32.5%	55.0%	12.5%	100.0%
Less than 5 Acres	41	171	65	277
	14.8%	61.7%	23.5%	100.0%
5-8 Acres	1	19	3	23
	4.3%	82.6%	13.0%	100.0%
8-10 Acres	0	7	4	11
	0.0%	63.6%	36.4%	100.0%
Total	55	219	77	351
	15.7%	62.4%	21.9%	100.0%
Chi-Square Test	16.640*			

* indicates the value is significant at the 5% level of significance.

Source: Field Survey

The size of agriculture land wise distribution by the perception level of the respondent about agricultural risks affected the CPRs is given in the table. The chi-square test has been applied to test the relation between the Size of agricultural land of the respondents and the perception level of the respondents about agricultural risks affected the CPRs. The value of chi-square has not been found significant at the desired level of significance. It can be concluded that there is no significant relationship between the size of agriculture land of the respondents and the perception level of the respondents about agricultural risks affected the CPRs (Table 5).

Table 5: Size Of Agriculture Land Wise Agricultural Risks Affected CPRs Level

Size of agriculture land	Perception Level About Agricultural Risks Affected The CPRs			Total
	Low	Medium	High	
Landless	9	26	5	40
	22.5%	65.0%	12.5%	100.0%
Less than 5 Acres	37	189	51	277
	13.4%	68.2%	18.4%	100.0%
5-8 Acres	3	12	8	23

	13.0%	52.2%	34.8%	100.0%
8-10 Acres	2	8	1	11
	18.2%	72.7%	9.1%	100.0%
Total	51	235	65	351
	14.5%	67.0%	18.5%	100.0%
Chi-Square Test	7.640 ^{NS}			

NS indicates the value is not significant at the desired level of significance.

Source: Field Survey

V. Conclusion:

Farmers in Uttar Pradesh are adopting agro forestry as a sustainable land management strategy. They have worked hard to establish it among farmers in western Uttar Pradesh. Aonla, eucalyptus, and poplar-based systems have changed farmers' economies. Due to severe land degradation, UP has enormous potential for agro forestry development. And this is especially true in UP's Indo-Gangetic, Central, and Eastern Plains Restoring land degraded by ravines, water logging, gullies, and alkalinity/salinity needs agro forestry and sustainable agriculture. Agro forestry plantations that are commercially viable serve landless and marginal farmers, as well as the rural poor. To effectively promote agro forestry, the state government's tree farming policies and programmes must be evaluated and integrated. The state shall prepare an agro forestry action plan for each agro climatic zone in conformity with the 2014 National Agro forestry Policy. For all farmers, the state should focus on PPP (public-private partnerships) to boost research and extension. Promoting agro forestry in eastern UP requires additional nurseries and better tree-crop pairings. With the help of fast-growing trees, hard-to-manage soil, bio-drainage systems and modern conservation agriculture technologies, small-scale farmers can adopt intensive agro forestry. Massive sustainable agro forestry development may be possible in Uttar Pradesh if the state government, industries, NGOs and farmers work together.

Sustainably managed agriculture prioritizes methods and processes that promote soil production while reducing negative impacts on the environment. It strives to reduce the usage of non-renewable inputs and petroleum-based goods while increasing the use of renewable resources. On the other hand, it concentrates on the local people and their needs. It guarantees that current and future generations' nutritional needs are addressed in both quantity and quality. Everybody involved in agricultural value chains benefits from long-term employment, enough pay, and equal working and living conditions. It decreases the agricultural sector's exposure to natural disasters, socio-economic shocks, and other threats. It also encourages the participation of all stakeholders and promotes the reconciliation of interests.

Sustainable agriculture is growing relevance in India due to resource degradation, deforestation, pollution, and climate change. In the survey area, most farmers owned orchards, although their landholdings were modest and marginal. They rely on own water supplies. Natural pollutants progressively influence the water supplies. The houses surveyed lack a proper waste water disposal system. Irrigation is reportedly provided through tube wells, tanks, and canals. Weather changes customary cropping patterns. Many farmers have increasingly switched to organic farming and drip irrigation. More over a third of farmers still use traditional seeds, but farming has become more mechanized.

