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CPLR and water resource utilization by livestock farmers in different ecosystems of India

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Introduction

The common property resources comprises of all such resources that are meant for common use of the villagers including all resources. The National Sample Survey Organization (NSSO), 1999 in its report defines CPRs as "Resources accessible to and collectively owned\held\managed by an identifiable community and on which no individual has exclusive property rights are called common property resources". Over the time, there has been gradual decline in CPRs availability to the villagers. The CPRs play an important role in the livelihood of resource poor farmers. According to NSSO, 1999, the percentage of Common Property Land Resources in total geographical area, Common Property Land Resources per household (ha.), Common Property Land Resources per- capita (ha.) is 15, 0.31 and 0.06 respectively. Components of Common Property Land Resources include Community Pastures and grazing land (23%), Village Forest and woodlots (16%) and Other (61%) and there has been reduction of 19 ha in CPR land during last 5 years (per 1000 ha.). The animal land intensity in India is high with an average land holding size of 1.57 ha supporting nearly 2.94 bovines and 1.14 ovine. This in turn puts pressure on common property resources. In developing countries, common property resources (CPRs) can be an important source of income for certain individuals within households (Maggs and Hoddinott, 1997). The common lands are significant form of natural resource endowment in developing countries, play a vital role in maintaining the ecological balance, and in supporting the rural poor, in eking out their livelihood (Qureshi and Kumar, 1998). The objective of present study is to assess the utilization of CPLRs (Common Property Land Resources) and water resources in different ecosystems of India.

Materials and Methods

The sampling was done on all India basis from different states which were stratified in to four ecosystems (Arid-ecosystem, Semi-arid Ecosystem, Sub-humid Ecosystem, Humid- per-humid- coastal system). The data was collected with the help of the pre-tested schedule from these ecosystems. The districts, then three blocks from each district and three villages from each blocks were selected randomly. From each villages six livestock rearing farmers were selected. The farmers were categorized as landless, marginal, small, medium and large on the basis of land holding. The total samples collected and analysed from different ecosystems were 1873 comprising of all categories of farmers during 2006-2011. The data has been analyzed on the basis of farmer's category and ecosystem.

Results and Discussion

Utilisation of CPLRs: Regarding CPLRs, other common resources and road/ rail side land, the data revealed that 49.71 percent farmers were using these resources. The large farmers of sub humid (79.12 %) and semi arid (71.05 %) region were maximum users of CPLRs for fodder indicated more access to resource rich farmers compared to resource poor farmers. The humid region was least user of CPLRs except large farmers. The utility of CPLRs for other purposes such as fuel wood or timber was relatively very less in all ecosystems and least in humid ecosystem. The use of road/ rail side land was found maximum in case of sub humid-large (58.33%) followed by semi arid landless (54.55%). In other ecosystems the landless and marginal farmers were less users. Singh (1994) observed that access to these resources is declining as CPRs are increasingly commercialized or becoming scarcer. Similarly Sahoo and Misra, 1994 found that the area of the CPR lands in the villages has declined. The main cause of decline of CPRs is privatization. Transfer of CPR land to poor people through various social welfare programmes for their private use, and illegal occupation of the CPR land leading to subsequent legalization, were two important factors which resulted in large-scale privatization. Sekar

(1999) also reported that per caput CPLR is very low in Tamil Nadu as against the national average. A government strategy should include, ban on further privatization of common property resources, regulated use of common property resources by introducing some element of private cost for the users, and designation of common property resources as a source of revenue for the Panchayats, to induce them to conserve and systematically manage them as productive resources (Jodha, 1986). The grazing management should be improved and farm-forestry implemented to provide browse and improve the grazing lands. The National Sample Survey Organization (NSSO), 1999 reported that 48 % households reporting collection of any materials from CPRs. As per use the Households reporting grazing of livestock on CPRs, use of common water resources, livestock rearing, collecting fodder from CPRs and cultivating fodder on CPRs were 20, 23, 30, and 13 respectively. Average quantity of fodder collected from CPRs during 365 days was 275 kg. The 56 % of households were possessing livestock.

Table 1: Utilisation of CPLRs (%)

Ecosystem	Utility of CPLRs for fodder		Utility of other purposes		Use of rail road side land	
	Yes	No	Yes	No	Yes	No
Arid	45.57	54.43	11.93	88.07	26.94	73.06
Semi-arid	52.69	47.31	23.93	76.07	37.29	62.71
Sub humid	52.41	47.59	18.33	81.67	21.30	78.70
Humid	38.49	61.51	7.90	92.10	14.09	85.91
Pooled	49.71	50.29	16.92	83.08	27.02	72.98

Utilisation of water sources: Regarding water source for human consumption, the data revealed that in arid (52.38%), semi arid (43.93 %) and sub humid (62.21 %) respondents were using hand-pump, tap or government supply while in humid ecosystem well/ tube-well were more preferred (54.48 %). Regarding water source for livestock consumption, the data revealed that in arid (33.02%), semi arid (37.76 %) and sub humid (49.42 %) respondents were using hand-pump, tap or government supply while in humid ecosystem all sources were used. Regarding water source for irrigation purposes, the data revealed that in arid (46.47%), semi arid (68.843 %) respondents were using well while in sub humid (48.29 %) and humid (50.43 %) respondents were using canal /river/ponds. The National Sample Survey Organisation (NSSO), 1998 found that households reporting irrigation using Common Property Water Resources owned/ managed by village Panchayat, community, government, river / Govt. canal etc. were 1.1, 0.8, 1.8,10.3 percent respectively. The results indicated that for agriculture and livestock purposes in arid and semi-arid ecosystem, efforts may concentrate on development and recharging of wells while in sub-humid and humid ecosystem the canals /pond development are important. To understand role of common pool resources in the development process, there is need to study overall magnitude of these resources, the nature of access of stakeholders and the dynamics of change. The CPRs are important for survival strategy of the rural poor. The interventions to improve access and influence dynamics of change need to be built on pre-existing institutions of resource management, and be transparent with respect to processes of sharing in resource ownership and management and should provide “level playing fields” for stakeholders (Chopra and Purnamita, 2002).

Table 2: Utilisation of water source (%)					
	Ecosystem				
Water sour	Arid	Semi-arid	Sub- humid	Humid	Pooled
Drinking purpose					
Handpump,	52.38	43.93	62.21	31.38	48.86
Well etc.	10.62	14.02	14.29	54.48	19.56
Canal, pond	11.9	0.56	10.6	4.83	7.09
Combinatio	25.09	41.5	12.9	9.31	24.49
Livestock purpose					
Handpump, tap etc.	33.02	37.76	49.42	20.64	36.47
Well etc.	14.63	15.94	15.7	48.4	20.63
Canal, pond, river etc.	30.58	8.35	28.64	20.28	21.87
Combination of above all	21.76	37.95	6.24	10.68	21.03
Irrigation purpose					
Well etc.	46.47	68.84	38.89	45.22	49.42
Canal, pond, river etc.	37.5	23.12	48.29	50.43	38.84
Combination of above all	16.03	8.04	12.82	4.35	11.74

Conclusion

In all ecosystems specially in arid and semi arid regions of the country, CPRs plays major role for both fodder, fuel wood and water requirement. Under difficult environments, livestock plays an important role in the livelihood of human beings. Therefore, it is essential that mechanism for mitigating the hardship to animals and restoring the livelihood of people be created in the zones of vulnerability by enhancing the productivity of CPLRs through employing improved agroforestry / agri-silviculture technologies. The grazing management should be done in such a manner so that grassland maintains their productivity.

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