

Social Vulnerability and Common Property Resources (CPRs) in Dry Region of Tamil Nadu**Dr.A.Kannan*, P.Ranjithkumar*******Assistant Professor, Department of Environmental Economics, School of Economics Madurai Kamaraj University, Madurai-21******Project fellow & Research Scholar, School of Economics Madurai Kamaraj University, Madurai-21****Abstract:**

This paper analyses the social vulnerability, climate change and natural resources degradation particularly common property resources in Ramanathapuram district of Tamil Nadu. The environmental degradation creates the climate change and the climate change further influence the degradation of natural resources and hence, vulnerability of rural poor in the dry region. This paper also investigates the reason for migration of rural agricultural labourers. This paper is also analyses the tendency and status of CPR in the Ramanathapuram district. The environmental degradation is the causing factor of climate change and it defects on agricultural production, income and employment and hence standard of living of the rural poor. Drought and over dependency of CPR are the reasons for the destroying the valuable medicinal herbs in the rural pocket of Tamil Nadu. This paper utilized the secondary sources of information. The results indicates that the common grazing land declined due to insufficient rainfall and over grazing it is series threatening of livestock and income of the rural masses in general and the rural poor in particular. The livestock holders are depending trees for rearing livestock particularly sheep and goat for fodder, which reflects further degradation of the environment. The ground water depletion is creating water scarcity in the particular region that is already under stress. The water scarcity for drinking and agriculture and lowest income are the causes of migration.

Keywords: Social Vulnerability, CPRs, Environmental Degradation, Climate Change

Introduction:

The climate change will shrink the productive value of land and natural resources at an alarming rate. As a result, pressures on adjoining ecological spaces of relative productive value will also be increased. Vulnerability is defined in this paper as the exposure of individuals or collective groups to livelihood stress as a result of the impacts of such environmental change. The IPCC report estimates that 46million people per year are currently at risk from flooding due to storm surges in the world's coastal zones, and that climate change induced sea level rise, in the absence of adaptation, could double (**IPCC, 1996, p. 12**). According to the **Millennium Ecosystem Assessment (2005a)**, in 2 billion people living in arid, semi-arid and sub humid regions are extremely vulnerable to the loss of ecosystem services, Ten to twenty percent of dry lands are already degraded.

Neil Adger (1999) the coastal northern Vietnam shows that baseline social vulnerability is enhanced by some institutional and economic factors associated with Vietnam's economic transition from central planning, namely the breakdown of collective action on protection from extreme events and an increasingly skewed income. Upsetting these trends are other institutional changes associated with the dynamic nature of the economic restructuring and evolution of the market transition in Vietnam, which decrease vulnerability.

Warner and Hamza et.al (2010), noticed that the changing risk exposure and increasing vulnerability of migrants, another problem with resettlement is the reciprocal relationship between conflict and migration. Increasing densities of population in the receiving location can negatively affect the environment. Resource depletion can contribute to conflicts between migrants/displaces and local inhabitants. Violent conflicts in turn can destroy landscapes and severely damage the environment, which again can lead to further migration flows. Another article by **Kelly and Adger (1999)** reveals that the approaches to the assessment of vulnerability to climate variability and change and attempt to clarify the relationship between the concepts of vulnerability and adaptation. Illustrate the application of this approach through the results of field research in coastal Vietnam, highlighting shifting patterns of vulnerability to tropical storm impacts at the household- and community-level in response to the current process of economic renovation and drawing conclusions concerning means of supporting the adaptive response to climate stress. The tenure in ways that increase incentives to invest in adaptation measures, decrease the impact of migration, limit climate marginalization, and facilitate carbon mitigation efforts. However, there is a growing body of experience in the field of property rights (**U.S. Agency for**

International Development 2010).

Pressure is increasing on parched land ecosystems for providing services such as food and water for humans, livestock, irrigation, and sanitation. Climate change is likely to increase water scarcity in regions that are already under water stress. Droughts are becoming more frequent and their continuous reoccurrence can overcome the coping mechanisms of communities.

