

Contribution of Common Property Resources to Rural Sustainable Development: A Case Study of Uttar Pradesh (India)

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ABSTRACT

This has been an established fact that the entire process of development of rural economy is somehow linked to the availability of common and natural resources surrounding it. Besides incomparable and non-enumerable contribution to ecology, climate and environment, the common property resources (CPRs) can generate scope of income - employment for the rural poor, and spillover benefits to agriculture, cottage industries and livestock economy. In this piece of research, an attempt is made to empirically investigate how the private properties such as agriculture, cottage industries and livestock depend on CPRs-growth; and again, how the livelihood of rural people is influenced by variation of CPRs' availability and growth. In total, four villages:- two from CPRs-rich district and two from CPRs-poor district-are randomly chosen. The census of households is conducted at village level with a well designed questionnaire for the primary data. As per findings of our study, the average living standard of a household (socio-economically deprived) in CPRs-rich region is much better than in CPRs-poor region. CPRs play mainly in creating the above disparity by raising annual income of landless households to a relatively large extent in CPRs-rich areas as compared to that in CPRs-poor areas. In agriculture, all size classes of farmers are invariably found of using CPRs items. The big size farmers use disproportionately large quantity of water resources for irrigation. The intensity of use of CPRs, because of the availability, for agriculture is much greater in CPRs-rich villages than in CPRs-poor villages. The high yield rates of land and high farm income of a household in CPRs-rich region is largely attributed to high usage of CPRs items in agriculture. The village cottage industries are exclusively based on CPRs. The main factor-inputs for the industries are obtained from CPRs. The cottage industries in CPRs-rich region are economically more viable as compared to those in CPRs-poor region. The availability of CPRs such as grazing and fallow lands and forests are found to be highly supportive to the growth of livestock. The average use of green fodders per households for rearing livestock is much greater in CPRs-rich region than CPRs-poor region. Due to CPRs availability, the absolute number and variety of cattle-livestock are relatively greater in CPRs-rich region than in CPRs-poor region. From the findings of study, it can be inferred that by strengthening CPRs one can ensure the sustainable development of the rural economy as a whole.

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Section-I: Introduction

The issue of Common Property Resources (CPRs) became a Global concern after the release of Hardin's article "**The Tragedy of the Commons**" in the year 1968. CPRs as defined by Hardin are the resources or the resource land areas in which there is free access of the common people. **Ostrom** defined "Common Property Resource" as a "natural or manmade resource system that is sufficiently large as to make it costly to exclude potential beneficiaries from obtaining benefits from its use" [Ostrom: 1990]. On the basis of ownership and accessibility of public, the CPRs are defined and interpreted by many esteemed scholars in different manners. Before the release of Hardin's above article, these resources were traditionally known to economists as 'Open Access Resources' (OARs) [Gordon: 1954]. Both CPRs and OARs have the similar characteristics of a public goods i.e. non-exclusion, market failure, indivisibility, congestion, free-riding, and so on [Sengupta: 1995], and again, both are ecosystem (or environmental) goods. As per recent definitions and classifications, the scope of CPRs has widely broadened than OARs. The OARs are confined to a particular class of resource areas on which ownership do not exist [Gardon: 1954]. The resources which are exclusively owned by private individuals are called 'Private Property Resources' (PPRs). The public are restricted to have free access to these resources. On the other hand, the CPRs are generally owned by either a community or a state or the central government or jointly. These also include certain resources on which the ownership does not exist or not clear such as oceans, seas, rivers, deserts, etc. [NSS: 1999; Chopra and Gulati: 1998, 2001]. In recent years, some scholars included in the domain of CPRs some types of private land areas to which public can have free access during specific seasons [Chopra and Gulati:2001; Chopra and Das Gupta:2008]. The CPRs have two aspects: one is known as resource system and the other is the flow of resource units produced by the resource system. The resource system includes grazing areas, fishing grounds, ground water basins, irrigation canals, rivers, lakes, seas, mountains, forest, etc. These resource systems are considered as stock variables that are capable of producing a maximum quantity of a flow variables (resource units). Resource units (flow variables) are what individuals appropriated or used from the resource system [Ostrom: 1990].

In India, resource units (flow variables) of CPRs include product such as timbers, woods, fuel, grasses, leaves, oils, seeds, bamboos, ropes, charcoals, honey, herbals, lac, canes, fruits and vegetables, birds and animals for pet and meat, fishes, fodders, minerals, and so on [Jodha: 1986,1990; Chopra and Gulati: 2001; Iyengar and Shukla: 1999; Beck and Ghosh: 2000; Dasgupta:2005; NSS Report:1999; and so on]. The nature, variety and availability of CPRs depend on the agro-climatic conditions of the regions where these resources are located and grown.

The most of researches on CPRs, in recent years, have mainly focused on the matters related to identification of resource systems, use of resource units by people and the management of the resources for their sustainable growth and restricted exploitation in order to arrest the degradation processes. For example,

Hecht, Anderson and May in their study of CPRs in Maranhao , Brazil, described the importance of CPRs such as *babassu* (palm oil) products among the landless poorer families. The activity of extraction of babasu products actively offered the poorest of the poor, most especially the woman among them, a striking support to their livelihood [Hecht, Anderson and May: 1988]. Maggs and Hoddinott demonstrated that the CPRs could be an important source of income for certain individuals within households in developing countries [Maggs and Hoddinott's: 1999].

In India, CPRs in dry tropical regions can contribute significantly to the employment and income generation for the rural poor i.e. labour and small farm households [Jodha: 1985,1986; Arnold and Stewart: 1991; Beck and Ghosh: 2001]. The per household per year income derived from CPRs ranged between Rs. 530 to Rs. 830 in different areas which was higher than income generated by anti - poverty programmes in same areas. [Jodha: 1986]. Beck and Ghosh, from a micro level study of villages in West Bengal, concluded that the common property resources were of crucial importance to the poor in terms of sustaining their livelihood. The CPRs contributed around 12.0 per cent to the annual income of a poor household. These resources were of greater importance in the regions where there was less agricultural intensification [Beck and Ghosh: 2000]. According to the findings of NSS Report, CPRs included the village pastures and grazing lands, village forests and woodlots, protected and un-classed government forests, waste lands, common threshing grounds, watershed drainage, ponds and tanks, rivers, rivulets, water reservoirs, canals and irrigation channels. The estimated CPRs land areas was about 15.0 percent of the total geographical area in India. The estimates of area of CPR land per household (0.31 ha) and average area of land owned by a household (0.84 ha) signified the importance of common property -based agricultural economy of rural India. The CPRs played an important role in the rural economy and benefited its population in a number of ways. These contributed significantly to the private-property based farming as well as to the household enterprises by the way of providing irrigation water, mulch and manure to cultivation, and raw materials and other supporting items to household manufacturing. The average value of annual collection of CPRs was Rs. 693, which amounted to 3% of the average consumption expenditure of a rural household [NSS, 54th Round: 19999]. According to the study of Menon and Vadivalu, based on the data of NSS, among rural households, about 48.0 per cent of them were engaged in collection of CPRs. The landless households were highly dependent on CPRs collection [Menon and Vadivalu: 2009].

