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Estimating the Magnitude and Status of CPLRs (Non- Forest) for Sustainable Land Use in Karnataka

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Abstract

In this paper an effort has been made to estimate the magnitude and status of common property land resources (CPLRs) in Karnataka using land-use data. It is found that CPLRs (non-forest) constitute 14.51 per cent of the total geographical area of the state and these resources have been declined from 32.5 lakh hectares to 27.7 lakh hectares during 1990-91 to 2015-16. The area under permanent pasture and grazing land, for which village communities have user rights by law, has declined from 13.5 lakh hectares to 9.1 lakh hectares. The areas under cultivable waste and barren & cultivable land have also declined but the area under fallow other than current has increased. These changes in the composition of common lands indicate that there has been a significant loss of common fertile land. Therefore, CPLRs need to be protected for sustainable land use and to ensure the livelihoods of the rural population as significant proportion of rural households depend on these resources. Forests, one of the important components of common property resources, have been given much attention by adopting many policies and programmes but non-forest commons have been neglected. It is suggested that CPLRs need to be identified, estimated and managed involving local communities at the Gram Panchayat level by adopting suitable policies and programmes for sustainable land use.

Keywords: Common Property Land Resources (CPLRs), Land use, Forest, Grazing Lands

1. Introduction

The land is one of the most important basic natural resources which are critical for the social and economic development of the nation (OECD 2008). There has been an increase in demand for land for various purposes over the period and the steep increase in population in recent years has further aggravated the demand for land (UNDP 2019). The increase in demand for land has adversely affected the natural resources resulting in environmental degradation (United Nations 1996, Hardin 1968 and Shiva 1991). Maintaining and restoring land resources can play a vital role in improving the environment and ensuring the livelihoods of the people (UNCCD 2019). Therefore, land resources are to be used properly to ensure productivity and satisfying the competing demands from various sectors (KSLUB 2001). Quite a significant proportion of land resources like forest and grazing lands are used by people in the form of Common Property Resources (CPRs) (Jodha 1986, NSSO 2000 and Kadekodi 2004). In the Indian context, CPRs refer to all such resources which are accessible to the whole community and to which no individual has exclusive property rights. According to NSSO (2000) CPRs include village pastures and grazing grounds, village forests and woodlots, protected and un-classed government forests, wastelands, common threshing grounds, watershed drainage, ponds and tanks, rivers, rivulets, water reservoirs, canals and irrigation channels

Traditionally, common property resources (CPRs – include forest, non-forest and water resources) are managed by local communities in a sustainable form through their indigenous methods based on a variety of cultural, social and religious mechanisms (Somanathan 1991, McKean 1992 and Noronha 1997). But, despite many benefits, CPRs are rapidly being depleted in terms of both area and physical quality (Jodha 1985, Ghosh 1985, Iyengar 1989, Singh & Singh 1996), Kadekidi 1997, Kumar 2000). The depletion of CPRs has been threatening the sustenance of the rural poor (Chopra and Gulati 2001, Shiva 1991, Kumar 2000 and Kulkarni 2006). To improve the environment, the government of India has been implementing various policies and programmes mostly related to forests. These are;

- ❖ National Policy 1952 - aimed to reorient the earlier 1894 forest policy
- ❖ Forest Conservation Act, 1980 - restricts the conversion of forest land
- ❖ National Forest Policy of 1988 (NFP) - envisages the participation of people in forest development. This is a major policy shift from the earlier policies.
- ❖ Biological Diversity Act 2002 - provide for the conservation of biological diversity, sustainable use of its components and equitable sharing of the benefits

There has been a separate ministry for forests i.e. Ministry of Environment, Forest and Climate Change (MoEFCC) which is responsible for planning, promoting, coordinating, and overseeing the implementation of environmental and forestry programmes in the country. The issues related to the forest have been on focus in the World Summit on Sustainable Development (2002). Thus, attempts have been to protect and manage forest resources since independence by policymakers and implementing agencies.

But of late, the government has recognized the importance of other common lands. Understanding the linkages between environment and poverty in determining development outcomes, and recognizing the significant dependence of rural people on natural resources, the 73rd Constitutional Amendment created enough space for decentralized natural resource management by PRIs (MORD). The responsibility of preparing plans for the management and development of natural resources has been given to Gram Panchayats (Shivanna 2000). This is a crucial step in protecting the CPRs and ensuring sustainable livelihoods of rural commonalities. The strengthening of Gram Panchayats at the community level enables them to function as local self-governing bodies. This has given impetus to participatory democracy in general and decentralized governance of natural resources in particular (Lélé 2004, Sivaramakrishnan and John 2008). Very recently (2002), the Government of India felt the need for National Policy on Common Property. But very few states have taken initiative to come up with state common land policy as per suggestions of National Policy for Common Property Land Resources.