Climate change is a major global environmental issue, affecting agricultural production, water supply, health, and energy. Climate change demands scientific understanding and coordinated national and global action. Unexplained rise in sea level, crop productivity and related items are projected to severely disrupt world hydrological system. The impact would be severe in tropical areas populated by emerging nations, like India. Climate change impacts, such as decreased rainfall and increasing heat, affect food security and economic life. The country's ability to adapt to climate change is hampered by poor infrastructure, inadequate institutional mechanisms, budgetary constraints, and wide sectoral and regional variance. Climate change may add to the already strained ecological and socio-economic systems caused by increasing industrialization, urbanisation, and economic growth.

Food, livelihood, and environmental security depend on natural resources. Their protection and sustainable usage remain huge issues. Circumstances warrant combining environmental and poverty-reduction initiatives. Land, water, forest, and biodiversity management are now universally regarded as critical to food, livelihood, and environmental security. Natural resources require simultaneous conservation, sustainable usage, and equitable benefit sharing. Indeed, development efforts must not lead to severe loss of natural resources and environmental deterioration. Creating large-scale sustainable livelihoods is one of the main priorities of emerging countries. Modernization, uncontrolled development, colonialism, and rapid economic growth have badly damaged natural resources, resulting in huge destruction in India. This loss of natural assets currently limits economies' ability to meet the ever-increasing requirements of their populations. Sustainable livelihoods are widely recognised as a tool for reducing poverty and managing natural resources. In forestry policy and planning, livelihood security and sustainable development are significant development priorities. It is well

known that the farm sector cannot accommodate the rising labour force while the industrial sector has declined over time. So the non-farm sector can create a lot of jobs. While forest dependent people can help conserve and enhance forestry resources as well as wild creatures like tigers, their livelihood security is critical. Providing possibilities for livelihood development and implementing economic activities that promote livelihood development for forest dwellers and farmers nearby can help minimize biotic pressure and stress on forest dependent people.

Promotion of low-caste conservation strategies based on indigenous traditions and equipment, with a focus on vegetative conservation and plant species utilization in degraded terrain is imperative. Agro-forestry systems have proven potential for reasons that necessitate educating farmers to embrace improved agro-forestry techniques. It is imperative to ensure integrated and holistic development of rain-fed areas to promote rainwater saving through vegetative measures and biomass production through agro and farm forestry with watershed community participation. Agro-forestry and social forestry are essential for maintaining ecological balance and increasing biomass output. Today's forestry has many interfaces and impacts. An in-depth understanding of forest resources, their use, management, and protection is required. Agro-forestry and social-forestry are prime requisites for maintain of ecological balance and augmentation of biomass production in the agriculture system. Today, forestry has a wide spectrum of interfaces and multi-dimensional array of impacts. The situation calls for new and in-depth knowledge about forest resources, their use, their management and conservation, etc.

References:

