COLLECTIVE ACTION ON LAND TENURE AND CLIMATE CHANGE

Global Forum on Agricultural Innovation and Research
GFAiR

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Asian NGO Coalition for Agrarian Reform and Rural Development

SARRA

Funded by the European Union

Land tenure: The missing link in a climate-resilient and environmentally-sustainable future

This case study has been prepared by South Asia Rural Reconstruction Association (SARRA) with the support of government officials (agriculture), elected village leaders, and the community. The focus area is the Tirupati district in Andhra Pradesh, India.

This case study aims to contribute in mainstreaming land rights in the climate change discourse, undertaken as part of GFAiR's Collective Action on Land Tenure and Climate Change, coordinated by ANGOC, and funded by the EC.

Local context and climate change event

Local/community context: land, people and livelihoods

There is no single unified law on land tenure in India. Land tenure in India is governed by a patchwork of laws and State-level regulations, resulting in a highly uneven system of ownership, access, and use. Some of the major issues include:

- **Fragmentation of landholdings**. With inheritance and population pressure, holdings have become smaller and fragmented, reducing productivity and adaptive capacity.
- **Tenancy insecurity**. Although tenancy was restricted or abolished in many States after land reforms, informal leasing remains widespread in practice. Since such tenancies are unrecorded, tenants have no legal recognition, leaving them excluded from institutional credit, insurance, and government support.
- **Women's land rights**. Despite progressive laws like the Hindu Succession (Amendment) Act, women still own a disproportionately low share of land due to social barriers, inheritance biases, and weak enforcement. This situation restricts their ability to participate in adaptation programs or access agricultural subsidies.
- **Displacement and climate governance**. Infrastructure projects, mining, and even climate-related interventions such as afforestation or resettlement often override community rights, especially when tenure is unclear. Forest-dwelling communities, for example, struggle to claim their rights under the Forest Rights Act (2006) when competing with conservation or development projects.

In short, while land remains central to rural livelihoods, insecure tenure weakens the ability of smallholders, tenants, women, and marginalized groups to withstand and adapt to climate change.

The most recent official population data for Tirupati district is from the 2011 census which recorded a population of 21,96,984, with approximately 38 percent urban population. The dynamics of Tirupati district in Andhra Pradesh, India reflect these wider national patterns. The villages of Tirupati district are a cluster of small settlements, primarily inhabited by Scheduled Caste (SC) and Scheduled Tribe (ST) communities. The main livelihoods are centered around dryland farming of rice, groundnut, millet, and pulses. Villagers supplement their income by daily wage labor, rearing of small ruminants, and non-timber forest product (NTFP) collection. The community structure is tight-knit, with strong social bonds and customary practices. Access to irrigation is minimal, with farmers relying almost entirely on the monsoons.

Tenure status and related issues

Photo by SARRA.

In Tirupati District, the land cultivated by the SC and ST families is a mix of different tenure types. Some families have small *pattas* (formal land titles), often for low-quality and unirrigated land. A larger number of families, however, are tenants who lease land from upper-caste landlords yearly. Another significant group cultivates government-assigned lands or lands encroached upon from the village commons, with no formal rights. The lack of updated data on tenure status in the district from government or non-government sources further highlights the difficulties in responding effectively to tenure security concerns. This precarious tenure makes them ineligible for most government schemes that require land ownership documents, such as crop insurance or agricultural loans. The new Land Titling Act has raised fears among these communities that their informal claims could be formalized in favor of powerful non-tribal or non-SC interests, leading to further dispossession.

Narrative of the climate change events

Andhra Pradesh recorded deficit rainfall across the State, including Tirupati district between June and March 2024. Many *mandals* are classified as drought-hit. State drought monitoring reports indicate severe vegetation stress and significant crop losses in the district. Communities in Tirupati regularly face extreme weather – droughts during the months of May to August, and small to major cyclones between September and November.

The recent cyclone (Montha) occurred in 27 and 28 October 2025. In Andhra Pradesh, it resulted in extensive damage with 1.12 lakh[1] hectares of crop loss, amounting to approximately Rs. 5,265 crores[2]. Tirupati district alone accounted for about Rs. 38 crores worth of losses. According to the preliminary assessment by government officials, the cyclone affected 18 lakh people across the State and 1,209 relief camps were established sheltering 1.16 lakh people. In Tirupati District, 38 relief centers were set up to support farming communities, particularly farm laborers who were severely affected.