Recognizing the importance of CPRs, some efforts have been made to quantify the magnitude of CPLRs at the macro level i.e. at the national or state level. The first attempt to quantify the magnitude of common property land resources was made by Chopra et.al (1990) in the 1970s at the national level. These estimates were based on the land use pattern. Recently, NSSO in its 54th round survey (2000) (FSI 2019) estimated the magnitude of CPRs based on primary data collected from sample villages. Studies have also been conducted by Jodha (1985), Iyengar (1989), Pasha (1992), Singh (1996), and Kulkarni A R (2004), etc to estimate the magnitude of CPRs at the micro-level. In this paper, an attempt has been made to quantify the magnitude and composition of CPLRs (Non-forest) at the state level (Karnataka) as well as at the sub-state level i.e. district level based on the availability of data on land use patterns. An attempt has also been made to analyze the changes in the magnitude of CPLRs over a period of time.

2. Methodology

The state of Karnataka is the eighth largest state of India in terms of both area and population. In recent years, it has been recognized as one of the high economic growth states in India. The state is also distinguished by its large number of scattered rural habitations with heavy dependence on agriculture and allied activities. Apart from this, Karnataka is among the Indian states which have effectively implemented the 73rd constitutional amendment in the country. In this context, the study of CPLRs in the state is felt

relevant. The magnitude and status of the CPLRs have been analyzed based on nine-fold land use data which was obtained from the Directorate of Economics and Statistics, Government of Karnataka for the period of 1980-81 to 2015-16. To identify the source of sanction for access to land resources the method suggested by Chopra, Murthy and Kadekodi (1990) has been adopted. The secondary data i.e. nine-fold land use pattern cannot capture all the ramifications of access and different sources of rights or access to resources (Kadekodi 2004), hence some assumptions concerning ownership, tenurial status, and user rights were made to estimate the CPLRs. For the present study, land under fallow other than current, cultivable waste, and pastures, other grazing lands and barren and uncultivable lands have been considered for estimating the magnitude of common property land resources (CPLRs) as these resources have partial or complete common access either by law or by convention. The areas under-protected and un-classed forests have also common access and considered as CPRs. The present paper focuses mainly on non-forest common lands and hence categorizing forest areas for estimating the magnitude has not been done. The state has 38,284 sq km recorded forest area, of which 28,690 sq km is Reserved Forest, 3,931 sq km is Protected Forest and 5,663 sq km is Un-classed forests (FSI 2019).

3. Magnitude and Composition of CPLRs in Karnataka

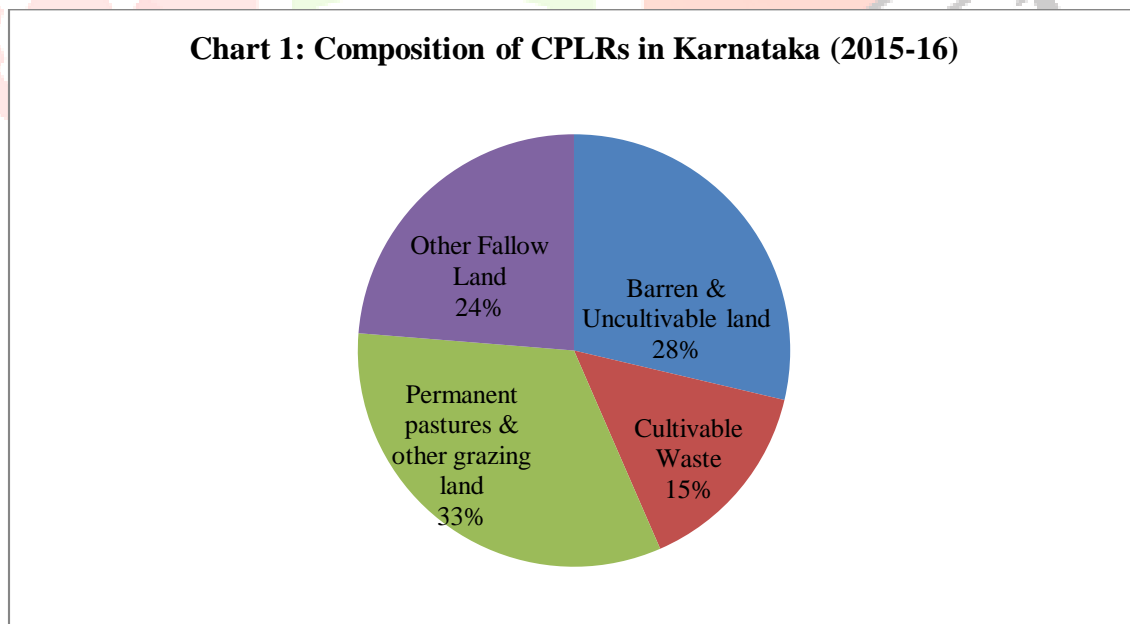
The land use pattern in the state is the result of the interaction of various demands on land mainly for extension of agriculture, irrigation, hydroelectric projects, industrialization, construction of rail and road, and housing, etc. The increasing demand for land has resulted in excessive pressure on forests and other common lands which has adversely affected the area and productivity of these resources. Karnataka has 190.5 lakh hectares of geographical area, out of which net area sown is 52.53 per cent, miscellaneous trees 1.45 per cent and groves and current fallow 7.63 per cent. Thus, a totally of 61.60 per cent of land i.e. 117.36 lakh ha, is under private ownership. The area under forest is 30.73 lakh hectares, which includes reserved, protected and un-classed forest, which constitute 16.13 per cent of the geographical area. The other commands lands, namely, barren and uncultivable land, cultivable waste, pastures and grazing land, and other fallow land constitute 4.16 per cent, 2.15 per cent, 4.76 per cent, and 3.44 per cent respectively. Thus, the total CPLR land (excluding forest) constitutes 14.51 per cent of the total geographical area. The remaining 7.75 per cent of the land, i.e. 14.76 lakh ha, is used for non-agricultural uses. Table 1 shows the magnitude and composition of CPLRs in Karnataka.

