

An Analysis of Common Property Resources in Theni District of Tamil Nadu: Macro and Micro Level Evidence from Secondary Data

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Abstract

Common Property Resources (CPRs) play a crucial role in supporting rural livelihoods, agricultural activities, and environmental sustainability. This paper is a part of the outcome of the major research project funded by the Chief Minister's Research Grant (CMRG) scheme instituted by the Government of Tamil Nadu for the year 2024-2025. The present study examines the changing status of CPRs in Theni District of Tamil Nadu using secondary data collected from the Theni District Statistical Handbook and other published sources. The study covers the period from 1996 to 2024 and analyses land-use patterns, CPRs, and Private Property Resources (PPRs) through percentage analysis, linear trend analysis, and regression techniques. The findings reveal notable changes in land utilization, including an increase in forest area and non-agricultural land use, accompanied by a decline in net area sown. The share of CPRs increased from 46.4 per cent in 1996 to 55.5 percent in 2024, while the proportion of PPRs declined during the same period. Trend analysis indicates significant growth in forest area, non-agricultural uses, and common resources, whereas cultivable waste land and net sown area exhibited declining trends. Regression results further confirm a significant positive association between time and CPRs, suggesting a gradual expansion of common property resources over the study period. The study highlights the importance of sustainable management and conservation of CPRs for ensuring ecological balance, resource security, and long-term rural development in Theni District.

Keywords

Common Property Resources (CPRs), Land Use Pattern, Rural Livelihoods, Resource Management.

Introduction:

Common Property Resources (CPRs) constitute an important component of rural economies and have traditionally supported the livelihoods of millions of people in India. These resources are generally owned, managed, and utilized collectively by local communities and include grazing lands, village commons, forests, tanks, ponds, rivers, and other shared natural assets. For rural households, especially the poor and landless, CPRs serve as a significant source of fuelwood, fodder, water, food supplements, and employment opportunities (Jodha, 1995).

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Apart from their economic significance, CPRs provide several ecological and environmental benefits. They contribute to biodiversity conservation, groundwater recharge, soil protection, carbon sequestration, and the maintenance of ecological balance. The sustainable management of common resources is therefore closely associated with environmental sustainability and rural development. In many developing countries, CPRs continue to function as a security net for vulnerable communities during periods of economic distress and environmental uncertainty (Kumar, 2015).

Common property resources have significantly declined in recent decades due to population growth, agricultural expansion, urbanization, land encroachment, privatization, and poor institutional management, which have adversely affected both their extent and quality. The degradation of CPRs has adversely affected the livelihoods of rural communities by limiting access to essential resources and weakening traditional systems of collective resource management (Pathak & Murugesan, 2018).

Tamil Nadu possesses a long history of community-based natural resource management, particularly through village tanks, ponds, grazing lands, and communal wastelands. These resources have played a crucial role in supporting agriculture and sustaining rural livelihoods. However, increasing pressure on land resources, changing land-use patterns, and developmental activities have significantly altered the status of CPRs across several districts of the state. Consequently, concerns regarding the conservation and sustainable utilization of common resources have gained increasing attention among researchers and policymakers (Murugesan, Babybowna, & Pathak, 2018).

Theni District, located in the south-western part of Tamil Nadu, is characterized by diverse agro-climatic conditions, agricultural activities, irrigation systems, and forest resources. The district contains a variety of common property resources, including grazing lands, tanks, canals, water bodies, and forest areas that contribute substantially to the livelihoods of rural communities. These resources support agricultural production, livestock rearing, and various livelihood activities, particularly among economically disadvantaged households.

In recent years, however, rapid socio-economic changes, population pressure, and alterations in land-use practices have influenced the availability and utilization of CPRs in Theni District. Understanding the changing status of these resources is essential for designing effective policies aimed at sustainable resource management and rural development. Against this background, the present study seeks to analyse the status and trends of common property resources in Theni District using secondary data at both macro and micro levels. Macro-level analysis reveals district-wide patterns, while micro-level analysis offers detailed insights into

local administrative variations. The study aims to enhance discussions on common property resource management, rural livelihoods, and sustainable development in Tamil Nadu.