A large number of recent studies have mainly focused on the issue of CPRs management. They can be classified into three schools of thoughts: (a) The property right school suggested for the creation and enforcement of private property rights in order to resolve the problem of over exploitation and degradation of CPRs [Demsetz, 1967, Johnson, 1972, Smith, 1981, Cheung, 1970], (b) the state property regime school advocated that the allocation of full authority to regulate the commons to State Property Regime could reduce overexploitation of CPRs (Hardin: 1968) and (c) the voluntary compliance school advocated that the decentralized collective management of Common Property Resources through public private participation at local levels would be an appropriate system for sustainable growth and preservation of commons [Berkes: 1989, Wade: 1986,1987, Jodha: 1986, Chopra, et.al.: 1989, Murty: 1994, Mohapatra: 2006, Beck and Nesmith: 2001].

Summing up the main points of the above discussion, the CPRs land areas constitutes a significant proportion in total geographical areas mostly in developing countries. In India, it ranges from 15 to 23 per cent of total geographical area across different regions [NSS: 1999; Chopra and Gulati: 2001]. Mostly poorer section of the rural economy is largely benefited from CPRs for its livelihood. Besides the livelihood of the people, the agriculture, livestock and cottage industry in the rural economy receive supports from CPRs for sustainable development [Chopra et al: 1997 and 1998, Menon and Vadivelu: 2006]. For effectively managing CPRs for its sustainable growth and preservation, depending on socio-cultural traditions of the people and political arrangements, private ownership can be bestowed upon CPRs somewhere; CPRs can be brought under direct control of the government elsewhere; and CPRs can be managed through private-public participation in which the involvement of local communities is significant.

As stated earlier, the most of the researchers were mainly confined to the aspects of identification of CPRs-systems and CPRs-units, and how the livelihood of the poorer section was linked to CPRs availability and also, to the issue of management of CPRs. There were very limited empirical studies being conducted on the aspect of CPRs' contributions to the growth and sustainability of private properties such as agriculture, cottage industries and livestock which are considered as backbone of a rural economy. No in-depth study is yet done in this aspect of CPRs.

This piece of study is viewed to redress deficiencies of the previous researches on CPRs' contribution. In this study, CPRs' contribution has been properly identified and quantified for various activities relating to rural development. The main objective of our study is to:- examine the nexus between CPRs and agriculture, CPRs and cottage industries, CPRs and livestock, CPRs and livelihood of rural households separately, from various angles. The research questions being attempted are: whether the livelihood of poorer households in CPRs-rich region is better than that in CPRs-poor region?; how are the production of agriculture and cottage industries influenced by the variation of CPRs?; whether and how the marginal and small farmers are benefited from CPRs?; how the growth of livestock of a household depends on CPRs; and so on.

Methodology

The present study is mainly based on primary data collected through purposive sampling up to village level and census at household level. On the basis of secondary data (Table-1), the State-Uttar Pradesh is divided into three agro-climatic zones. Again, the districts in each zone are further classified into two regions: CPRs-rich region and CPRs –poor region. As stated later, the national average percentage of CPRs land area is taken as a cut-off point for dividing the districts into CPRs -rich and CPRs-poor region. The districts whose average percentage of CPRs land area is below the national average are classified under CPRs-poor region and the districts whose average percentage of CPRs land area is above the national average are classified under CPRs –rich region. We selected the Middle Gangetic agro climatic zone for our field survey. One district namely Mirzapur was chosen from CPRs-rich districts in which the proportion of CPRs-land area to geographical area constituted 32.79 per cent; and another district namely Sant Ravidas Nagar from CPRs-poor

districts in which the average percentage of CPRs land area constituted 5.14 per cent [District Statistical Abstract-2007-08]. In each sample district, we selected sample block and village on the basis of the proportion of CPRs land area and availability of CPRs therefrom. For this purpose, a pilot survey was conducted. Sample villages in each selected block were chosen randomly. By that process, two villages namely Baghoda and Pokhraudh were chosen from CPRs-rich region (Mirzapur), and Millki and Devajitpur were chosen from CPRs-poor region (Sant Ravidas Nagar). A census survey of households in all sample villages was conducted with the help of a comprehensive questionnaire.

This paper consists of seven sections including introductory part.

Section-II: CPRs –Scenario in Uttar Pradesh

In state of Uttar Pradesh, the proportion of CPRs land area is relatively low as compared to the national average. According to the report of NSS 54th round survey, the percentage of CPRs area to total geographical area was 12.0 per cent whereas that at all India level, it was 15.0 per cent. The proportion of grazing land, village forest and others was 4.0 per cent, 2.0 per cent and 8.0 respectively in Uttar Pradesh, whereas at all India level, that was 7.0 per cent, 5.0 per cent and 19.0 per cent respectively [Report of NSS 54th round, 1999-appendix A-2]. Like other parts of the country, in U.P, CPRs play an important role in the rural economy and benefit the rural people in number of ways. Most of the rural households involve in collection of fuel wood and shrubs from CPRs for cooking and heating; grass, leaves and shrubs as fodder for animals; bamboo, small timber, wood and leaves for house dwelling; and a variety of fruits, vegetables, fish, medicinal herbals, etc. for self consumption and selling in markets. CPRs also contribute significantly to private farming as well as to the household industries. These provide irrigation water, mulch and manure for cultivation, and raw materials to cottage industries [NSS report 54th round on CPRs, 1999, p-25]. According to NSS (1999) report, the average value of collection from CPRs by a household was Rs. 690 which constituted 2.75 per cent of the household consumption expenditure.

The state Uttar Pradesh, after separation of Uttarakhand region as independent state, presently consists of, in total, seventy districts. According to National Sample Survey classification, all seventy districts are stratified into three agro-climatic zones: Middle Gangetic Plains (MG), Trance-Gangetic plains (TG), and Central Plateau and Hills (CHg). Twenty seven districts are classified under MG, thirty eight districts under TG and five districts are classified under CHg [Report of NSS 54th round, 1999]. For the purpose of our study, we divided all districts lying in each of the above agro-climatic zones into CPRs-rich and CPRs-poor regions (Table-1). At the state level, out of seventy districts, fourteen districts are classified under CPRs-rich region and fifty six are classified under CPRs-poor region. For classifying districts into CPRs-rich and CPRs-poor regions, the national average percentage of CPRs land area ie. 15.0 per cent is used as cut-off point.