Land Use Type	Area in lakh hectares	% to Geographical Area
Forest (Protected and Un-classed forest)	7.68	4.03
Barren & Uncultivable land	7.93	4.16
Cultivable Waste	4.09	2.15
Permanent pastures & other grazing land	9.07	4.76
Other Fallow Land	6.56	3.44
Total CPLR Area (Including Forest)	35.33	18.55
Total CPLR Area (Excluding Forest)	27.65	14.51
Per Capita CPLR Area (Ha) (Including Forest)	0.094	
Per Capita CPLR Area (Ha) (Excluding Forest)	0.074	

Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore, Various Issues

Note: The data obtained from the Directorate of Economics and Statistics, Bangalore and data obtained by the India State of Forest Report do not match. Hence, the extent of the protected and un-classed forest has been estimated by taking the proportion of these forests to the total forest area in the state i.e. 25 per cent. While calculating the per capita CPLR area, the total CPLR area has been divided by the total rural population in the state

The above table reveals that the total area of CPLRs is 35.33 lakh hectares, including forest. The protected and un-classed forests are in 7.68 lakh hectares and the other common lands have an area of 27.65 lakh hectares. The per capita availability of CPLR is 0.094 including forest and 0.074 excluding forest area. Chart 1 shows the composition of CPLRs in Karnataka.



Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore

The above chart shows that permanent pastures and other grazing land constitute 33 per cent, barren & uncultivable land 28 per cent, other fallow lands 24 per cent and cultivable waste constitute 15 per cent of the total CPLR area in the state.

4. Magnitude and Composition of CPLRs Across Districts

The state of Karnataka consists of 31 districts grouped into 4 administrative divisions. The state geographically has 3 principal regions: the coastal region of *Karavali*, the hilly *Malenadu* region comprising the Western Ghats, and the *Bayaluseeme* region, comprising the plains of the Deccan plateau (Wikipedia). The land use pattern varies from one district to another depending on various factors like; natural, economic, social and other factors. Based on the availability of land use data (because of the formation and reorganization of districts) over the period for the districts, the magnitude and composition of CPLRs have been estimated. Table 2 shows the magnitude and composition of CPLRs across the districts in Karnataka

