CHAPTER VI

SUMMARY AND CONCLUSIONS
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This chapter presents the brief summary of the present study, concluding observations few positive policy suggestions with regard to sustainable use common property resources in all agro climatic zones in general and low CPR areas in particular.

6.1 INTRODUCTION

Natural resources are the basis for all living organism in the universe. On the basis of these natural resources the social and economic activities of human being are performed. In broader sense the resource is meant by some thing that is use full and valuable that is either satisfies or helps in satisfying human wants. Based on the origin the resources can be classified in to environmental and man made resources. According to experts and UNO (1970) natural resources are anything found by man in his natural environment, which he may in sameo way utilize for his own benefits. Based on resource possession and utilisation, resources can be categorised into four basic property resources. They are,

a) Private Property Resources,
b) State Property,
c) Open Access Resources, and
d) Common Property Resources.
Broadly speaking common property resources (CPRs) are those resources that are accessible to the whole community of village and to which no individual has exclusive property rights.

While the process of privatization of resources goes on, few kind of resources remained outside the process or those which were specifically remained kept aside or beyond the reach of private were became common property resources. N. S. Jodha (1986) opines that the presence of factors less favorable to rapid privatization of resources may be one of the reasons for existence common property resources. These factors include the market isolation, inaccessibility, limited technology and complementarities between private property resources and common property resources, etc.

Broadly defined common property resources are those resources used by an entire community without any exclusive individual ownership or access rights.

The very definition of Sustainable Development given by World Commission on Environment and Development (1987) “the development that meets the needs and aspirations of the present without compromising the ability of future generation to meet their own needs” which considers every resource as common property resource.

In the context of Indian villages the resources falling under common property resource category include, community pastures, community forests and waste land, common dumping and threshing grounds, watershed drainages, village ponds, rivers/rivulets as well as their banks and beds.
Much of the environmental income earned in the developing world comes from common pool resources. Common pool resources are forests, fisheries, reefs, waterways, pastures, agricultural lands, and mineral resources that no individual has exclusive rights to. They are typically owned and administered by the state, a village, a tribe, or other social grouping, with the idea that the benefits will accrue to many people rather than one person or family. Local and distant residents go there to collect firewood, graze their cattle, gather non-timber forest products (NTFP) like medicinal herbs or mushrooms, hunt, fish, collect water, or make use of a variety of other services such as visiting sacred groves. Because these commons or public domain lands are such a rich source of environmental income, they are a crucial element in the livelihood strategies of the poor, particularly those who do not own land themselves (Jodha 1986).

The present study has been undertaken with the following objectives.

1. To understand the CPR scenario in India and Karnataka over a period.
2. To find out the contributions of common property resources to the rural community in different agro-climatic regions of Karnataka state.
3. To know the location specific aspects of CPRs and CPR based activity.
4. To find out the variation in availability of CPRs across agro-climatic zones and between high CPR and low CPR Zones.
5. To suggest the policy measures for sustainable use of CPRs.
6.2 METHODOLOGY

The state of Karnataka has been selected for the present study as it is one of the major southern states under Agro-Ecological Region of Humid to Semi-arid Ghats and Karnataka Plateau as per agro-ecological zonal classification in India. In addition to this a very few research works on CPRs have been carried out in different parts of the state. The availability of CPLRs and accessibility of CPLRs are influenced by various factors such as ecological characteristics of region, land use classification, cropping pattern, crop type, type of irrigation etc. Indian Council for Agricultural Research (ICAR) under World Bank supported National Agricultural research Project essentially based on climate, soils and existing cropping pattern of state, has classified Karnataka state into 10 Agro-climatic Zones.