Methods and Material:

The present study is based entirely on secondary data and examines the changing status of Common Property Resources (CPRs) in Theni District of Tamil Nadu. The required data on land use classification, CPRs, and Private Property Resources (PPRs) were collected from various issues of the *Theni District Statistical Handbook* published by the Department of Economics and Statistics, Government of Tamil Nadu, up to 2023–2024. Additional information was gathered from government reports, research articles, books, and other published sources related to common property resources and land management. The analysis covers the period from 1996 to 2024, considering selected benchmark years to understand long-term changes in land utilization patterns. To assess the trends and magnitude of changes, percentage analysis, linear trend analysis, and simple regression analysis were employed. These statistical techniques were used to examine the growth, decline, and overall movement of different land-use categories and to evaluate the changing share of CPRs and PPRs in the district. The findings from these methods offer valuable insights into the transformation of common property resources and their consequences for sustainable resource management in Theni District.

EVIDENCE FROM EARLIER STUDIES

Previous studies on Common Property Resources have highlighted their crucial role in supporting rural livelihoods, environmental sustainability, and community welfare. Researchers have examined the changing nature of common lands, forests, grazing areas, and water resources across different regions and have identified issues such as resource degradation, encroachment, declining accessibility, and changes in land-use patterns. These studies provide valuable insights into the socio-economic and ecological significance of CPRs and help in understanding the factors influencing their transformation over time. A review of earlier research therefore offers an important foundation for analysing the status and trends of Common Property Resources in Theni District.

The IGIDR (1999) report indicates that the area under Common Property Resources (CPRs) in India has declined from 74 million hectares in 1900 to 69 million hectares in 1980. Traditional local community control and management systems have weakened, leading to increased degradation of these lands, which are particularly vulnerable to encroachment and

Year	Forest	Barren and UL	Non Agri	CW	PP& OGL	Misc	CF	OF	Net	Geo
1996	103718 (35.9)	10778 (3.7)	21710 (7.5)	4085 (1.4)	314 (0.1)	781 (0.3)	15060 (5.2)	15201 (5.3)	117276 (40.6)	288923
2000	103718 (35.9)	10768 (3.7)	22003 (7.6)	4408 (1.5)	314 (0.1)	1010 (0.4)	22860 (7.9)	11700 (4.1)	112142 (38.8)	288923
2010	134813 (41.6)	12225 (3.8)	24592 (7.6)	2864 (0.9)	315 (0.1)	1330 (0.4)	5527 (1.7)	28960 (8.9)	113604 (35.0)	324230
2020	134813 (41.6)	12226 (3.8)	24623 (7.6)	2616 (0.9)	315 (0.1)	1403 (0.4)	12913 (4.0)	27789 (8.6)	107534 (33.2)	324230
2024	134813 (41.6)	12226 (3.8)	24623 (7.6)	2616 (0.9)	315 (0.1)	724 (0.4)	14761 (4.6)	30100 (9.3)	104052 (32.1)	324230

appropriation by forests and revenue departments. Desarda. H.M.(2000) highlights that industrialization and urbanization adversely affect the overexploitation of Common Property Resources (CPRs). The encroachment of the open market system and state privatization policies have undermined community integrity, resulting in a swift decline of CPRs. Jodha (1990) indicates that CPRs contribute 31 to 42%, 11 to 16%, and 8 to 11% of the total own farm inputs for poor farmers during pre-sowing to pre-harvest, harvest, and post-harvest periods, respectively.

Result and Discussion:

This section presents the major findings of the study based on the analysis of secondary data collected for Theni District. The results highlight the changing patterns of land use, Common Property Resources (CPRs), and Private Property Resources (PPRs) over the study period. The findings are discussed in relation to resource management, land-use transformation, and their implications for rural sustainability.