[1] 1 lakh = 100,000

[2] 1 crore = 10,000,000

The year 2024 saw a devastating monsoon failure. The onset of rainfall was delayed, and when it finally arrived, was short-lived and erratic. A subsequent long dry spell in the middle of the growing season scorched the groundnut crops, which were at a critical stage of growth. This was followed by an unseasonal hailstorm in late October, which destroyed the few surviving crops and damaged the stored fodder. The extreme weather events, a manifestation of climate change in the form of a flash drought followed by a localized extreme rainfall event, completely wiped out the season's yield.

The event mirrored patterns highlighted by the India Meteorological Department (IMD) State Climate Report (2023) – rising frequency of flash droughts and unseasonal rainfall in Andhra Pradesh.

Impacts of climate change or disaster event/s on people's welfare and rights

Impacts on land, settlements, and livelihoods, including food security

The drought led the SC and ST families to leave their land as fallow and uncultivated and subsequent hailstorm led to a complete crop failure. For the families, this meant a total loss of income and food security for the entire year and made them migrate for livelihood. The scarcity of fodder led to distress sales of their livestock, a critical asset and a buffer against such shocks. Their children were forced to quit school and work as unskilled laborers in factories and urban localities. The economic fallout pushed many families into debt with local money lenders, trapping them into a cycle of poverty.

Key affected groups/sectors


Participatory Rural Appraisal (PRA), Panduru Village

Photo by SARRA.

The impact was most severe on the tenant farmers and those cultivating lands informally. Without formal land titles, they could not claim a single rupee under the government's crop insurance schemes. Their landlords, who often had formal titles, were sometimes able to claim compensation, but this rarely trickled down to the tenants. Women were particularly affected, as they are traditionally responsible for feeding livestock and small ruminants with fodder and managing kitchen gardens for household food, which also withered further worsening the fodder and food security crisis. The children were forced to drop out of school and engage in child labor. The loss of livestock and debt also added to their burdens.

Impacts on tenure relations and land rights

The disaster exacerbated pre-existing tenure insecurities. Landlords began to evict tenant farmers who were unable to pay their lease. Disputes over the remaining productive land with access to the village's few borewells intensified. The lack of legal recourse for tenants and informal farmers meant that they were at the mercy of their landlords or the village power structures. The disaster also created a risk of land grabbing, as desperate farmers were forced to sell their lands to repay debts.

Tensions arose between different communities over access to dwindling water resources. In some instances, conflict broke out between tenant farmers and landlords. These disputes were often a direct result of the lack of a clear, legally recognized land tenure framework that could protect the most vulnerable.

Moreover, many sectors still do not believe in climate-resilient natural practices. Even the government does not have the manpower and technical capabilities to undertake these activities at the local level. The youth and men who are aware of the agricultural practices migrated to nearby cities and towns. Hence, women are left in villages with a lack of manpower and technical knowledge, which is also a major impact of COVID-19 in the villages. Unfortunately, during this period where support for the people is much needed, financial support was not available, neither from the national government nor from funding agencies. As the NITI Aayog SDG Index (2023) highlights, Andhra Pradesh lags behind in SDG 1 (No Poverty) and SDG 13 (Climate Action) due to persistent tenure and inclusion gaps.

Responses by the community to restore the environment, build resilience, and enhance livelihoods and food security

Narratives of local responses by the community, including key actors involved

Faced with a lack of government support, the communities have initiated their own responses. The village elders, in a move to build solidarity and mitigate risks, decided to pool labor for a collective effort to de-silt the community's traditional water-harvesting tank. Youth volunteers played a crucial role in the physical labor of de-silting the tank and disseminating information about sustainable farming practices.

Photo by SARRA.

The community also adopted a collective seed bank system for drought-resilient millet varieties, vegetable seeds, and medicinal plants and roots, ensuring that the community as a whole would have access to seeds for the next season. Women are the main seed protectors. They preserve and exchange traditional vegetable seeds. Further, natural farming practitioners preserve the open-pollination seeds.