The regional characteristics of talukas of each Agro-climatic Zone are more or less similar. All talukas were listed in descending order of the area under CPLR in each taluka with land use data of 2002-03. From ten agro-climatic zones we have selected twenty talukas at the first level. Two talukas from each zone, one representing high CPLR area and another representing low CPLR area were selected. In the next stage one village from each taluka is selected for in depth analysis. From the category of high CPLR talukas, villages with high CPLR are selected and from the category of low CPLR talukas, villages having low CPLR have been selected. So in total ten high CPLR villages and ten low CPLR villages have selected for the present analysis.
For selection of sample households stratified quota sampling technique was used. Households of the villages have been categorised into two strata.

Poor households consist of land less labour, marginal and small farmers.
Non-poor households consist of semi-medium, medium, large farmers and other salaried households.

Then 10 sample households were selected from each village. Thus a total of 200 households consisting of poor and non-poor formed the sample size of the study.

Both primary and secondary data has been used for the present study. The data collected through secondary as well as primary sources were presented in tabular form to facilitate easy comparison.

6.3 MAJOR FINDINGS

1) The average size of the family highest in north eastern transition zone with 6.55 persons followed by north eastern dry zone with 6.10 persons.
2) The average size of the livestock is also higher in north eastern transition zone with 7.50 heads per family followed by southern transition zone with 4.65 heads.
3) The average size of the land holding highest with 12.55 acres in northern transition zone.
4) Paddy is the major kariff crop in all agro-climatic zones except north eastern transition zone. There is wide variation in the cropping pattern across the agro-climatic zones.

5) Jowar is the major rabbit crop grown only in few agro-climatic zones.

6) The average income derived from agriculture in northern transition zone is highest at Rs. 53,179 followed by north eastern transition zone with Rs. 40,948.

7) Ninety eight percent of the house holds in high CPR zone use fuel wood as a cocking fuel to the extent of more than 80 per cent where as in low CPR zone 92 per cent of households use fuel wood as a cooking fuel less than $3/4$ of their total cocking requirements.

8) The share of crop residues is more than $1/4$ of the total fuel requirements of nearly half of the total households in low CPR zone. Where as the corresponding share of households using crop residues is less than $1/4$ of the total households in high CPR zone.

9) Ninety five per cent of the households use fuel wood as a cooking fuel to the extent of 76 per cent in all agro climatic zones.

10) In costal, hilly, northern transition zone and northern dry zones, people use fuel wood as a cocking fuel to the extent more than $4/5$ of the total requirements.

11) More than half of the households in high CPR zone used fuel wood exclusively. But in the low CPR zone only little more than $1/4$ of the households use fuel wood as exclusively as a cooking fuel.
12) Per capita fuel wood is high in coastal zone at 2.47 kg followed by hilly zone with 2.21 Kgs. and lowest in southern transition and dry zone at 1.26 Kgs.

13) Value of fuel wood per household per year is more than Rs. 12000 in northern dry zone.

14) There is wide variation between high CPR and low CPR zone with regard to per capita fuel wood per day, per family, per year which have been higher in high CPR. But the value of fuel wood is 40 per cent higher in low CPR zone.

15) The per capita fuel wood for land less households is higher at 2.04 Kgs.

16) In seven agro climatic zones CPRs is the main source of fuel wood for nearly of half of the households.

17) In the high CPR zone more than 4/5th of the total households using fuel wood derived fuel wood from CPRs. But in low CPR zone seasonal CPRs provide fuel wood to more than 63 per cent of households (fuel wood using).

18) The distribution of livestock across the high CPR and low CPR zone is more for less similar except bullock.

19) In coastal, southern dry, eastern dry and north eastern transition zones more than 50 per cent of the house holds maintained cow. The bullocks are held by more than 50 per cent of the households in the north eastern transition zones which is highest.

20) In eight zones grazing activity takes place to the extent of more than 60 per cent in CPRs where as southern transition, and eastern dry zones the seasonal CPRs major place of grazing to the extent of more than 60 percent.
21) The number of households who graze their livestock in CPRs is higher at 60 per cent in high CPR zone with average share of CPRs in grazing place is more than 3/4th of total grazing requirement. But in low CPR zone the number of households who graze in CPRs is less at 37 and share of CPRs in grazing also less 34 per cent.