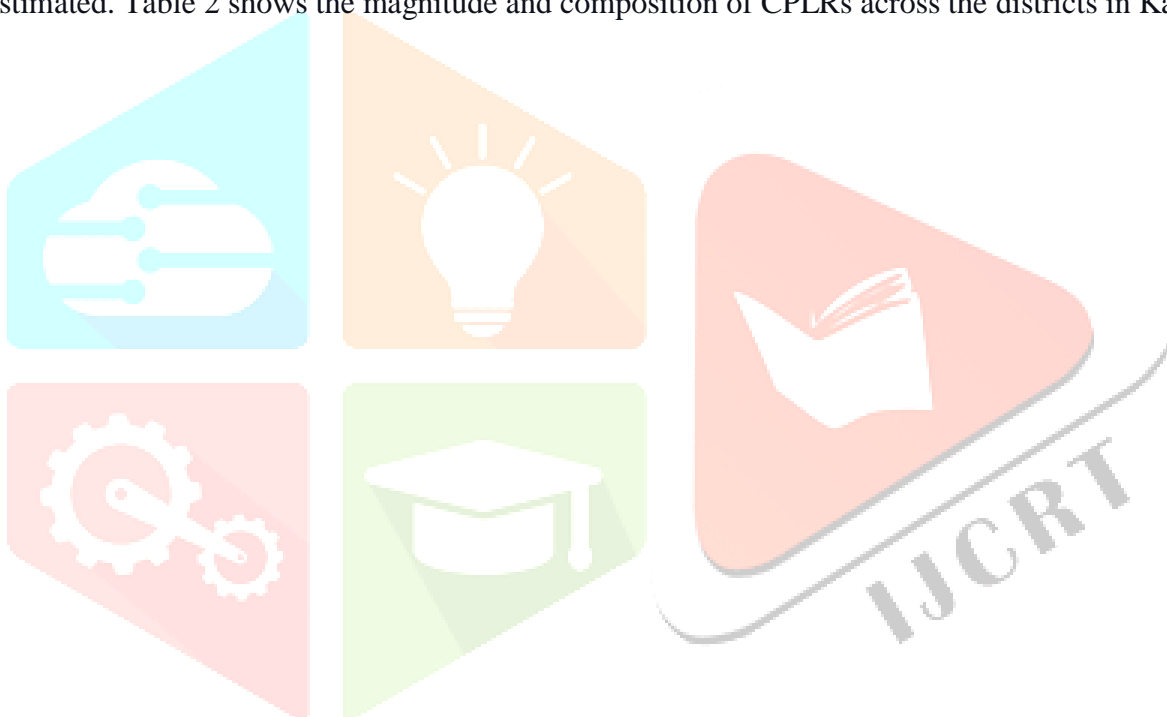


Table 2: District wise Magnitude and Composition of CPLRs in Karnataka (2015-16)

District/Division	Forest Area (000 Ha)	Area Under CPLRs (Non-Forest) (000 Ha)					Percentage to Total Geographical Area					
		Barren & Uncultivable Land	Cultivable Waste	Permanent Pasture	Other fallow	Total CPLR Area (Non-Forest)	Forest Area	Barren & Uncultivable Land	Cultivable Waste	Permanent Pasture	Other fallow	Total CPLR Area (Non-Forest)
Bengaluru Division	642	230	129	477	151	988	13.21	4.74	2.66	9.82	3.10	20.31
Bengaluru	5	5	4	6	7	21	2.33	2.26	1.79	2.61	3.10	9.75
Bengaluru(R)	11	11	4	4	12	31	4.93	4.85	1.70	1.69	5.43	13.67
Ramanagara	70	24	1	25	25	76	19.65	6.84	0.33	6.93	7.16	21.26
Chitradurga	74	25	22	89	22	158	9.57	3.30	2.80	11.51	2.90	20.51
Davanagere	90	21	9	20	5	54	15.05	3.44	1.43	3.27	0.86	8.99
Kolar	21	29	6	39	13	87	5.50	7.70	1.71	10.51	3.35	23.26
Chikkaballapura	50	34	5	56	13	108	12.29	8.48	1.17	13.73	3.25	26.64
Shivamogga	277	13	16	163	29	222	32.66	1.57	1.92	19.28	3.46	26.24
Tumakuru	45	68	63	76	24	230	4.24	6.34	5.88	7.18	2.23	21.64
Belgaum Division	1202	136	32	73	113	354	22.02	2.49	0.59	1.33	2.07	6.48
Belagavi	190	44	11	25	53	134	14.16	3.30	0.85	1.85	3.93	9.94
Vijayapura	2	29	6	10	6	50	0.19	2.76	0.52	0.91	0.54	4.73
Bagalkot	81	25	2	3	22	53	12.31	3.77	0.31	0.52	3.38	7.97
Dharwad	35	4	3	4	7	17	8.25	0.93	0.62	0.84	1.63	4.03
Gadag	33	12	1	3	5	20	7.00	2.50	0.22	0.56	0.97	4.24
Haveri	47	6	3	12	7	28	9.78	1.19	0.62	2.52	1.34	5.67
Uttara Kannada	814	16	6	17	14	54	79.40	1.58	0.63	1.62	1.40	5.23
Gulbarga Division	241	179	69	95	240	583	5.55	4.12	1.59	2.18	5.51	13.39
Ballari	97	53	25	5	20	104	11.93	6.58	3.05	0.67	2.46	12.76
Bidar	28	19	19	14	43	95	5.11	3.53	3.58	2.58	7.89	17.58
Kalaburagi	35	35	9	26	76	147	3.23	3.21	0.86	2.36	6.96	13.40
Yadgiri	34	28	2	12	4	46	6.54	5.42	0.46	2.28	0.80	8.96
Raichur	18	20	11	20	70	120	2.17	2.40	1.28	2.37	8.33	14.39
Koppal	29	23	3	18	27	71	5.33	4.25	0.46	3.23	4.89	12.83
Mysore Division	987	248	178	262	152	840	22.57	5.67	4.07	5.99	3.48	19.21
Chikkamagaluru	202	28	19	89	6	143	27.98	3.92	2.68	12.27	0.88	19.75
Dakshina Kannada	128	59	28	14	6	107	26.91	12.31	5.81	3.02	1.27	22.41
Udupi	100	12	37	11	10	69	28.08	3.25	10.36	2.98	2.73	19.33
Hassan	59	30	14	33	44	122	8.87	4.58	2.13	4.97	6.69	18.38
Kodagu	135	31	9	14	4	58	32.77	7.55	2.21	3.38	0.91	14.05
Mandya	25	22	42	32	46	142	4.97	4.32	8.42	6.43	9.32	28.49
Mysuru	63	45	21	47	24	137	9.29	6.66	3.16	6.92	3.48	20.22
Chamarajanagar	276	21	8	23	12	64	48.36	3.76	1.34	3.99	2.08	11.17
Karnataka	3073	793	409	907	656	2765	16.13	4.16	2.15	4.76	3.44	14.51
Northern Karnataka	1444	315	101	168	353	937	14.71	3.21	1.03	1.71	3.60	9.55
Southern Karnataka	1630	478	307	739	303	1828	17.64	5.18	3.33	8.01	3.28	19.79

Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore, Various Issues

The above table shows that there are large variations in magnitude CPLRs across the districts in Karnataka. The proportion of CPLR area (non-forest) varies from 4.03 per cent in Dharwad district to 28.49 per cent in Mandya district. Mandya, Chikkaballapura, Shivamogga, Kolar, Dakshina Kannada, Tumkur, Ramanagara, Chitradurga, Mysore, Chikkamagalure, Udupi, Hassan and Bidar districts have a higher proportion of CPLR area (i.e. above state average). The remaining districts which mostly located in North Karnataka have a lower proportion of the CPLR area.

The composition of CPLRs across the districts differs. The following table shows districts having a higher proportion of the different types of common land resources.

CPLRs	Districts having a higher proportion of CPLRs
Forest	Uttara Kannada, Chamarajanagar, Kodagu, Shivamogga, Udupi, Chikkamagaluru, Dakshina Kannada and Ramanagara
Barren & Uncultivated Land	Dakshina Kannada, Chikkaballapura, Kolar, Kodagu, Ramanagara, Mysuru, Ballari, Tumakuru, Yadgiri, Bengaluru(R), Hassan, Mandya and Koppal
Cultivable Waste	Udupi, Mandya, Tumakuru, Dakshina Kannada, Bidar, Mysuru, Ballari, Chitradurga. Chikkamagaluru and Kodagu
Permanent Pasture & Grazing Land	Shivamogga, Chikkaballapura, Chikkamagaluru, Chitradurga, Kolar, Tumakuru, Ramanagara, Mysuru, Mandya and Hassan
Other Fallow Land	Mandya, Raichur, Bidar, Ramanagara, Kalaburagi, Hassan, Bengaluru(R), Koppal, Belagavi, Mysuru and Shivamogga

Thus, the magnitudes of different components of CPLRs i.e. barren & uncultivated land, cultivable waste, permanent pasture & grazing land and other fallow land vary across the districts in the state.

5. Changes in Magnitude of CPLRs in Karnataka

Karnataka is considered one of the progressive states in India. The state has also been playing important role in the development of agriculture, industry and service sectors. It has played a pivotal role in implementing several industrial and technological policies for achieving a healthy industrial and business environment in the state. Thus, there has been increasing demand for land for various purposes. The land put to non-agricultural purposes has been increasing over the years, resulting in increasing pressure on common lands for getting biomass resources by the rural people. The studies conducted by Jodha (1990), Pasha (1992) and Kulkarni (2006), reveal that despite the decline in area and productivity, CPRs continue to provide livelihood security to the rural population. Hence, these resources need to be protected for their role in environmental protection and livelihood security for the rural population. The changes in the magnitude of CPLRs in Karnataka over the period have been presented in table 3.

Land Use	1980-81	1985-86	1990-91	1995-96	2000-01	2010-11	2015-16
Total Geographical Area	190.5	190.5	190.5	190.5	190.5	190.5	190.5
Forest	30.3	30.6	30.7	30.6	30.7	30.7	30.7
CPLR Area (Non-Forest)	32.5	29.0	28.0	27.1	25.9	25.4	27.7
Permanent pastures & other grazing land	13.5	11.6	11.0	10.3	9.6	9.1	9.1
Cultivable waste	5.0	4.7	4.5	4.4	4.3	4.1	4.1
Barren & uncultivable land	8.4	8.0	8.0	8.0	7.9	7.9	7.9
Other fallow land	5.6	4.7	4.6	4.4	4.1	4.3	6.6
Private & Other Land	127.7	130.9	131.8	132.8	133.9	134.4	132.1
Misc. Tree crops, Groves	3.4	3.4	3.2	3.2	3.0	2.9	2.8
Current fallow	14.6	14.2	12.9	12.8	13.7	12.0	14.5
Net Area Sown	99.0	101.7	103.8	104.2	104.1	105.2	100.1
Land put to non-agri.uses	10.7	11.6	11.9	12.6	13.1	14.3	14.8

Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore, Various Issues

The above table shows that the area under CPLRs (Non-Forest) in the state has been declined from 32.5 lakh hectares to 27.7 lakh hectares in Karnataka. Among the different components of CPLRs, the area under permanent pastures and other grazing lands, cultivable waste and barren and uncultivable lands have been decreasing whereas the area under other fallow land has increased during the period 1980-81 to 2015-16. There has been a drastic decline in area under Permanent Pastures & Other Grazing Lands i.e. 13.5 lakh hectares to 9.1 lakh hectares. This type of land includes all grazing lands where they are permanent pastures and meadows or not⁸. The village common grazing lands are included in this category and these were traditionally managed by village communities and village communities have the legal right to access these resources¹⁰.