The SC/ST communities, under the guidance of their local leaders, began to document their informal land use and tenancy agreements as a form of community-led land mapping to strengthen their collective claims.

The needs of the people forced them to organize themselves and collaborate with other groups. In some places, the Irrigation Department and the Ministry of Rural Development have taken initiatives. The local SC/ST community leaders played a crucial role in organizing these collective efforts.

Community-based organizations like farmer groups, youth clubs, and women's self-help groups (SHGs) have taken the lead in managing the community seed bank and promoting the cultivation of millets and other drought-resistant crops. To protect themselves, some small farmers came forward to take the initiative, along with CSOs and NGOs, with their limited financial, technical, and moral support.

Efforts of the community to restore the environment, build resilience to climate change, and enhance livelihoods and food security

Indian farmers have practiced a multi-crop system for generations. However, green revolution technologies led to the rise of monocropping. Due to the negative effects of using chemicals, SARRA and its partner organizations, like PPT, have conducted awareness training programs to help farming communities go back to mixed cropping systems. The training courses were conducted in nearby towns and on the farm areas of farmer leaders.

Hence, instead of monocropping, multiple crops and alternative cropping patterns were introduced and practiced. Organic agricultural practices were introduced, and natural pest management and soil fertility enhancement practices were followed. Community-managed bio-resource centers and custom hiring centers were established. Crop water budgeting practices were followed.

Photo by SARRA.

These practices impacted more than 1,600 small and marginal farmers in Tirupati district. These practices increased the household income by approximately 15 to 20 percent. Financial gains and the health of the farmers' families practicing natural farming improved significantly, resulting to reduction in hospital expenditure among children and women. Meanwhile, the middlemen who purchase the vegetables in the village sell them in nearby towns for more than 100 percent higher compared to chemical farming products. Otherwise, they relied on agriculture-related livelihoods such as dairy farming, rearing sheep, goats, native chicken and duck; collecting and processing non-timber forest products (NTFPs) like broomsticks, honey, medicinal plants; and, fishing. Multi-cropping patterns and implementation of sustainable models of cultivation like ATM (Any Time Money) model, ensured increased yields and revenue through land.

This case serves as a powerful illustration of the risks associated with insecure land tenure. The lack of formal titles for SC/ST farmers directly hindered their ability to access formal safety nets like crop insurance. However, the existing community solidarity and the informal, but recognized, collective rights to common lands enabled a collective response that would not have been possible in a fragmented, fully privatized land system. The community-led land mapping initiative is a grassroots attempt to create a form of de facto tenure security.

Responses by the authorities

The government's response was largely reactive rather than transformative. While some immediate relief measures were announced, they did not address the structural problem of insecure land tenure.

Flagship schemes such as YSR Jagananna Saswatha Bhoomi Hakku – Bhoo Rakshana (land titling), YSR Rythu Bharosa (income support), and the PM Fasal Bima Yojana (crop insurance) appear ambitious on paper. However, in practice, the gateway to all these benefits is a single document – the *patta* (land title).

This reliance on formal land records leaves tenant farmers, informal cultivators, and women without joint *pattas* excluded by design. On the ground, implementation for marginalized communities — particularly those in remote areas — is further hampered by bureaucratic delays, verification bottlenecks, and eligibility criteria that favor landlords over tenants.

As a result, relief often flows to landowners with *pattas*, while those who actually cultivate the land remain invisible in official records. The gap between policy intent and field reality has become stark, revealing a fundamental disconnect between State programs and the lived experiences of rural poor communities.

Assessments and recommendations

Key issues related to land tenure and climate change

- **Vulnerability of marginalized farmers.** SC/ST households engaged in dryland and tenant farming are among the most exposed to climate risks, with limited safety nets.
- **Tenure insecurity.** Lack of formal land titles excludes tenants and informal farmers from accessing government schemes, institutional credit, and crop insurance.
- **Precarious tenancy.** Oral or informal lease agreements leave farmers vulnerable to eviction, exploitation by landlords, and cycles of indebtedness.
- **Inequitable relief distribution.** Compensation and subsidies flow to landowners with *pattas*, while actual cultivators remain invisible in government records.
- **Climate change as an inequality multiplier.** Droughts, floods, and erratic weather not only destroy crops but also deepen existing caste, class, and gender inequities tied to land access.