As per the data of District Statistical Abstract of Uttar Pradesh (2006-07), at state level, the average percentage of CPRs land area to total geographical area is estimated to be 10.84, which is very close to the NSS estimate of 12.0 per cent. The average percentage of CPRs land area in CPRs-rich districts constitutes 27.21 per

cent whereas that in CPRs-poor districts constitutes as low as 6.58 per cent (Table-1). The average percentage of CPRs land area is relatively much higher in CPRs-rich districts classified under middle-gangetic agro-climatic zones as compared to CPRs-

Table-1: CPRs- Rich and CPRs- Poor Districts in Uttar Pradesh (2006-07)

Sl. No.	A-C Zone	CPRs-Region*	Number of Districts	Name of districts	Average % of CPRs land area
1	MG (27)	CPRs-Rich Region	6	Bahraich, Balrampur, Maharajganj, Mirzapur , Sonbhadra, Chandauli,	33.38
		CPRs-Poor Region	21	Azamgarh, Ballia, Shravasti, Barabanki, Basti, Sant Kabir Nagar, Deoria, Faizabad, Ambedkar Nagar, Ghazipur, Gonda, Gorakhpur, Jaunpur, Kushi nagar, Mau, Pratpgarh, Sidharth Nagar, Varanasi, Sant Ravidas Nagar , Allahabad, Kaushambi	5.67
2	TG (38)	CPRs-Rich Region	4	Etawah, Pilibhit, Kheri, Lucknow	20.63
		CPRs-Poor Region	34	Agra, Aligarh, Bareilly, Mahamaya Nagar, Bijnor, Badaun, Bulandshahar, Etah, Oraiya, Farrukhabad, Kannauj, Fatehpur, Firozabad, Mathura, Meerut, Bagpat, Moradabad, Jyotiba Fulley Nagar, Muzaffarnagar, Raibareli, Rampur, Saharanpur, Shajahanpur, Sitapur, Sultanpur, Unnao, Ghaziabad, G.B. Nagar, Manpuri, Hardoi, Kanpur Dehat, Kanpur Nagar, Jalaun, Jhansi,	7.09
3	CHg (5)	CPRs-Rich Region	2	Lalitpur, Chitrakoot	21.90
		CPRs-Poor Region	3	Hamirpur, Banda, Mahoba	6.18
State Level		CPRs-Rich Region	14	All Districts of CPRs-Rich Regions	27.21
		CPRs-Poor Region	56	All Districts of CPRs-Poor Regions	6.58
All CPRs Regions			70	All Districts	10.84

Source: 1. Report of NSS 54th Round (1999) on CPRs; 2. District Statistical Abstract of U.P, 2007-08

Note-1. A-C Zone: Agro-Climatic Zone; MG: Middle Gangetic Plains; TG: Trans-Gangetic Plains; CHg: Central Plateau and Hills.

2. Figures in parentheses represent total number of districts in that A-C Zone.

*Total 70 Districts are classified into two CPRs regions-CPRs-rich and CPRs-poor regions on the basis of percentage of CPRs land area to geographical area. According to the report of NSS 54th round on CPRs (1999), the national average of CPRs land area to total geographical land area was 15.0 per cent. This national average percentage of CPRs is used for dividing all districts of UP into CPRs –rich and CPRs –poor regions. That means the districts possessing CPRs land area below 15.0 per cent are classified under CPRs-poor region, and the districts possessing CPRs land area above 15.0 per cent are classified under CPRs –rich region.

rich districts in other two agro-climatic zones. Again, the difference between CPRs-rich and CPRs-poor regions, in respect of CPRs land area, is relatively greater in middle gangetic agro-climatic zone than other zones. In overall terms, the middle gangetic agro-climatic zone in Uttar Pradesh is better placed as compared to other

Section-III : CPRs and Livelihood of Rural People

The main occupation of rural people in all sample villages (taken together) is agriculture and agricultural labour. Out of total households, about 29.25 per cent of households mainly depends on agriculture and 23.03 per cent of households depends on agricultural labour [Table-2]. A relatively lower percentage of households depends on cottage industries and business. Again, total labour households (agricultural labour and other labour taken together) constitute the highest proportion i.e. 44.94 per cent which is much bigger than that of agricultural households.

Between CPRs-rich and CPRs-poor regions, in the former, main occupation of a majority of households is agriculture and agricultural labor, which followed by cottage industries whereas in the latter, the main occupation of a majority households is non-agricultural labour. In CPRs - rich region, about 65.82 per cent of households depends on agriculture and agricultural labor activities and only 34.18 per cent of households depends on non- agricultural labour activities whereas in CPRs – poor region, only 37.38 per cent of households depends on agriculture and agricultural labour activities and as large as 62.62 per cent of households depends on non- agricultural activities [Table-2].

This implies that the villages in CPRs-poor region have relatively weaker agricultural base and those in CPRs-rich regions have relatively stronger agricultural base. Again, the base for cottage industries is relatively stronger in CPRs-rich regions and relatively weaker in CPRs-poor regions [Table-2]. This is well confirmed from the discussions in sections-v.

Almost all households, whether they belong to CPRs-rich or CPRs-poor region, depend on common land areas and various resources therefrom for their activities and livelihood. In our study areas, out of total survey households, as large as 98.33 per cent depends directly and indirectly on CPRs [Table-3]. The dependence of households on CPRs is little higher in CPRs-rich region than in CPRs-poor region. In CPRs-rich region, a large number of household involves in stone-crushing, mining and quarrying in common stony and hill areas, besides CPRs related other activities. These activities are less intensive in CPRs-poor region. The households in the survey areas depend on CPRs for various purposes such as for collecting inputs for agriculture and cottage industries, fire woods for personal consumption and for selling, fodder for livestock, various house building materials, fish, vegetables and fruits for personal consumption and for selling, and so on.