Table 1: Land Use Pattern in Theni District of Tamil Nadu

Year	Forest	Barren and UL	Non Agri	CW	PP& OGL	Misc	CF	OF	Net	Geo
1996	103718 (35.9)	10778 (3.7)	21710 (7.5)	4085 (1.4)	314 (0.1)	781 (0.3)	15060 (5.2)	15201 (5.3)	117276 (40.6)	288923
2000	103718 (35.9)	10768 (3.7)	22003 (7.6)	4408 (1.5)	314 (0.1)	1010 (0.4)	22860 (7.9)	11700 (4.1)	112142 (38.8)	288923
2010	134813 (41.6)	12225 (3.8)	24592 (7.6)	2864 (0.9)	315 (0.1)	1330 (0.4)	5527 (1.7)	28960 (8.9)	113604 (35.0)	324230
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Source: Department of Economics and Statistics, Theni District, Theni District Statistical Handbook in various issues up to 2023-2024

The table 1 presents the land use pattern of Theni district for selected years (1996, 2000, 2010, 2020 and 2024) based on village records. The geographical area of the district shows a marginal increase from 288,923 hectares in 1996 and 2000 to 324,230 hectares from 2010 onwards, indicating revisions in land records or administrative reclassification. Forest area has shown a consistent increase from 103,718 hectares (35.9%) in 1996 to 134,813 hectares (41.6%) by 2024, reflecting conservation efforts and increased forest cover over time. Barren and Uncultivable land (Barren & UL) remains relatively stable, with a slight rise from 10,778 hectares (3.7%) in 1996 to 12,226 hectares (3.8%) in 2024, indicating limited scope for agricultural expansion in these lands. Land put to non-agricultural uses has increased steadily from 21,710 hectares (7.5%) in 1996 to 24,623 hectares (7.6%) in 2024, suggesting growing pressure from settlements, infrastructure, and developmental activities. Cultivable Waste (CW) shows a declining trend, decreasing from 4,085 hectares (1.4%) in 1996 to 2,616 hectares (0.9%) in 2024, which indicates better utilization or conversion of wastelands for productive purposes. Permanent Pastures and other Grazing Lands (PP) have remained almost constant at around 314–315 hectares (0.1%), highlighting the limited availability of grazing land in the district. Land under Miscellaneous Tree Crops and Groves (Misc) fluctuates over the years, increasing from 781 hectares (0.3%) in 1996 to 1,403 hectares in 2010, but declining again to 724 hectares (0.4%) in 2024, indicating changes in plantation practices. Current Fallows (CF) show significant variation, peaking at 22,860 hectares (7.9%) in 2000, declining sharply to 5,527 hectares (1.7%) in 2010, and then increasing again to 14,761 hectares (4.6%) in 2024, reflecting rainfall variability, irrigation constraints, and changing cultivation decisions. Other Fallows (OF) display a long-term increasing trend from 15,201 hectares (5.3%) in 1996 to 30,100 hectares (9.3%) in 2024, indicating growing instances of temporarily uncultivated agricultural land. Net Area Sown (NAS) shows an overall decline from 117,276 hectares (40.6%) in 1996 to 104,052 hectares (32.1%) in 2024, signifying reduced agricultural activity due to urbanization, fallowing, and shifting land use patterns. Overall, the land use pattern of Theni district reveals an increase in forest cover and non-agricultural uses, alongside a decline in net sown area. The rise in fallow lands and reduction in cultivable waste suggest changing agricultural practices and resource constraints. These trends indicate a gradual transformation of land use from agriculture towards conservation and non-agricultural purposes.

Table 2: Linear Trend Analysis of Nine-Fold Land Utilisation data

Nine-Fold Classification	Coefficient (β)	Std Error	t	R ²	P Value	Sig
Forest	1260.607	351.565	3.586	0.811	0.037	S
Barren and Unculturable land	58.864	16.447	3.579	0.810	0.037	S
Non Agri Cultural Uses	113.141	29.838	3.792	0.827	0.032	S
Culturable Waste Land	-65.011	16.194	-4.014	0.843	0.028	S
Permanent Pasture	0.035	0.007	5.187	0.900	0.014	S
Land under Misc.tree crops	5.291	14.369	0.368	0.043	0.737	NS
Current Fallows	-175.099	275.475	-0.636	0.119	0.570	NS
Other than current fallows	624.114	193.467	3.226	0.776	0.048	S
Net area sown	-390.573	99.048	-3.943	0.838	0.029	S