22) There is large variation in value of grazing in high and low CPR zone.

23) The imputed value of services derived from CPRs is account for 29 per cent of total income from all sources in northern dry zone which is highest among all zones. The share of imputed value of services derived from CPRs account for more than 1/10th of total income from all sources in north eastern dry, coastal, hill, eastern dry, north eastern dry and north eastern transition zones. It is nearly 12 per cent in all zones.

24) Share of CPR income varied between 13 percent in high CPR zone and 10.28 low CPR zone.

25) Landless households derive nearly 34 percent income from CPRs.

26) The share of income from CPRs decrease with land size and household category.

6.4 CONCLUSION

Following concluding observations can inferred based on the findings of the study.

The analysis of the secondary data on CPLRs both across as well as within the different agro-climatic zones and at micro level
reveals that the distribution of CPLRs is varied. This disparity was largely due to the presence or absence of forests at particular level. Thus forest is the major factor deciding the extent of CPRs in any zone, district, taluka or at village level.

The share of fuel wood in the total cooking requirements is high in high CPR zone due the availability of forest CPRs compared to low CPR zone. In the low CPR zone the share of crop residues is higher that confirms the fact that the insufficient fuel wood compelling the people to use the inferior cooking fuels like crop residue. In addition to this the percentage of house holds who use fuel wood exclusively in high CPR zone is almost double of the percentage of house holds of low CPR zone who use fuel wood 100 per cent which suggests that the fuel wood play a significant role as a cooking fuels in the high CPR zone.

The per capita use of fuel wood is varied between 2.47 Kgs. and 1.26 Kgs. across the different agro-climatic zones that is almost similar to the earlier energy studies carried out by the research institutes such as IISC. The disparity across the different agro-climatic zones with respect to various aspects of fuel wood is mainly due to the availability or non-availability of forests.

Another important issue is the source of fuel wood in high CPR and Low CPR zones. In the high CPR zone the CPRs generally forests, are the major source of fuel wood. But due to absence or meagerness of forests in the low CPR zone the seasonal CPRs like tank and river beds, dried tanks, etc., are major sources of fuel wood for all house holds in general and poor house holds in particular. These CPRs are location and region specific and do not included in the formal CPRs based on the land use classification.
And thus a situation arises such that some villages that are low CPR villages based on secondary data suddenly after the observation of situation compels the researcher to conclude that it is high CPR village though there is no forest or any other CPRs. Thus no body can very particular about concluding the CPR status of village based on the secondary data.

Similarly in case of grazing place also the seasonal CPRs play a pivotal role in low CPR Zones. For grazing in addition to above mentioned seasonal CPRs the post harvest crop lands of large farmers also become important which do not find place in the formal CPR figures. Even the fact being so the reference of these seasonal CPRs is not made in government documents. It has been neglected by the government officials and hence, no quantification of the same is available in records. There is urgent need for quantification of seasonal CPRs that are playing vial role in the socio-economic life of rural poor in Karnataka state.

There is wide variation between the high CPR and low CPR zones with respect to the place of grazing. In the high CPR zones all the livestock except bullock have been grazed on forest and hills of the village. Another issue about the benefits derived from CPRs. Some Non-Timber Forest Products (NTFPs) are collected either free of cost or at nominal charges. But they are location and season specific which necessitates the participatory observation of CPR activities to understand it importance. In the present study there are cases of fruit collection in few high CPR zones but their extent, valuation and other details are not clear.

The valuation of the benefits or services derived from CPRs is also a Herculean task. This is mainly due to the fact that the
formal market for CPR benefits or products is non-existent. The estimation of the value of these services based on the pure market prices will lead to overestimation. The nominal value of the services derived from the CPRs is almost equal to the minimum below poverty line (BPL) income that is necessary to maintain an average family. It is more than 1/3rd of the total income for landless house holds which suggests that the CPRs are very crucial for poor house holds. Another important notable fact is that, though in relative terms the poor derive higher share of their income from CPRs in absolute terms it is the non-poor who derive more benefits from CPRs as found in various earlier studies (Jodha).