Insights on how land tenure can help mitigation and adaptation to climate change

- **Land rights as the foundation of resilience.** Climate adaptation is not only about technology, irrigation, or improved seeds — it begins with secure tenure and social justice.
- **Policy-reality disconnect.** Even well-intentioned schemes fail when eligibility hinges on *pattas*, reinforcing exclusion of the most vulnerable.
- **Power of collective action.** Community-led initiatives — tank revival, seed banks, and land mapping — reveal that social capital and traditional knowledge can fill policy gaps.
- **Link between justice and climate action.** Without addressing tenure insecurity, climate action risks becoming incomplete, leaving marginalized farmers to absorb risks without recognition or support.

Recommendations

The following actions are necessary to empower local communities to participate in climate change responses:

- **Recognition of collective rights.** Enable communities to gain formal recognition of their use rights over commons, forests, and assigned lands, giving them confidence to invest in climate adaptation measures.
- **Inclusive platforms.** Create village-level Climate and Land Rights Forums, where tenant farmers, women, and youth can directly participate in planning resilience strategies.
- **Access to resources.** Ensure communities can access institutional credit, crop insurance, and subsidies regardless of *pattas* — through innovative verification (e.g., SHG-certified tenancy, Gram Sabha endorsements).

- **Invest in social capital.** Strengthen community seed banks, tank management committees, and collective land-use planning as institutions that blend traditional knowledge with modern resilience strategies.
- **Promote women's land rights.** Prioritize joint *pattas* for women in land distribution, ensuring they are not excluded from climate-related support and decision-making.

To operationalize the above actions, the following recommendations are outlined:

For government

- **Reform land titling policies.** Move beyond the narrow *patta*-centric system to a more flexible framework that legally recognizes tenant farmers, women, and cultivators of government/ common lands. This includes piloting community-certified tenancy agreements validated by the Gram Sabha, ensuring inclusion without jeopardizing landowners' rights.
- **Expand scheme eligibility.** Redesign agricultural support schemes — including crop insurance, Rythu Bharosa, and input subsidies — so that access is not tied only to *pattas*. Eligibility should extend to farmers cultivating land under registered tenancy or community-certified arrangements.
- **Decentralize land governance.** Empower Gram Sabhas and Panchayats to mediate disputes, verify tenancy, and manage community lands. Local institutions can act as the first line of accountability and ensure fair representation of SC/ST groups and women in decision-making.

For CSOs and the international community

- **Support community land mapping.** Equip local communities with tools (GIS, participatory mapping, mobile apps) to document actual land use and informal tenure arrangements. These maps can be powerful advocacy tools and evidence for recognition in policy forums.
- **Strengthen local capacity for resilience.** Train and provide resources for women's SHGs, farmer collectives, and youth clubs to manage seed banks, water-harvesting structures, and soil restoration practices. By linking tenure recognition with climate-smart farming, communities can secure both land and livelihoods.
- **Facilitate policy dialogue.** Partner with grassroots groups to take their experiences to State and national platforms, advocating for inclusive land and climate policies. International agencies can amplify these voices by connecting them to global climate financing mechanisms.

References

Andhra Pradesh, Planning Department. (2023). Andhra Pradesh economic survey 2022–23.
Government of India. (2016). Agricultural census 2015–16. Ministry of Agriculture and Farmers Welfare.
India Meteorological Department. (2023). Annual climate report 2023. IMD.
NABARD Tenant Farmers Report 2021
NITI Aayog. (2024). SDG India Index 2023-24: Towards Viksit Bharat (4th ed.). NITI Aayog.
Office of the Registrar General and Census Commissioner, India. (2011). Census of India 2011. Ministry of Home Affairs, Government of India.

Citation

Reddy, R. (2025). *Land tenure: The missing link in a climate-resilient and environmentally sustainable future.* Asian NGO Coalition for Agrarian Reform and Rural Development (ANGOC). [Case study prepared by the South Asia Rural Reconstruction Association (SARRA) for the project *"Inclusive and integrated partnerships for sustainable agri-food systems transformation – GFAiR"* with financial support from the European Commission (EC) through the International Fund for Agricultural Development (IFAD).

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