Source: Department of Economics and Statistics, Theni District, Theni District Statistical Handbook in various issues up to 2023-2024

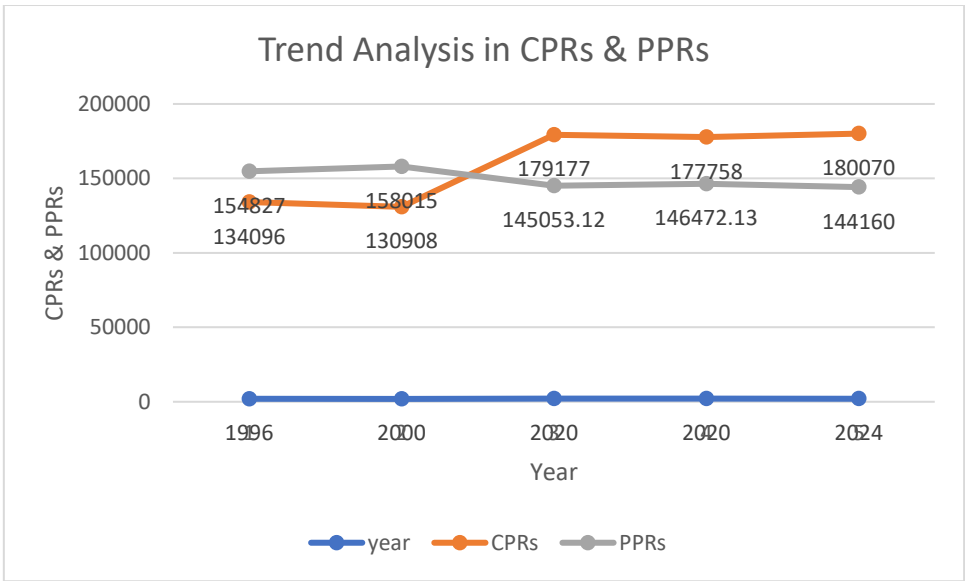
The linear trend analysis in Table 2 reveals significant changes in most categories of land utilisation over the study period. The area under forest shows a positive and statistically significant trend ($\beta = 1260.607$, $p = 0.037$), indicating a steady increase in forest land. Similarly, barren and unculturable land exhibits a significant upward trend ($\beta = 58.864$, $p = 0.037$), suggesting a gradual expansion of land unsuitable for cultivation. The category of land under non-agricultural uses also records a significant increase ($\beta = 113.141$, $p = 0.032$), reflecting the growing conversion of land for residential, industrial, and infrastructural purposes.

In contrast, culturable waste land shows a significant declining trend ($\beta = -65.011$, $p = 0.028$), indicating that a portion of such land has been brought under productive use or converted to other categories. Permanent pasture and grazing land demonstrate a strong positive trend ($\beta = 0.035$, $p = 0.014$) with a high coefficient of determination ($R^2 = 0.900$), signifying consistent growth throughout the period. However, land under miscellaneous tree crops and groves does not exhibit any significant trend ($\beta = 5.291$, $p = 0.737$), indicating relative stability over time.

The analysis further shows that current fallows have a negative but statistically insignificant trend ($\beta = -175.099$, $p = 0.570$), suggesting fluctuations without a clear long-term direction. On the other hand, other fallow lands display a significant positive trend ($\beta = 624.114$, $p = 0.048$), indicating an increase in land remaining uncultivated for more than one year. Finally, net area sown records a significant declining trend ($\beta = -390.573$, $p = 0.029$), implying a reduction in the extent of cultivated land over the study period.