Over all, a relatively larger percentage of households depends on CPRs for firewood, house-dwelling materials, fishing and other aquatic items, and fodder for livestock [Table-4]. More than 50.00 per cent of households depends on CPRs for agriculture as well as for employment in each CPRs area separately. Between CPRs-rich and CPRs-poor regions, a relatively higher proportion of households

Table-2: Main Occupation of Households

Region	Village	Agriculture	Cottage Industry	Service	Agri. Labour	Labour other than Agri. Labor	Business	Total Households
CPRs Rich Region	Baghoda	147	63	14	129	27	31	411
		(35.77)	(15.33)	(3.41)	(31.39)	(6.57)	(7.54)	(100)
	Pokhraudh	25	4	0	9	21	1	60
		(41.67)	(6.67)	(0.00)	(15.00)	(35.00)	(1.66)	(100)
		172	67	14	138	48	32	471
		(36.52)	(14.23)	(2.97)	(29.30)	(10.19)	(6.79)	(100)
CPRs Poor Region	Millki	65	2	34	37	78	35	251
		(25.90)	(0.80)	(13.54)	(14.74)	(31.08)	(13.94)	(100)
	Devajitpur	26	20	17	32	71	11	177
		(14.69)	(11.30)	(9.60)	(18.08)	(40.12)	(6.21)	(100)
	Both	91	22	51	69	149	46	428
		(21.26)	(5.14)	(11.92)	(16.12)	(34.81)	(10.75)	(100)
	All Villages	263	89	65	207	197	78	899
All		(29.25)	(9.90)	(7.23)	(23.03)	(21.91)	(8.68)	(100)

Source: Field Survey

Note: Figures within parentheses are percentages of households

Table: 3 Number and Percentage of Households Depending on CPRs

Region	Village	Depending on CPRs		Not-Depending on CPRs		Total Households	
		No.	%	No.	%	No.	%
CPRs- Rich Region	1. Baghoda	408	99.27	3	0.73	411	100
	2. Pokhraudh	60	100.00	0	0.00	60	100
	Total	468	99.36	3	0.64	471	100
CPRs- Poor Region	1. Millki	245	97.61	6	2.39	251	100
	2. Devajitpur	171	96.61	6	3.39	177	100
	Total	416	97.20	12	2.80	428	100
Both Region	Grand Total	884	98.33	15	1.67	899	100

Source: Field Survey

involves in CPRs in CPRs-rich region as compared to CPRs-poor region for various activities such as firewood collection, fodder for livestock, agriculture, cottage industry, employment, fishing and collection of other aquatic items, house-dwelling materials and collection of many varieties of forestry products, for personal consumption and selling for price [Table-3]. Particularly, for agriculture, cottage industries and livestock rearing, the percentage of households depending on CPRs is 64.53, 19.02 and 69.87 respectively in CPRs-rich region and 40.38, 10.82 and 71.15 respectively in CPRs-poor region [Table-4]. This implies that the intensity of dependence on CPRs for important activities for livelihood of the rural people is relatively higher in CPRs-rich areas than CPRs-poor areas.

The relative importance of CPRs for rural livelihood can be well judged from the estimates of annual monetary and real income as is accrued to households from CPRs and non- CPRs sources [Table-5]. At this stage, the households depending on CPRs are divided into two exclusive classes as (i) landless households and (ii) landowning households. A majority of landless households in rural India is considered to be socio-economically deprived class. It was also pointed out in many research findings that the mostly socio-economically disadvantaged classes in rural areas are the main beneficiaries of CPRs [Beck and Ghosh: 2000 & Jodha: 1985, 1986]. In order to re-examine this fact, the estimation of annual income from CPRs and non-CPRs is done separately for the landless households and landowning households depending on CPRs in Table-5.

Over all, in all sample villages taken together, the average annual income of a household is Rs. 89, 805, out of which Rs. 4,951 is generated from selling CPRs products and Rs. 84,854 from non-CPRs sources. The average imputed value of CPRs products used annually by a household for personal consumption is Rs. 5,779 [Table-5]. This imputed value of CPRs items is not added to the money income of a household. This can be a part of real income of a household. However, the average annual benefit in monetary term to a household is estimated to be Rs. 10.730 (sum of income from selling CPRs and imputed value of CPRs used for personal consumption). This figure constitutes 11.95 per cent of average annual income of a household. This is very much close to the estimate of Beck and Ghosh in West Bengal [Beck and Ghosh: 2000].

Between landless and landowning households, the average annual income of a landless household is much lower than that of a landowning household. The average annual income by selling CPRs items is much greater for the landless households than the landowning households. But, the average annual imputed value of CPRs used for personal consumption is higher for the landowning households than landless households [Table-5]. The average annual benefit to a household in monetary term from CPRs source constitutes 17.45 per cent of annual income for the landless category and 9.08 per cent of annual income for the landowning category [Table-5]. This indicates that the landless households are relatively more benefited than the landowning households from CPRs. In other words, CPRs significantly contribute to the livelihood of landless households those who are socio-economically deprived section in the rural economy.

Table-4: Number and Percentage of Households Depending on CPRs for Various Main Activities

Region	Village	Total CPRs Dependent households	Firewood Collection	Fodder for Livestock	Inputs for Agriculture	Cottage Industry	Direct Employment in CPRs	Fishing and other Aquatic Items	House Making/ Repairing Materials	Forestry Products Collection
CPRS Rich Region	BG	408	365 (89.46)	270 (66.20)	248 (60.78)	83 (20.34)	251 (61.52)	335 (82.11)	365 (89.46)	109 (26.72)
	PKH	60	60 (100.00)	57 (95.00)	54 (90.00)	6 (10.00)	43 (71.67)	59 (98.33)	60 (100.00)	30 (50.00)
	Total	468	425 (90.81)	327 (69.87)	302 (64.53)	89 (19.02)	294 (82.82)	394 (84.19)	425 (90.81)	139 (29.70)
CPRS Poor Region	Millki	245	199 (81.22)	178 (72.65)	100 (40.81)	21 (8.57)	96 (39.18)	203 (82.86)	242 (98.76)	6 (2.45)
	DVJP	171	162 (94.74)	118 (69.01)	68 (39.77)	24 (14.04)	69 (40.35)	116 (67.83)	169 (98.83)	7 (4.09)
	Total	416	361 (86.78)	296 (71.15)	168 (40.38)	45 (10.82)	165 (39.66)	319 (76.68)	411 (98.80)	13 (3.13)
Both Region	Grand Total	884	786 (88.91)	623 (70.76)	470 (53.17)	134 (15.16)	459 (51.92)	713 (80.66)	836 (94.57)	152 (17.19)

Source: Field Survey

Note: Figures in parentheses are percentages of households depending on CPRs

BG = Baghoda; PKH = Pokhraidh; DVJP = Devajitpur

Table-5: Average Annual Income of Landless and Landowning Households from CPRs and Non-CPRs Sources
(In Rs. Per household)