- [1]. Adhikari, B. (2004) Social Inequality and Collective Action: An Empirical Study of Forest Commons. IFRI Working Paper W08I-5.
- [2]. Agarwal, B. (1994) *A Field of One's Own: Gender and Land Rights in South Asia*. Cambridge (UK): Cambridge University Press.
- [3]. Alesina, A., Nunn, N., and Giuliano, P. (2013) On the Origins of Gender Roles: Women and the Plough, *The Quarterly Journal of Economics*, 128(2): 469-530.
- [4]. Arnold, J. E. M. (1993) Management of Forest Resources as Common Property. *Commonwealth Forestry Review*. 72(3).
- [5]. Beck, T. (1994) Common Property Resource Access by Poor and Class Conflict in West Bengal, *Economic and Political Weekly*, 29 (4): 187-197.
- [6]. Behera, M.C and Basar, J. (2014) *Resources, Tribes and Development*. Rawat Publications, Jaipur, India.
- [7]. Boserup, E. (1970) *Woman's Role in Economic Development*, London: George Allen and Unwin Ltd.
- [8]. Chambers, R., Saxena N. C. and Shah, T. (1991) *To the Hands of the Poor-Water and Trees*. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.
- [9]. Fleck, R. K. and Hanssen, F. A. (2009) Rulers Ruled by Women: An Economic Analysis of the Rise and Fall of Women's Rights in Ancient Sparta, *Economics of Governance*, 10(3): 221-245.
- [10]. Geddes, R., and Lueck, D. (2002) The Gains from Self-ownership and the Expansion of Women's Rights, *American Economic Review*, 92(4): 1079-92.
- [11]. Goswami, B., (2011) Dependence of the Poor on Commons (Common Property Resources—CPR). Infochange at <http://infochangeindia.org/agenda/enclosure-of-the-commons/dependence-of-the-poor-on-commons.html>
- [12]. Gowda Manohara, N., Savadatti, P.M. (2004) CPRs and Rural Poor Study in North Karnataka. *Economic and Political Weekly*, 39 (33): 3752–3757.
- [13]. Hossain, Md. (2010) Food Security and Income Generation Through Access to Common Property Water Bodies in Monga-Affected Areas of Bangladesh. from <https://www.researchgate.net/publication/264838365>
- [14]. Humphries, J. (1987) The Most Free From Objection... The Sexual Division of Labor and Women's Work in Nineteenth-Century England, *The Journal of Economic History*, 47(4): 929- 949.
- [15]. Jodha, N. S. (1990) Rural Common Property Resources: Contributions and Crisis. *Economic and Political Weekly*, 25(26).
- [16]. Jodha, N. S. (1992) *Rural Common Property Resources: The Missing Dimensions of Development Strategies*. Washington, D.C., World Bank
- [17]. Jodha, Narpal S. (1986) Common Property Resources and Rural Poor in Dry Regions of India, *Economic and Political Weekly*, 1169-1181.
- [18]. Kadekodi, G. K. (2004) *Common Property Resource Management: Reflection on Theory and the Indian Experience*. Oxford University Press, New Delhi.
- [19]. Lastarria-Cornhiel, S. (1997) Impact of Privatization on Gender and Property Rights in Africa, *World Development*, 25(8): 1317-1333.
- [20]. Mahanta, R., Das, D. (2012) Common Property Resources Degradation and Migration: A Case Study of Assam. *Journal Human and Ecology*, 38 (3): 223–230.

- [21]. Meinzen-Dick, R. S., Brown, L. R., Sims Feldstein, H., and Quisumbing, A.R. (1997) Gender, Property Rights, and Natural Resources, *World Development*, 25(8).
- [22]. Menon, Ajit and G. A. Vadivelu (2006) Common Property Resources in different Agro-Climatic Landscape in India, *Conservation and Society*, 4(1), March.
- [23]. Mitra, S (2020) Access To Common Property Resources And Its Impact On Household Food Security In India, *International Journal of Education, Modern Management, Applied Science & Social Science*, 2(1), January – March.
- [24]. NSSO, (1999) Common Property Resources in India Report No. 452(54/31/4). National Sample Survey Organisation. Department of Statistics and Programme Implementation Government of India.
- [25]. Pangare, Ganesh et. al (2006) Springs of Life : India's Water Resources, Academic Foundation, New Delhi.
- [26]. Pradhan, A. K., Patra, R. (2011) Common Property Resources in Rural India: Dependence, Depletion and Current Status. *The IUP Journal of Managerial Economics* 9(1), 6–20.
- [27]. Suresh, A., Gupta, D. C., Mann, J. S. (2010) Study on Production and Utilisation of Wool and Wool Products in India. *Agricultural Economics Research Review* 23, 47–56.
- [28]. Topal, Y. P. S. (2015) Sustainable Management of Common Property Resources in Uttarakhand: Factors at Work. *International Journal of Advanced Research in Management and Social Sciences*. 4(7).

Jai Prakash Verma. "Common Property Resources and Its Linkages with Agriculture: A Study of Lakhimpur Kheri District in Uttar Pradesh." *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*, 27(07), 2022, pp. 45-55.