Cultivable waste is the land available for cultivation. This type of land may be either fallow or covered with shrubs or jungles, which are not put to any use. Land once cultivated but not cultivated for five years in succession are included in this category at the end of the five years. The “wasteland survey and reclamation committee” defines “culturable waste” as the land available for cultivation but not used for cultivation for one reason or the other. This land was used in the past but has been abandoned for some reason. It is not being used at present due to such constraints as lack of water, salinity or alkalinity of the soil, soil erosion, water-logging, an unfavourable physiographic position, or human neglect. The area under cultivable waste has declined from 5.0 lakh hectares to 4.1 lakh hectares. According to the Karnataka state land use board (2001), this decline may be due to some land reclamation schemes introduced by the government. The barren &

uncultivable land which includes all land covered by mountains, deserts, etc and it cannot be brought under cultivation except at an exorbitant cost, has also declined steadily from 8.4 lakh hectares to 7.9 lakh hectares. The area under fallow lands other than current has increased from 5.13 lakh hectares to 6.56 lakh hectares. This type of land includes all lands, which were taken up for cultivation but are temporarily out of cultivation for not less than one year and not more than five years. It required heavy investment to reduce the extent of fallow land to use it for agriculture purpose. For this, the quality of soil needs to be improved and irrigation and other inputs need to be provided on a scientific basis. If these fallow lands are not taken care of, they may cause soil erosion and degradation of adjoining cultivated lands. Therefore, an increase in area under fallow lands other than current indicates a decline in the quality of land and the absence of greenery on these lands. The area under forest (includes all lands classed as forests under any legal enactment dealing with forests or administered as forests) has been increasing steadily over the period from 30.3 lakh hectares (1960-61) to 30.73 lakh hectares (2015-16). Despite the increase in demand for forest resources like timber and NTFPs and diversion of forest area for many development activities like irrigation projects, hydel projects, mining/quarrying, roads, laying of transmission lines and other purposes¹⁰, the area under forest in Karnataka has been increasing over the period.

According to the recent press releases by the Forest Survey of India (FSI), the forest area has been increased in Uttar Kannada and Chikmagalur districts. This is mainly because of plantation and conservation activities under social forestry and Joint Forest Management (JFM), both within and outside the recorded forest areas. Systematic efforts have been made in Karnataka by Forest Department to involve rural communities in the protection and management of forest resources under the National Forest Policy 1988. Presently there are 3848 village forest committees (VFCs) protecting 8,08,020 hectares of forest land in Karnataka. One of the studies conducted by Kulkarni A R (2018) found that the formation of VFC has resulted in not only improvements in forests but also benefited the village community and individual members. Thus, it seems that the efforts of the forest department have resulted in increasing the area of forest in Karnataka.

Changes in areas under miscellaneous trees and grows, current fallow and net sown area have also been observed. These areas are considered as private property land resources (PPLRs) as the non-owners have no access to these resources. The areas under miscellaneous trees and grows include lands under Casuarina trees, thatching grasses, bamboo bushes, and other groves for fuel, etc which are not included under 'Orchards'. They are also not included in Net Area Sown'. The land under misc tree crops and groves has declined from 3.4 lakh hectares in 1980-81 to 2.8 lakh hectares in 2015-16. The decline in this type of land may be due to the conversion of land under trees to seasonal crops (KSLUB 2001). The area under current fallow i.e. cropped areas which are kept fallow during the current year has slightly declined from 14.6 lakh hectares to 14.5 lakh hectares in lakh hectares. The variations in the area under current fallows are mainly due

to irregularity in rainfall. The area under net sown area, which represents total area sown not more than once, was 99.0 lakh hectares in 1980-81, and it increased to 100.1 lakh hectares in lakh hectares in 2015-16. The net area is sown also depends mainly on the rainfall. With the development of the economy, the demand for land for construction of houses, roads, laying railway lines, mining, and industries, etc has been increasing and is expected to increase very fast in future. As a result of this, the land put non-agriculture use has increased from 10.7 lakh hectares to 14.8 lakh hectares.