Region	Village	Landless Households				Landowning Households				All Households			
		Non-CPRS	CPRs (by selling)	Total Income	CPRs* (by Personal Consumption)	Non-CPRS	CPRs (by selling)	Total Income	CPRs* (by Personal Consumption)	Non-CPRS	CPRs (by selling)	Total Income	CPRs* (by Personal Consumption)
CPRs- Rich Region	BG	56,859 (150)	9,087 (150)	65,946 (150)	7,746 (150)	123,650 (261)	3,588 (261)	127,238 (261)	10,913 (261)	99,274 (411)	6,568 (411)	105,842 (411)	9,757 (411)
	PKH	38,615 (13)	26,535 (13)	65,150 (13)	8,731 (13)	53,644 (47)	12,189 (47)	65,833 (47)	918 (47)	50,388 (60)	15,297 (60)	65,685 (60)	1,173 (60)
	Both Village	55,404 (163)	10,479 (163)	65,883 (163)	7,825 (163)	112,967 (308)	4,900 (308)	117,868 (308)	9,388 (308)	93,046 (471)	7,680 (471)	100,726 (471)	8,663 (471)
CPRs -Poor Region	Millki	54,493 (149)	2,171 (149)	56,664 (149)	2,090 (149)	127,467 (102)	1,054 (102)	128,521 (102)	2,179 (102)	84,147 (251)	1,717 (251)	85,864 (251)	2,126 (251)
	DVJP	49,516 (99)	2,851 (99)	52,367 (99)	3,553 (99)	82,508 (78)	1,544 (78)	84,052 (78)	2,947 (78)	64,055 (177)	2,275 (177)	66,330 (177)	3,286 (177)
	Both Village	52,506 (248)	2,442 (248)	54,948 (248)	2,674 (248)	107,985 (180)	1,266 (180)	109,251 (180)	2,512 (180)	75,838 (428)	1,948 (428)	77,786 (428)	2,606 (428)
All Regions	53,655 (411)	5,629 (411)	59,284 (411)	4,717 (411)	111,129 (488)	3,560 (488)	14,689 (488)	6,852 (488)	84,854 (899)	4,951 (899)	89,805 (899)	5,779 (899)	

Source: Field Survey

* imputed value of CPRs items used for personal consumption

Note: Figures in parentheses are household number

BG = Baghoda; PKH = Pokhraidh; DVJP = Devajitpur

Again, between CPRs-rich region and CPRs poor region, the monetary benefits from CPRs vary significantly across different categories of households. For example, landless and landowning households taken together, the average annual income by selling CPRs items is Rs. 7,680 in CPRs-rich region whereas in CPRs poor region, that is Rs. 1,948. Similarly, the annual imputed value of CPRs used for personal consumption by households is Rs. 8,663 in CPRs – rich region whereas in CPRs-poor region, it is Rs. 2,606. The total benefits from CPRs to a rural household in CPRs-rich region constitutes about 16.23 per cent and that, in CPRs-poor region, constitutes as low as 5.85 of annual income of a household. Further, the average annual income of a household in CPRs-rich region is much greater than that in CPRs-poor region.

This purports to conclude that the average living standard of a family in CPRs-rich region is much better than that in CPRs-poor region. In monetary terms, from CPRs sources, the households in CPRs-rich region are relatively much benefited as compared to those in CPRs-poor region. Comparing landless households between CPRs-rich region and CPRs-poor region, on an average, the standard of living (measured in terms of income) of a landless households in CPRs rich region is relatively better than that in CPRs-poor region. Again, the accrued benefits from CPRs to a landless household in CPRs-rich region are greater than that in CPRs-poor region.

Section-IV : Agriculture and CPRs

The farming households, besides their livelihood, depend largely on CPRs for their agricultural production. Many natural factors such as rainfall, humidity, temperature, land fertility through run-off rain water, etc. are influenced by CPRs. In this aspect, CPRs cause certain spill-over positive impacts on agricultural production which would not be directly valued in quantitative terms. This can be indirectly assessed by comparing land productivity between CPRs-rich and CPRs-poor region. Besides this aspect, there are many quantifiable advantages that the farmers usually receive from CPRs at free of cost for their agricultural production. This section is devoted to search out that in what ways the farmers receive benefits from CPRs for agricultural production.

In our survey areas, the farming households collect timbers from forests for making wooden implements as are used in cultivation such as plough, spade holder, plough holder, leveling plank, *junan*, etc. and also, for dwelling farm house amidst their agricultural plats. The most important agricultural inputs – water for irrigation and manure are obtained by many farmers from CPRs areas at free of cost. Green fodders for draught animals used for cultivation and transportation are freely collected from common fallow lands and forests. Some farming households have also reported of using certain plants and seeds used in agriculture, are also collected from CPRs areas. Besides, there are so many petty materials including bio-pesticides, herbals, etc. as collected from CPRs for the purpose of cultivation and draught animals.

Over all, in all sample villages taken together [Table-6], the most important CPRs items are used for agricultural production are woods for agriculture implements, irrigation from common water resources and green fodder for draught

animals from common land areas. The importance of a numerous petty variety of CPRs items used for agriculture is not less. The estimated value of CPRs used by a farming household annually, for wooden implements, irrigation and fodder for draught animals is Rs. 186, Rs. 2633 and Rs. 247 respectively. The value of irrigation constitutes the highest. The value of various petty CPRs items is estimated to be Rs. 442. On an average, annually, the value of all types of CPRs used by a farming household is Rs. 3565 which constitutes 11.68 per cent of its annual agricultural income. In absolute terms, the use of CPRs items for agricultural production increases as the size of landholding of a cultivator expands. We find a positive correlation between size of landholding of a farmer and value of CPRs used for agriculture [Table-6]. But, in terms of percentage to agricultural income, the average annual use of CPRs for agriculture constitutes relatively higher percentage for the petty, marginal and small farming households than the bigger size farming households..

Again, it is to be observed that for the petty, marginal and small size farms (from 0.01 to 7.5 acres), all types of agriculture related CPRs are important whereas for the bigger size farms (above 7.50 acres), two CPRs items – wood for implements and irrigation from CPRs areas are important. The bigger size farmers disproportionately use CPRs –water for irrigation as compared to small size farmers.

This implies that CPRs is relatively more useful for the petty, marginal and small farmers than rich and big farmers.

There is positive correlation between yield per acre and average value of CPRs used for agriculture across different sizes of landholding [Table-6]. This implies that there might be certain contribution of CPRs to land productivity. This can be authenticated from the following discussion.

The study between CPRs-rich and CPRs-poor regions (Table-7) brings out very interesting findings. The average annual agricultural income of a household in CPRs-rich region is much greater than that in CPRs-poor region. Again, the average yield of agricultural land per acre (in terms of value) is relatively higher CPRs-rich region than that in CPRs-poor region. This implies that the agriculture in CPRs-rich region is relatively better than in CPRs-poor region.

With respect to the use of CPRs in agricultural production, on the basis of monetary value of CPRs, it can be said that the farming households in CPRs-rich region use CPRs at a relatively larger scale than those in CPRs-poor region. In value term, the average annual use of CPRs by a farming household in CPRs-rich region constitutes Rs. 5,093 (12.5 per cent of agricultural income) whereas that in CPRs poor region, it constitutes Rs. 1,009 (7.8 per cent of agricultural income) [Table-7]. Across various sizes of landholding, in both CPRs-rich and CPRs-poor regions, the smaller size farming households use a large variety of CPRs at a relatively higher scale as compared to the bigger size farming households. Between CPRs-rich region and CPRs-poor regions, the smaller size farming households in the former use CPRs at a relatively larger quantity than those in the latter.