It in fact, this study proposed the following objectives for the present study is to analyze the relationship between rainfall and common pasture and grazing land in Ramanathapuram district; to discover the purpose and types of encroachment in T.Nagani Revenue village; to analyze the tendency and status of CPRs in Ramanathapuram district and Thiruvadanai block and to identify causes of the environmental degradation in the study district.

Materials and Methods:

This paper absorbing the secondary sources of information was obtained from various issues of Statistical Handbook of Ramanathapuram district. The block level data were collected from similar database. In T.Nagani village were selected from Thiruvadanai block of Ramanathapuram district of Tamil Nadu in purposively for the present study. It is one of the drought prone areas as well as most backward district in southern part of Tamil Nadu.

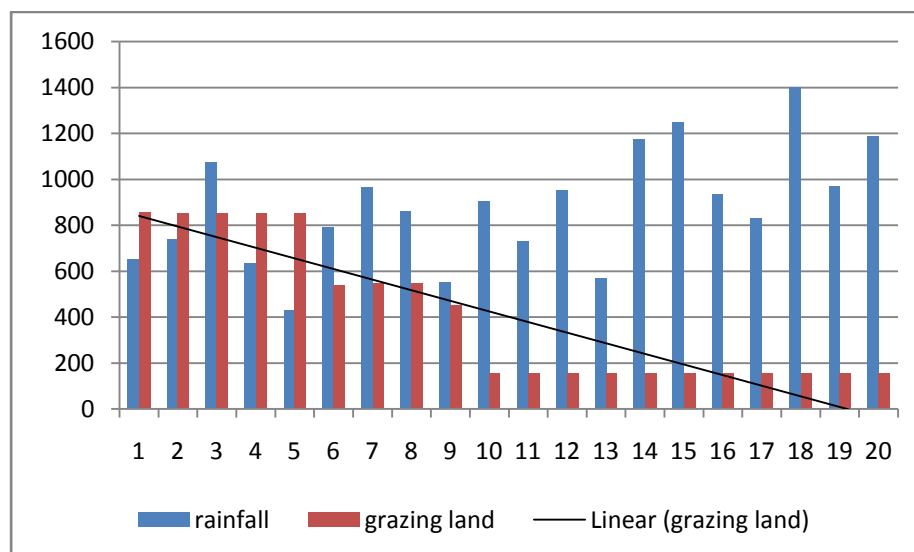
Results and Discussion

This part discuss about that trend of rainfall and common grazing land, area and extent of CPRs, forest and private land in the study district as well as Thiruvadanai block and type and purpose of encroachment in the revenue village.

Table.1 The annual rainfall and common grazing land in Ramanathapuram district

Year	Rainfall (mm)	Common pasture and grazing land (in hectares)
1991	650.4	856
1992	737.7	851
1993	1074.4	851
1994	634.1	851
1995	431	851
1996	790.2	539
1997	966.1	547
1998	858.5	547
1999	549.5	451
2000	902	154
2001	730.7	154
2002	950.1	154
2003	566.9	154
2004	1174.3	154
2005	1247.5	154
2006	931.9	154
2007	827	154
2008	1402	154
2009	967.61	154
2010	1186.4	154

Source: Statistical Handbook of Ramanathapuram district

Figure.1 Trend annual rainfall and common grazing land in Ramanathapuram district

The table (1) manifest the annual rainfall has been increased in the study area with some fluctuations. The common grazing and permanent pasture land has been declining from 856 hectares to 154 hectares over the period of 20 years. It means that common grazing and permanent pasture land has declined 5.56 times from 1991 to 2010. The insufficient rainfall will defect the production of agriculture, employment, income and livestock and these factors that influence levels of vulnerability such as poverty and inequality.