On the whole, permanent pastures & other grazing lands, cultivable waste, barren & uncultivable lands have been declining. But the area under other fallow land has been increasing. A significant decline has been observed in the case of permanent pastures & other grazing lands for which the village communities have user rights by law. The other components of CPLRs have partial user rights by convention. The specific information relating to changes in land use are not available and hence, efforts should be made to know the exact causes of changes in land use. However, some of the studies indicate extension of agriculture and conversion of land for non-agricultural uses are the main reasons. The studies conducted in Karnataka (Jodha 1985, Pasha 1992 and Kulkarni A R 2006) indicate that apart from the decline in area, the productivity of CPRs has also been declining over the period. These studies showed that earlier more numbers of households were collecting a variety of products from common lands like gum, honey, fruits, etc but now the proportion of households collecting CPR products has declined and only fuelwood and fodder are being collected. CPRs were helping to reduce the income inequalities, which existed between rich, and poor. Hence, it seems that CPRs are not playing their earlier role due to a decline in area and productivity.

6. Changes in Magnitude of CPLRs across Districts

The changes in the magnitude of CPLRs across the selected districts have been presented in table 4. It shows that the area under permanent pasture has declined in almost all the districts and the extent of its decline among the different components of CPLRs is also high. Areas under barren & uncultivable land and cultivable waste have also declined but the degrees of decline is very less compared to areas under permanent pasture. The area under other fallow land has increased in most of the districts. This indicates that the productive land i.e. pasture land has been declining and the unproductive land i.e. other fallow land has been increasing in almost all the districts.

Table 4: Changes in Magnitude of CPLR Area Across Districts in Karnataka

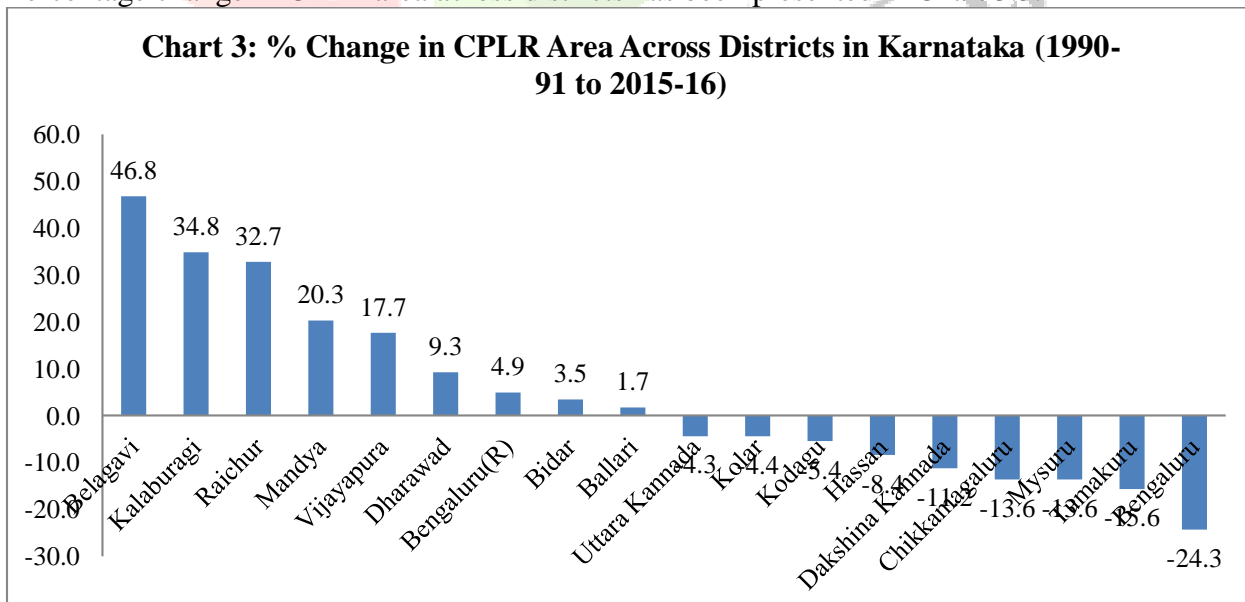
Districts	Area in 000 Ha (1988-89)					Area in 000 Ha (2015-16)					% Change				
	A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Bengaluru	9	4	10	5	28	5	4	6	7	21	-45.4	-2.8	-43.3	34.6	-24.3
Bengaluru(R)	38	6	48	10	102	35	5	29	38	107	-6.7	-15.4	-40.5	279.5	4.9
Kolar	63	13	118	10	204	63	11	95	26	195	0.3	-14.3	-19.5	157.0	-4.4
Tumakuru	68	67	106	32	273	68	63	76	24	230	-0.7	-6.5	-27.9	-25.8	-15.6
Belagavi	45	13	25	8	91	44	11	25	53	134	-1.5	-11.8	-0.5	561.1	46.8
Vijayapura	51	8	13	15	87	54	8	13	28	102	5.6	-5.8	0.0	86.4	17.7
Dharawad	22	7	19	11	59	21	7	18	18	64	-2.7	-4.7	-3.3	63.9	9.3
Uttara Kannada	20	8	21	7	56	16	6	17	14	54	-19.3	-19.4	-20.8	105.0	-4.3
Ballari	59	30	7	6	102	53	25	5	20	104	-9.4	-17.2	-21.8	233.1	1.7
Bidar	22	19	14	37	92	19	19	14	43	95	-13.1	2.0	-0.3	15.5	3.5
Kalaburagi	64	15	41	23	143	63	12	38	80	193	-1.5	-21.3	-8.3	249.3	34.8
Raichur	37	14	35	58	144	44	13	38	97	191	17.7	-5.1	7.6	66.7	32.7
Chikkamagaluru	28	21	106	10	165	28	19	89	6	143	1.2	-8.0	-16.4	-36.3	-13.6
Dakshina Kannada	72	73	32	21	198	70	65	25	16	176	-2.3	-11.4	-21.8	-24.8	-11.2
Hassan	32	23	52	26	133	30	14	33	44	122	-5.1	-38.5	-36.6	70.5	-8.4
Kodagu	31	12	17	1	61	31	9	14	4	58	0.0	-24.4	-18.3	272.5	-5.4
Mandya	22	40	41	15	118	22	42	32	46	142	-2.2	4.9	-21.8	209.5	20.3
Mysuru	67	34	89	42	232	66	29	70	35	200	-0.8	-14.6	-21.8	-15.8	-13.6
Northern Karnataka	320	114	175	165	774	315	101	168	353	937	-1.6	-11.0	-4.2	113.9	21.0
Southern Karnataka	480	337	926	241	1984	478	307	739	303	1828	-0.3	-8.8	-20.1	25.7	-7.9
Karnataka	800	451	1101	406	2758	793	409	907	656	2765	-0.8	-9.3	-17.6	61.6	0.3