Table-6: Value of CPRs Items used in Agricultural Production

(All sample regions taken together) [Value in Rs. / per household/annual]

Sl. No.	Size of land holding (in acre)	Wood for implements	Water for irrigation	Fodder for draught animals	Manure for Agri.	Plants and seeds	Other items used for Agri.	Total Value	Agricultural Income	Yield per acre (in Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1.	0.01-1.00 (190)	101	552	144	15	15	246	1,073 (16.11)	6,662	7,852
2.	1.01-2.50 (172)	211	1,314	333	72	25	643	2,598 (14.61)	17,785	8,577
3.	2.51-5.00 (56)	277	3,113	421	18	37	747	4,613 (12.40)	37,196	9,028
4.	5.01-7.50 (32)	322	5,906	344	3	56	523	7,154 (10.73)	66,656	9,539
5.	7.51-10.00 (10)	230	9,400	30	0	0	0	9,660 (10.50)	92,000	11,634
6.	Above 10.00 (28)	257	17,739	43	0	0	0	18,039 (9.29)	1,94,107	10,638
7.	All Sizes (488)	186	2,633	247	34	23	442	3,565 (11.68)	30,524	9,555

Source: Field Survey**Note:** 1. Figures in parentheses in column no.2 are number of households.

2. Figures in parentheses in column no.9 are percentages to total annual agricultural income of a household.

Table-7: Value of CPRs Items used in Agricultural Production between CPRs-rich and CPRs-poor region

(in Rs. per household)

Region	Size of Land Holding (in acre)	Wooden implements	Water for irrigation	Fodder for draught animals	Manure for Agri.	Plants and seeds	Other items used for Agri.	Total Value [3+4+5+6+7+8]	Agricultural Income	Yield per acre (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
CPRs Rich Region	0.01-1.00 (69)	152	751	367	41	36	596	1,943 (24.80)	7,830	8,437
	1.01-2.50 (128)	257	1,528	447	94	32	858	5,159 (27.50)	18,789	8,843
	2.51-5.00 (47)	305	3,264	502	21	42	843	4,977 (13.40)	37,255	9,081
	5.01-7.50 (30)	330	5,967	347	3	60	550	7,257 (10.90)	66,433	9,563
	7.51-10.00 (8)	275	9,000	375	0	0	0	9,650 (10.20)	93,750	12,081
	Above 10.00 (26)	277	18,385	46	0	0	0	18,708 (9.50)	1,97,500	10,722
	All Sizes (308)	250	3,668	383	52	34	672	5,093 (12.50)	40,826	9,837
CPRs Poor Region	0.01-1.00 (121)	72	439	17	1	3	47	579 (9.70)	5,996	7,373
	1.01-2.50 (44)	78	691	0	7	5	17	798 (5.40)	14,864	7,500
	2.51-5.00 (9)	128	2,322	0	0	11	247	2,708 (7.30)	36,887	8,760
	5.01-7.50 (2)	200	5,000	300	0	0	125	5,625 (8.00)	70,000	9,211
	7.51-10.00 (2)	50	11,000	0	0	0	0	11,050 (13.00)	85,000	10,000
	Above 10.00 (2)	0	9,350	0	0	0	0	9,350 (6.20)	1,50,000	9,375
	All Sizes (180)	77	862	15	2	4	49	1,009 (7.08)	12,897	8,146
Both	All Sizes (488)	186	2,633	247	34	23	442	3,565 (8.56)	3,0524	6,555

Source: Field Survey

Note: 1. Figures in parentheses in column No.2 are number of households.

2. Figures in parentheses in column No.9 are percentages of total CPRs value to total annual agricultural income of a household.

From the above findings, it is quite obvious that CPRs have significant contribution to agricultural development. The rich-CPRs can create a strong base for agricultural development. Again CPRs are relatively more useful for the smaller size farmers as compared to bigger ones.

Section- V: CPRs and Cottage Industries

In our survey areas, the importance of cottage industries appears just after agriculture. In all sample villages taken together, 89 households out of total 899 households surveyed (around 10.0 per cent) carry cottage industry of various types. The cottage industries those more popular are:-carpentry, pottery, blacksmithy, goldsmithy, bamboo handicrafts, carpet-weaving, *bidi* making, pressed-leaves utensils making, broom making, *khappar* making for roofs etc. Among these industries, pottery, bamboo-handicrafts, *bidi* and carpet industries constitute a big proportion. A variety of CPRs are used by these industries as raw materials, implements, tools and house dwelling materials for industries. Besides to their industrial operations, CPRs also contribute to the general livelihood of members engaged in industries.

Overall, in all sample villages taken together, an industrial household using CPRs items for industries annually constitutes Rs. 2001, out of which the estimated value of raw materials is Rs. 1810, woods used for implements, equipments etc. is Rs. 100 and other various items is Rs. 91. The value of raw material constitutes largest figure among the CPRs-uses for cottage industries [Table-8]. This amount of CPRs is obtained by a household carrying industry at free of any payment. Besides using CPRs for industries, an industrial household also involve in collection of CPRs for selling in markets and personal family consumption. From selling CPRs items, a household adds annually Rs. 4482 to its annual income. The estimated value of CPRs items used by an industrial household for personal family consumption is Rs. 8402. The sum of benefits in monetary terms as received by an industrial household from CPRs is to the extent of Rs. 14,885 which constitute 29.12 per cent of its total annual income and as big as 57.75 per cent of its annual income from industry only. There are examples of a large number of industries those who survive because of free availability of CPRs items around them. CPRs are the main source of supply of raw materials to them.

Between CPRs-rich and CPRs-poor regions, the average annual benefits in monetary terms to cottage industries is relatively higher in CPRs-rich region (30.07 per cent of annual income) than that in CPRs-poor region (24.63 per cent of annual income) [Table-8]. It is observed that many cottage industries in CPRs-poor regions obtain raw materials and wooden items used in industries from distant CPRs-rich regions. So that the economic status differences of cottage industries between CPRs-rich and CPRs-poor region is reduced to a large extent. For example, the average annual income of a household industry is Rs. 25,910 in CPRs-rich region and 25, 364 in CPRs-poor region. Between CPRs-rich and CPRs-poor regions, there is very marginal difference of industrial earning of a household.