Those who have livestock such as sheep and goat, they have collected fodder from common trees as well as the trees which was grown by private individuals. The livestock holders are taken as lease of these trees for fodder from tree owners, for that they paid Rs 300 to Rs 600 per annum. Around 80 per cent of medicinal herbs such as *Dhulasi*, *Dhumpai*, *Pirandai* have been destroyed by shepherd (particularly Yadhavar), those who have possessing livestock for the income earning opportunities in this district.

Around 90 per cent of respondents are depending on CPR for firewood and fodder. They extracted the natural resources due to lowest income obtained from their primary occupation and they have no other alternative sources for cooking and lighting purposes. The rural poor utilizing the firewood for cooking that will create carbon-dioxide (CO₂), which reflects green gas emission, which was damaged the atmosphere. There is informal system is organized by Nathaman (udaiyar) in two hamlets such as Karumozhi and Thinakkathanvayal. This informal system restricted that over grazing of livestock in general and goat in particular in this study site. This system will protect the trees from natural resource extraction.

Climate change impacts are expected that lead to forced migration on an unprecedented scale. Migration may be one of the greatest challenges resulting from climate change impacts. The number of people affected by drought, water shortages, flooding, and other climate change is estimated at between 25 million and one billion (**International Organization of Migration 2009**). From the primary survey observation as pilot study shows that 146 household respondents out of 865 household have been migrated to Thiruppur, Chennai, Devakottai and abroad due to changing ecosystem. Because, they were not able survive in this area due to insufficient rainfall, unfavorable agro climatic conditions. The agricultural labourers are getting lowest income, and they are facing seasonal unemployment problem in agriculture sector in the T.Nagani revenue village.

Status of CPRs in Ramanathapuram District

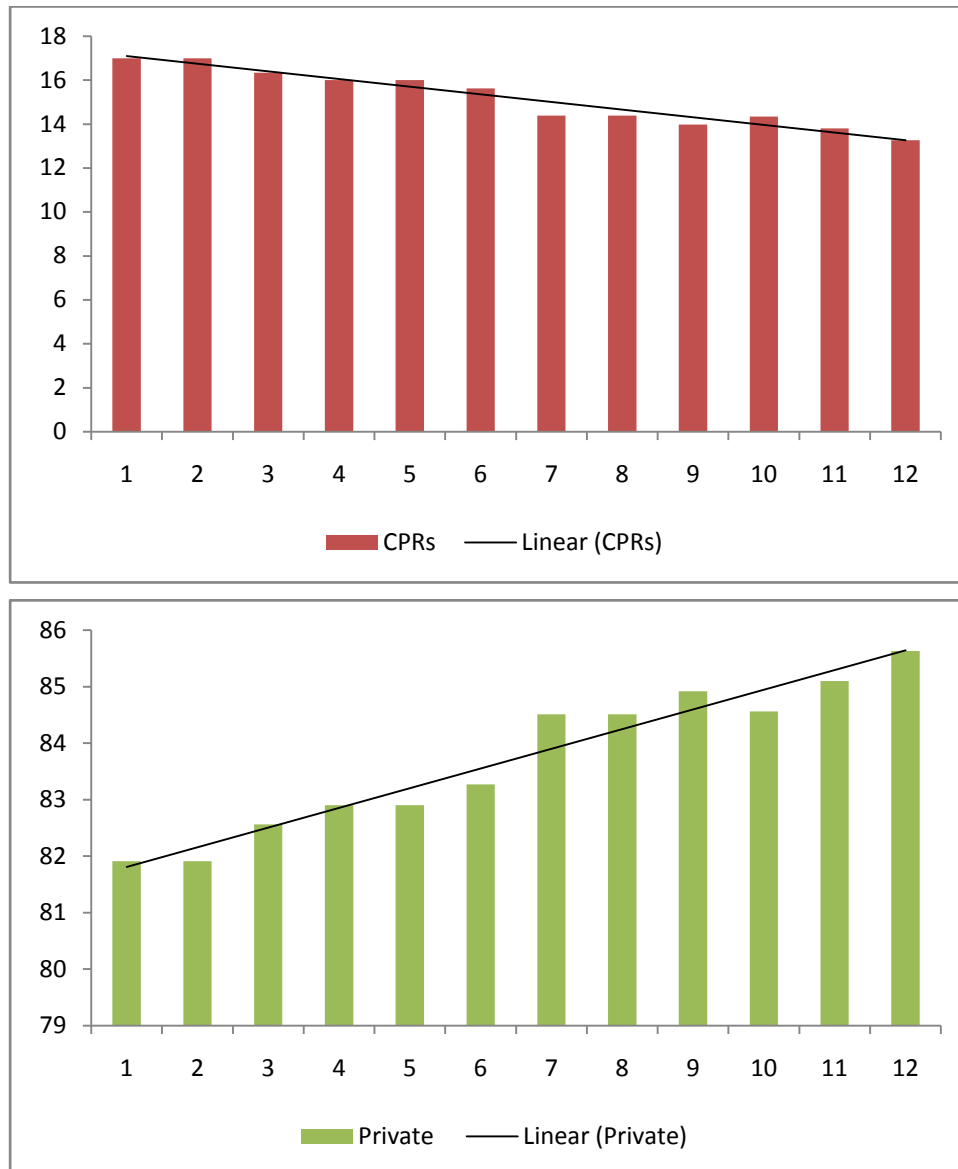
In 2001, the endowment of CPR land in this district was 16.99 per cent and it has declined to 13.27 percent in 2012. In the case of forest, it is estimated that 1.10 per cent during 2001 and thereafter there has been no changes was observed throughout the investigation period of this district. The availability of private land was 81.91 per cent in 2001 and it has increased to 85.63 per cent over the period of 12 years in the study district. Further inferred from the table is that the CPR land has been declined by 1.28 times over the period from 2001 to 2012 as results the private land has been increased by 0.96 time during the same period.