Table 3: CPRs and PPRs in Theni

Year	CPRs	PPRs
1996	134096 (46.4)	154827 (53.6)
2000	130908 (45.3)	158015 (54.7)
2010	179177 (55.3)	145053 (44.7)
2020	177758 (54.8)	146472 (45.2)
2024	180070 (55.5)	144160 (44.5)



The table 3 on CPRs and PPRs in Theni district shows a clear shift in land use over the period from 1996 to 2024. Common Property Resources (CPRs) have increased steadily both in absolute area and percentage share, rising from 1,34,096 hectares (46.4%) in 1996 to 1,80,070 hectares (55.5%) in 2024, indicating an expanding emphasis on shared and publicly managed land resources. In contrast, Private Property Resources (PPRs) display a gradual decline from 1,54,827 hectares (53.6%) in 1996 to 1,44,160 hectares (44.5%) in 2024, reflecting a relative reduction in privately controlled land. The transition is particularly noticeable after 2000, when CPRs begin to exceed PPRs in both extent and proportion, suggesting policy interventions, reclassification of land, or increased conservation and community-oriented land management. Overall, the trend highlights a structural transformation in land ownership patterns, with a growing dominance of common property resources over private holdings in the district.

Table 4: Model Summary of Linear Regression Analysis

Model	R	R Square	Adjusted R Square	F	Sig.
1	.896	.803	.737	12.213	.040

Note: Dependent Variable – Total CPRs.

The above table 4 show regression results indicate a strong relationship between the dependent variable and the set of independent variables included in the model. The correlation coefficient ($R = 0.896$) suggests a high degree of association between the observed and predicted values. The coefficient of determination ($R \text{ Square} = 0.803$) reveals that approximately 80.3 percent of the variation in the dependent variable is explained by the explanatory variables considered in the analysis. After adjusting for the number of predictors, the Adjusted R Square value of 0.737 shows that the model continues to maintain substantial explanatory power.

The ANOVA results further confirm the overall significance of the regression model. The calculated F-value of 12.213 with a significance level of 0.040 is below the conventional threshold of 0.05, indicating that the model is statistically significant. This implies that the independent variables jointly contribute to explaining changes in the dependent variable and that the observed relationship is unlikely to have occurred by chance. Overall, the regression model provides a reliable explanation of the factors influencing the outcome variable.

Table 5: Regression Coefficients of Year on Total CPRs.

Variables	B	Std. Error	Beta	t	Sig.
Constant	-3615602.911	1080497.158	-	-3.346	.044
Year	1878.609	537.553	.896	3.495	.040

Note: Dependent Variable- Total CPRs

The regression coefficient results in Table 5 show the influence of the year on Total Common Property Resources (CPRs). The coefficient for Year ($B = 1878.609$) is positive, indicating that Total CPRs tend to increase by approximately 1,878.61 units with each passing year. This positive relationship suggests an upward trend in the CPRs during the study period. The standardized coefficient ($Beta = 0.896$) reflects a strong positive association between Year and Total CPRs. The t-value of 3.495 and the corresponding significance value of 0.040 indicate that the effect of Year is statistically significant at the 5 percent level. Therefore, changes in the year have a meaningful influence on the variation observed in Total CPRs. The constant term is estimated at -3,615,602.911 and is also statistically significant ($p = 0.044$). Although the intercept has limited practical interpretation in this context, it serves as the baseline value of the regression equation when the year variable is held at zero.

Conclusion

The study examined the status and changing trends of CPRs in Theni District using secondary data covering the period from 1996 to 2024. The analysis reveals that the district has undergone noticeable changes in land-use patterns over the years. Forest area and land under non-agricultural uses have increased, while the net area sown has gradually declined. These changes reflect the growing influence of conservation measures, developmental activities, and shifts in agricultural land utilization.

The findings further show that CPRs have expanded both in area and proportion, increasing from 46.4 percent in 1996 to 55.5 percent in 2024. In contrast, the share of Private Property Resources has steadily decreased. The trend analysis confirms significant growth in several categories of common resources, indicating an increasing role of collectively managed lands in the district's resource structure.

The regression analysis demonstrates a strong and statistically significant positive relationship between year and total CPRs, suggesting that common resources have shown consistent growth during the study period. This increase may be attributed to improved conservation efforts, reclassification of land resources, and greater recognition of the ecological importance of common lands.

Note:

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