With respect to the price free benefits to the cottage industries from CPRs, the estimated value of all CPRs items collected annually by a household for industries is Rs. 2330 in CPRs-rich region and Rs. 1001 in CPRs-poor region [Table-8]. Raw

Table-8: Values of Various Items of CPRs Used by Cottage Industry

(Values in Rs. / per household/annual)

Region	Villages*	Raw material used in the industry	Wood and Wooden material used in industry	Other various items used for industry	Total [3+4+5]	Average income from industry	Average income from other sources	Total average income**	Average income by selling CPRs items	Average annual consumption of CPRs
1	2	3	4	5	6	7	8	9	10	11
CPRs-Rich Region	BG (63)	2,165	120	84	2,369	26,333	30,621	56,954 (30.03)	5,898	8,834
	PKH (4)	1,525	88	100	1,713	19,250	22,125	41,375 (31.06)	2,288	8,850
	Both (67)	2,127	118	85	2,330	25,910	30,114	56,042 (30.07)	5,682	8,835
CPRs-Poor Region	Millki (2)	250	25	63	338	18,000	9,000	27,000 (10.51)	0	2,500
	DVJP (20)	903	49	115	1,067	26,100	11,005	37,105 (25.65)	910	7,542
	Both (22)	844	47	110	1,001	25,364	10,823	36,187 (24.63)	827	7,084
All	All (89)	1,810	100	91	2,001	25,775	25,345	51,120 (29.12)	4,482	8,402

Source: Field Survey

Note: * Figures in the parentheses in column no.2 represent the number of households engaged in cottage industries.

**Figures within parentheses in column no.9 are the percentage of estimated benefits (sum of cols. 6, 10 & 11) to total average income as accrued to cottage industries from CPRs free of any cost

materials from CPRs constitute the highest value both in CPRs-rich and CPRs-poor regions. The value of raw materials from CPRs is much greater in CPRs-rich region than in CPRs-poor. region

Besides using CPRs for industries, the household also collect various CPRs items for personal family consumption as well as for selling in markets. In CPRs-rich region, an industrial household receives annually Rs. 5,682 from CPRs-selling in markets and its annual personal consumption of CPRs is estimated to be Rs.8835. whereas in CPRs-poor region, it receives annually Rs. 827 from CPRs –selling in markets and its annual personal consumption of CPRs is estimated to be Rs. 7,084 [Table-8]. The total annual monetary benefits from the above two sources as accrued to an industrial household is much greater in CPRs –rich region (i.e. Rs. 14,517) that in CPRs-poor region (i.e. Rs. 8369).

From the above findings, it can be concluded that the CPRs play crucial role in rural industries. The households carrying out cottage industries depend on CPRs for double supports: to industries and to livelihood of household members. The intensity of CPRs-support to cottage industries is relatively higher in CPRs-rich region than in CPRs-poor region.

Section- VI: CPRs and Livestock

In rural economy, livestock is considered as an important subsidiary source for adding to a household's income. This source can contribute significantly to rural poverty alleviation. Particularly, for landless and labour households, livestock is the most viable income generating living asset. In this section, the attempt is made to study how CPRs play crucially in livestock economy.

In all sample villages taken together, in the category of cattle, the milch animals constitute the biggest proportion. The milch animals in our survey areas include cows, female buffalos and selected female goats. Male buffalos are included in draught animals. Per one hundred households, the absolute number of cows, buffalos, goats, draught animals and other cattle is 109, 73, 29,36 and 102 respectively. The percentage of milch animals (cows and buffaloes) is about 52.15 per cent of total cattle [Table-9]. The other types of livestock such as pigs and poultry (chicken, ducks, hens, geese, etc.) constitute 15 and 383 respectively per hundred households [Table-9]. The milch animals are mainly reared for milk production which is used for selling and personal consumption. The draught animals are mainly used in agricultural production and in transportation. The goats (mainly male goats), sheep, pigs, poultry are meant for selling in markets for price. On an average, a household can able to raise annually the income from milk selling and selling for livestock of Rs.9, 643 (around 11.0 per cent of total annual income of a household).

Comparing livestock between CPRs-rich and CPRs-poor regions, the number of various types of livestock per hundred household is greater in the former and is lower in the latter, except goats and poultry. The number of goats and poultry is higher in CPRs-poor region [Table-9]. A unique difference is found between landless and landowning households in the respect of livestock possessing. In both CPRs-rich and CPRs-poor regions, the landless households possess relatively lessr number of cattle-variety of livestock and relatively greater number of pigs and poultry

livestock as compared to landowning households. This might be due to the fact that the economic distress and low affordability of landless households did not allow them to possess and rear cattle-variety of livestock such as milch cow, buffalo, etc. However, both landless and landowning categories both in CPRs-rich and CPRs-poor regions largely depend on CPRs for rearing livestock. Their dependence on CPRs for livestock is explained in Table-10.

In monetary term, a household uses various CPRs items for livestock rearing of value of Rs. 1691 annually in all sample villages taken together. The various types of CPRs are used by households for livestock. The green fodders are usually collected from common grazing and fallow lands as well as from forests. Besides, livestock particularly cows, buffalos, goats, sheep, and draught animals are freely allowed to move and graze on common land areas and forests. The value of this thing is not taken into account. For dwelling of houses and shades for livestock, various CPRs are collected and used by households. Besides those, many petty materials including herbal, medicines, which are required for livestock, are also collected from CPRs land areas. Some households personally collect CPRs themselves without any payment. Some others purchase CPRs from different persons on payment basis for the livestock. The valuation of CPRs for livestock was done for both systems.

Over all, the value of fodder collected from grazing and fallow lands is relatively higher as compared to the values of other CPRs used for livestock. The value of green fodders from forest areas is relatively lower. Next to fodders, the value of CPRs materials collected for dwelling houses and shades for animals constitutes relatively higher proportion [Table-10]. The total values of CPRs items used annually by a household for rearing livestock constitute about 17.54 per cent of annual income of a household from livestock. Between CPRs-rich and CPRs-poor regions, on an average, the value of all types of CPRs used by a household for livestock is greater in the former than in the latter. In CPRs-rich region, the value of total CPRs used annually by a household for livestock is Rs. 2367 (19.64 per cent of livestock income) whereas in CPRs-poor region, that is Rs. 946 (13.53 per cent of livestock income) [Table-10]. This implies that a household exploits relatively more quantity of CPRs in CPRs - rich region than in CPRs-poor region, for the rearing livestock. This is due to the fact that as said earlier, a household in CPRs-rich region possesses relatively a higher number of cattle-livestock than in the CPRs-poor region. In order to feed and accommodate greater number of livestock, in CPRs-rich region, a household uses relatively larger quantity of CPRs than that in CPRs-poor region. Again, green fodders constitute the highest proportion in CPRs as used by a household for livestock in both CPRs-rich and CPRs-poor regions.

Between landless and landowning households, a household uses relatively lower quantity of CPRs in the former and relatively higher quantity of CPRs in the latter. The value of annual use of CPRs by a landless household for livestock is Rs. 1545 whereas by a landowning household for livestock is Rs. 2800 in CPRs –rich region. In CPRs-poor region, that is Rs. 823 for a landless household and Rs. 1116 for a land owning household [Table-10]. Although a landless household using CPRs

for livestock rearing is lower as compared to landowning household, yet its relative importance to a landless household is greater than a landowning household.