Table.2 Status of CPR, Forest and PPR in dry district

Year	CPRs	Forest	Private
2001	16.99	1.10	81.91
2002	16.99	1.10	81.91
2003	16.34	1.10	82.56
2004	16.00	1.10	82.90
2005	16.00	1.10	82.90
2006	15.62	1.10	83.27
2007	14.39	1.10	84.51
2008	14.39	1.10	84.51
2009	13.98	1.10	84.92
2010	14.34	1.10	84.56
2011	13.80	1.10	85.10
2012	13.27	1.10	85.63

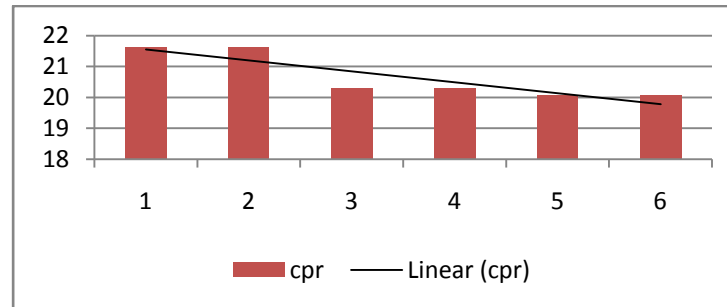
Source: Statistical Handbook of Ramanathapuram district

Most of the CPR lands are disappearing due to encroachment and over consumption of CPR materials by the native dwellers. The overuse of such potential resources will modify the tenure regime of the local inhabitants and further it will create new inequality, often to the disadvantage of the vulnerable groups. The poor, indigenous people, women and other people with limited property rights are most vulnerable to climate change impact. They are least able to take advantage of changes in tenure regimes that may result from stresses brought on by climate change.

Figure.2 Status of CPR and PPR in dry district**Table.3 Status of CPRs in Thiruvadanai block**

Year	Thiruvadanai
2006	21.62
2007	21.61
2008	20.31
2009	20.31
2010	20.07
2011	20.07

Source: Statistical Handbook of Ramanathapuram district

Figure.3 Status of CPRs in Thiruvadanai block

The share of CPRs land was 21.62 per cent in 2006 and it has declined to 20.07 per cent in 2011. The CPR land has been declined by 1.55 times over the period from 2006 to 2011. The poor status of CPRs in both district and the block was due to encroachment of the native people in various purposes.