Finally it can be concluded that the CPR situation is not very much bad in low CPR zones as it supposed to be due the availability of seasonal CPRs, social relationships (Social Cohesion) at village level, and availability of other alternatives. The rural people are intelligent enough to choose their own sustainable (at least for a short period) strategies to meet out their biomass requirements in different agro-climatic zones of the Karnataka.

In India agriculture is the main occupation even today. Though its contribution to GDP has declined over the years to 18 percent its contribution in the employment structure has remained prominent. Today nearly 66 percent of the total workforce depends on the agriculture for their livelihood. This indicates the productivity of agriculture per unit of labour employed in it. Nearly 2/3rd of the agricultural work force is poor since, they are landless laborers, marginal and small farmers. These people are struggling hard to earn two square meals. They
work very hard to meet their basic requirements like fuel for cooking, maintaining their livestock, etc. In rural Karnataka state also the situation is the same. Under such circumstances CPLRs are playing very important role in contributing to the subsistence living of the poor. So, the present analysis done at the state level across different agro climatic zones proved clearly that CPRs are critical in meeting fuel requirements and live stock maintenance.

6.5 POLICY SUGGESTIONS

Based on the above conclusions the following policy suggestions can be given.

1. Forests that have very low density and high accessibility as common property has to be developed with yearly plantation of new, local, multipurpose tree species.

2. Multipurpose locally sustainable tree species should be planted in the village common lands like tank beds, sides of crop land, road sides, etc, which will definitely reduce the pressure on forest for fuel wood in the years to come.

3. The people should be encouraged to use green fuels like biogas, solar cooking devices, fuel and energy efficient stoves, etc.

4. Subsidized LPG should be provided to the needy poor rather than providing it to relatively rich. At present the large proportion of subsidized LPG have been misappropriated by non-poor and commercial uses due lack of proper delivery mechanism.

5. The wood that has been wasted in the various wood depots of forest department should be disbursed to the needy rural people either free of cost or at nominal charges.

6. Proper maintenance of CPRs for sustainable use.
6.6 Sample Photos of Field Survey

**Photo-1**
Women and female children collecting fuel wood from CPR land in Sonna Village of Afzalpur Taluk of Gulbarga District

**Photo-2**
Ballary Jali one of the major cooking fuel wood in various places including Sonna village
Photo-3
Fuel wood stock at back yard in Sonna Village

Photo-4
Stock of Crop Residue(Tur) at Gulalli village of Aland Taluk of Gulbarga District
Photo-5
A view of CPR land at Gulalli village of Aland Taluk of Gulbarga District

Photo-6
Researcher collecting Primary data from villager
Photo-7
A boy carrying the fuel wood just collected.

Photo-8
Discussion with villagers at Sonna Village
Photo-9
Housing structure at Gulalli Village of Aland taluk of Gulbarga

Photo-10
A view of Forestland hill at Bhoglingadhalli of Chincholi Taluk of Gulbarga
Photo-11
Data collection at Bhoglingadhalli of Chincholi Taluk of Gulbarga

Photo-12
Housing structure at Bhoglingadhalli of Chincholi Taluk of Gulbarga
Photo-13
Livestock grazing at seasonal CPRs in this case post harvest private crop land

Photo-14
Data collection at Bhoglingadhalli of Chincholi Taluk of Gulbarga
Photo-15
A view of tur Crop Residue at crop land

Photo-16
Stock of Tur Crop residues at Bhoglingadhalli
Photo-17
Fuel wood collection and dung cake storage at Bhoglingadhalli

Photo-18
Stock of tur Crop Residues at Gulalli of Aland
Photo-19
Field Survey at Bhoglingadhalli of Chincholi Taluk of Gulbarga

Photo-20
Stock of Tur Crop residues at Bhoglingadhalli