A = Barren & Uncultivable Land, B = Cultivable Waste, C = Permanent Pasture, D = Other Fallow Land, E = Total CPLR Area

Source: Calculated from the data obtained from Directorate of Economics and Statistics, Bengaluru

Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore, Various Issues

Percentage change in CPLR area across districts has been presented in Chart 3.5.



Source: Compiled by Author, using the data from Directorate and Economics and Statistics, Bangalore, Various Issues

The above chart shows that the area under CPLRs has decreased in Bengaluru, Tumakuru, Mysore, Chikkamagaluru, Dakshina Kannada, Hassan, Kodagu, Kolar and Uttara Kannada. The area under CPLRs has increased in Belagavi, Kalaburgi, Raichur, Mandya, Vijayapura, Dharwad, Bangalore (R), Bidar and Ballari. The higher extent of increase in the Other fallow land contributed to increasing in CPLR area in different districts. The extent of increase in other fallow land indicates an increase in area under infertile land which is of very less use for the rural population. This type of land is increasing mainly due to the decline of soil quality of current fallow land which is privately owned. An increase in this type of land is not a good sign for the environment as it indicates a decline in the quality of the soil. With the declining quality of land, there would be no grass or trees on this type of land which can benefit the rural population. Thus, the increase of this type of land is not socially desirable and it is also very difficult to make it suitable for cultivation. Pastures and grazing lands and cultivable wastelands have encroached for agricultural purposes which were earlier used by village communities as a source of fodder. The decline of this land has adversely affected the livelihoods of rural people. The decline in the cultivable wasteland may be due to some land reclamation schemes introduced by the government (KSLUB 2001). The specific reasons for changes in different components of CPLRs need to be known for understanding the sustainability of land resources. Through the 73rd Constitutional Amendment, Gram Panchayats (GPs) have been given the responsibility to manage their natural resources. Now GPs can prepare plans for the management and development of natural resources. But the recent study conducted by Kulkarni A R (2019) reveals that the Panchayat members are not having any knowledge about CPRs and they have neglected and allowed them to encroach for agriculture purposes. No efforts have also been made to protect the common resources by GP members including GP President. Thus, GPs have not utilized the opportunities which were given to them under the 73rd constitutional amendment. As a result of this, there has been a heavy loss of common fertile land and an increase in other fallow lands. The increase in other fallow land is of no use to rural people as there would be no trees and grass on it.

7. Concluding Observations

CPLRs constitute a significant proportion (14.51 per cent) of the total geographical area of Karnataka state. In the absence of proper programmes and policies, these CPLRs have been declined in area and productivity during 1990-91 to 2015-16. There has been a significant decline in permanent pasture and grazing land, barren & cultivable land and cultivable wasteland whereas area under other fallow land has increased. Thus there has been a decline in productive/ vegetative cover i.e. permanent pasture and grazing land indicating environmental degradation. Though the 73rd amendment to the constitution has assigned the powers to Gram Panchayats to protect these resources, due to lack of knowledge and ignorance, these resources have been neglected till now. Therefore, every Gram Panchayat should take up the task of identifying, measuring, managing and planning CPLRs for present and future needs of the rural population involving all the stakeholders.

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