The purposes of encroachment by the native dwellers have been grouped into three categories such as for agricultural activities, for the purpose of business and for residential purposes. Of these three purposes, the total encroachment of T.Nagani was 0.18 hectares in 1994 and it was 1.77.5 hectares during 2012.

Table.4 Purpose of Encroachment in T.Nagani (in ha.)

Year	Agriculture	Business	Housing	Total
1994	0.13.0 (4)	0.04.0 (4)	0.01.0 (1)	0.18.0 (9)
1996	1.27.5 (5)	0.03.0 (3)	0.87.5 (2)	2.18.0 (9)
2000	1.67.5 (6)	0.03.0 (3)	0.01.0 (1)	1.75.5 (10)
2001	1.54.0 (8)	0.03.0 (3)	0.01.0 (1)	1.58.0 (12)
2002	1.48.0 (6)	0.03.0 (3)	0.01.0 (1)	1.52.0 (10)
2003	1.48.0 (6)	0.03.0 (3)	0.01.0 (1)	1.52.0 (10)
2009	1.48.0 (6)	0.03.0 (3)	0.01.0 (1)	1.52.0 (10)
2010	1.67.5 (6)	0.03.0 (3)	0.01.0 (1)	1.71.5 (10)
2011	1.73.5 (8)	0.03.0 (3)	0.01.0 (1)	1.77.5 (12)
2012	1.73.5 (8)	0.03.0 (3)	0.01.0 (1)	1.77.5 (12)

Source: Village Records(Pasali)

Parentheses are indicated that number of persons occupied the CPRs

The purpose of encroachment for agriculture was 0.13 hectares in 1994 and it was 1.73.5 hectares in 2012. It means that 1.60.5 hectare of CPRs land was further encroachment by the native people for agriculture only was observed during the study period. Still there was no change was observed in the case of business and housing purposes during the study period. This table further indicates that not only the extent of CPR land encroachment increased (availability of CPR land has been declined due to encroachment) but the number of people engaged in encroachment also been increased too. For instance, only four members were engaged in encroachment of CPR land for agricultural purposes in 1994 and it has increased to eight members in 2012.

It is clear that agriculture based encroachment is identified highly in the study village because of intensity of irrigation and it is located nearby pond.

Table.5 Category of land encroached by HHs

Year	Water based	Land based	Total
1994	0.17.0 (8)	0.01.0 (1)	0.18.0 (10)
1996	1.31.5 (9)	0.86.5 (1)	2.18.0 (10)
2000	1.71.5 (10)	Nil	1.71.5 (10)
2001	1.52.0 (10)	0.06.0 (2)	1.58.0 (12)
2002	1.31.0 (9)	0.21.0 (1)	1.52.0 (10)

Source: Village Records (Pasali)

Parentheses are indicated that number of persons occupied the CPRs

In the table 5 category land encroached by the people during the study period. Most of the HHs encroachment was water based land and few of them encroached land based CPRs land in the study district. In water based encroachment is estimated that 0.17 hectares in 2012 and the number of HHs engaged in encroachment was 8 in 1994 and then it was 10 in 2001 and again it has come down to 9 members in 2002. Only one fellow occupied the based CPRs in the study village was observed during the study period.

Conclusion:

The Climate change will have a progressively increasing impact on environmental degradation and environmentally dependent socio-economic systems with potential to cause substantial population displacement. The causes of social vulnerability are the characteristics of the climate change. Climate change is affecting the livelihood sustenance of the poor, woman, indigenous groups and others. The poor depend on CPR for fuelwood and fodder. The livestock holders are destroying the medicinal herbs in the study village. Insufficient rainfall and over grazing are the factors of degradation of common pasture. Lowest agriculture production, unfavorable agro climatic condition will lead to lowest income, and hence existence of unemployment problems are the causing factor of rural urban migration due to climate change.

Note:

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