Table-9: Number and Types of Livestock

(Per hundred households)

Region	Category	No. of Households	Cow	Buffalo	Goat	Draught Animal	Other cattle (mainly sheep)	Poultry	Pigs
CPRs Rich Region	Landless	163	76	15	11	35	1	474	54
	Landowning	308	156	130	36	78	231	117	13
	All	471	129	90	27	63	151	241	27
CPRs Poor Region	Landless	248	69	25	50	4	24	923	3
	Landowning	180	112	92	3	7	78	10	0
	All	428	87	53	30	5	47	539	2
Combined	Landless	411	72	21	35	16	15	745	24
	Landowning	488	140	116	24	52	175	78	8
	All	899	109	73	29	36	102	383	15

Source: Field Survey

Table-10: Value of CPRs used by households for Livestock

(Per household in Rs. /Annual)

Region	Household Status	Fodder from grazing/ fallow land	Fodder from forest areas	Material used for housing and shading of animals	Other items used for livestock	Total value of CPRs [3+4+5+6]	Income from Livestock	% of total CPRs values to livestock income
(1)	(2)	(3)	(4)	(5)	(6)			
CPRs Rich Region	Landless (163)	972	158	290	125	1,545	5,874	26.30
	Landowning (308)	1,942	269	402	187	2,800	15,320	18.27
	All households (471)	1,606	231	364	166	2,367	12,051	19.64
CPRs Poor Region	Landless (248)	550	64	161	48	823	3,929	20.94
	Landowning (180)	760	70	229	57	1117	11214	9.95
	All households (428)	638	67	190	51	946	6,993	13.53
All	All villages (899)	1,145	153	281	111	1,691	9,643	17.54

Source: Field Survey

Note: Figures in parentheses are number of households.

Because, the proportion of the value of the CPRs used for livestock in total livestock income is relatively higher for the landless household than the landowning households. For example, the percentage of the value of all CPRs used by a household for livestock to total livestock income is 26.30 for a landless and 18.28 for a landowning household in CPRs rich region, whereas in CPRs poor region, that is 20.95 for a landless and 9.95 for a landowning household [Table-10].

The important findings as emerged from the above analysis can be summarized as follows:

CPRs, mainly rich grazing, fallow and forest lands where green fodder is plentifully available, can create a strong base for the livestock growth. A rural household in CPRs –rich region possesses relatively large number of livestock and accordingly, earns relatively more from livestock as compared to its counterpart in CPRs –poor region. Therefore, the dependence on CPRs for livestock is relatively much greater in CPRs –rich region than in CPRs-poor region. Livestock such as goats, sheep, pigs and poultry are relatively more crucial and viable for the landless households than the landowning households. For livestock rearing, the landless households are more benefited from CPRs as compared to landowning households.

Section- VII: Conclusion

Both agriculture and cottage industry are relatively more developed in CPRs-rich region than in CPRs-poor region. For the major economic activities such as agriculture, cottage industry and livestock rearing, the rural households get strong support from CPRs and CPRs-land areas. Besides, the rural households generate directly some income by selling CPRs products in the markets and save expenditure by consuming and using CPRs items at free of cost. Both, in terms of income and saving -expenditure constitute around 12.0 per cent of average annual income of a household. This figure is much greater than NSS- figure (3.0 per cent of annual consumption expenditure of a rural household) and is very much close to the estimate of Beck and Ghosh [2000]. As was found in other studies, the landless households (mostly socio-economically deprived group) are largely benefited than the landowning households from CPRs for their livelihood. The livelihood-support of CPRs to the landless families is more intensive in CPRs-rich region than in CPRs-poor region. The average standard of living of a landless household in CPRs-rich region is relatively better than that in CPRs-poor region. Perhaps, due to a relatively more scope of income and employment in CPRs-rich region, the rate of migration of rural people to distant cities for search of employment is relatively much lower in CPRs-rich region than in CPRs-poor region. The rate of out-migration of rural population in CPRs-rich region is around 3.0 per cent and in CPRs-poor region it is about 20.0 per cent. This has conformity with the observation of Chopra and Gulati [2001] in the state of Rajasthan.

The rural farmers, at a large, get supports from CPRs for the agriculture. They collect forestry items such as timbers for making and adding to varieties of agricultural implements, use common water systems for irrigation, collect green fodder from common land areas for feeding their draught animals used in agriculture, and so on. They are all benefited in terms of cost – saving involved in agricultural production. The estimated value of annual average use of all types of CPRs by a

farming household constitutes 11.68 per cent of its annual agricultural income. Moreover, the petty, marginal and small farmers are benefited from variety of CPRs, whereas the big farmers are largely benefited from one type i.e. common water system for irrigation. In overall terms, big size farmers, might be due to their strong socio-economic power, capture a large proportion of common water resources for cultivation as compared to small and marginal farmers. Between CPRs-rich and CPRs-poor regions, the agricultural income per household and yield per acre are relatively greater in the former than in the latter. The differentiation of land productivity and agricultural income of farmers between these two regions is mainly attributed to CPRs-uses in agriculture. The farmers in CPRs-rich region use CPRs for agriculture at a relatively larger scale than those in CPRs-poor region. No doubt, CPRs have significant contribution to sustainable agricultural development.

In our survey areas, around 10.0 per cent of rural household is engaged in cottage industries of various types. CPRs play key role in sustaining the rural cottage industries. For a large majority of cottage industries, CPRs areas are the main source for obtaining basic raw materials, wooden implements and house-dwelling materials from CPRs areas. Besides, CPRs also contribute to the livelihood of family members engaged in cottage industries. The intensity of CPRs-support to cottage industries is relatively higher in CPRs-rich region than in CPRs-poor region.

CPRs have immense contribution to the growth of livestock in the rural economy. The main supportive CPRs item to livestock is green fodders which are available and collected from common grazing and fallow lands, corn fields, forests, and river basins. Besides, CPRs materials are also used for roofing, housing, and shading for livestock. In absolute number, the cattle variety of livestock is much greater in CPRs-rich region than in CPRs-poor region. The landless households those who are socio-economically deprived are relatively more benefited from CPRs as compared to landowning households in rearing livestock. On an average, a household in CPRs-rich region possesses relatively more number of livestock and accordingly, earns relatively more from livestock as compared to its counter part in CPRs-poor region. Therefore, the dependence on CPRs for livestock rearing of a household in CPRs-rich region is much higher than that in CPRs-poor region. These all purport to conclude that CPRs, mainly rich grazing, fallow and forest lands where green fodders are plentifully available, can create a strong base for livestock growth.

By and large, rich CPRs can ensure a sustainable development of agriculture, cottage industries and livestock, in general and a better living standard of the socio-economically deprived population, in particular.

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