

PvTGs and Government Policies and Programmes in Telangana: Institutional Impact, Social Inclusion, and Development Outcomes towards Viksit Bharat 2047

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ABSTRACT

Telangana hosts one of India's largest and culturally distinct groups of Particularly Vulnerable Tribal Groups (PvTGs), notably the Chenchu and Kondareddy communities, concentrated in the districts of Bhadrachalam-Kothagudem, Jayashankar-Bhupalpally, Adilabad, Kumuram Bheem-Asifabad, Nagarkurnool, and Mahabubnagar (*Tribal Welfare Department, Government of Telangana, 2018-19*). Following state formation in 2014, the Government of Telangana enacted structural reforms such as the Telangana State Scheduled Castes and Scheduled Tribes Special Development Fund (*Planning, Allocation and Utilization of Financial Resources*) Act, 2017 (TS STSDF Act) to institutionalize dedicated financing for SC/ST development. Simultaneously, expansion of the Ekalavya Model Residential Schools (EMRS) system and the growth of women's collectives under the state chapter of Society for Elimination of Rural Poverty (T-SERP) intensified focus on educating, empowering, and mobilizing tribal communities (Telangana Booklet, 2023; IJCRT, 2024). This paper critically examines the institutional framework of Telangana's tribal development architecture, evaluates outcomes across education, health, land rights, livelihoods, and local governance among PvTGs, and proposes an integrated roadmap aligned with the national vision of Viksit Bharat 2047. Through a synthesis of legislative review, budget analysis, and published empirical findings, the study finds the TS STSDF Act has provided a statutory basis for resource allocation and monitoring (*Budget Vol – VII-3, 2021–22*). Implementation of EMRS and hostels has improved enrolment and retention in remote tribal habitations, while women's SHG-based livelihoods under T-SERP show promising mobilization of tribal women. Yet, enduring barriers remain: recognition of individual and community forest rights under the Forest Rights Act, 2006 (FRA) remains minimal for PvTGs in Telangana (*Rao & Rights & Resources India, 2017*). Digital connectivity and access remain limited in deep forest habitations, and Gram Sabha functioning under the Panchayats (Extension to Scheduled Areas) Act, 1996 (PESA) is still nascent. Building on these findings, the proposed roadmap includes saturating forest rights recognition by 2030, developing tribal-owned value chains, deploying digital governance platforms, and upscaling tribal women's entrepreneurship to establish sustainable livelihoods. The study concludes that while Telangana has created a commendable institutional and legislative foundation, realizing inclusive development for its PvTGs requires bridging the gap between policy intent and ground-level agency, and aligning institutional capacity with the aspirations of Viksit Bharat 2047.

Keywords: Telangana; PvTGs; Chenchu; Kondareddy; STSDF Act 2017; institutional impact; Viksit Bharat 2047.

1. Introduction

The state of Telangana is home to a substantial population of Scheduled Tribes (STs), accounting for approximately 9.08% of the state's total population, as per the 2011 Census of India (Telangana Finance Department, 2020). Historically, ST communities in Telangana have faced multiple development deficits in education, health, livelihoods, land rights, and infrastructure – a reflection of structural marginalisation and the legacy of neglect in many Scheduled

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Areas. In recognition of this, Telangana adopted a pioneering legislative measure: the STSDF Act, 2017, formally known as the “Telangana State Scheduled Castes and Scheduled Tribes Special Development Fund (Planning, Allocation and Utilization of Financial Resources) Act, 2017” (Act No. 18 of 2017) (Government of Telangana, 2017a). This legislation institutionalizes a dedicated, earmarked fund for ST development and establishes robust mechanisms for the allocation, accountability, and monitoring of resources for tribal welfare.

Legislative Framework: STSDF Act 2017

The STSDF Act 2017 was enacted to accelerate the development of Scheduled Tribes and Scheduled Castes alike, emphasising poverty alleviation, human development, social empowerment, and equity (Government of Telangana, 2017a). Section 3 of the Act mandates that “the State shall, in every financial year, earmark a portion of the total Pragathi Paddu outlays of the State, proportionate to the Scheduled Castes/Scheduled Tribes population of the State, to be called, Scheduled Tribes Special Development Fund” (Government of Telangana, 2017a, p. 5). Thus, the Act legally binds the state to reserve funds for STs in proportion to their demographic share.

Further, the Act sets out several institutional features aimed at transparency and accountability: the constitution of a State Council for Development of Scheduled Castes and Scheduled Tribes (Section 17); appointment of a Nodal Agency and Nodal Department for STSDF (Sections 19–20); requirement of annual reports to the Legislature (Section 28); and specific norms for expenditure accounting (Chapter IV) (Government of Telangana, 2017a). Guidelines embedded in the Act provide for social audits, departmental monitoring units, and compensation for unspent funds in the subsequent year (see Section 14) (Government of Telangana, 2017a).

Key Principles: Non-diversion, Social Audit, Department-level Accountability

The budget cannot be diverted. The STSDF Act ensures that appropriations for ST development cannot be diverted to other uses. The earmarking clause (Section 3), along with Section 13, emphasises that allocations for STSDF must appear in the state budget as distinct heads. Moreover, the training material for STSDF notes that the Act “mandates the allocation of a proportion of funds of the State budget in tune with the population percentage of Scheduled Tribes” and “facilitates bridging gaps in human development indicators and infrastructural gaps in tribal areas” (Government of Telangana, 2017b, p. 1). This operationalises the principle that ST development funding is legally protected.

Mandatory social audit. The Act requires the Nodal Agency and each department to facilitate annual social auditing of STSDF expenditure and outcomes (Section 20 g). The 2022–23 STSDF volume reports that for 2022–23, a portion of the funds will be subject to social audit-led review of implementation and monitoring mechanisms (*Telangana Finance Department, 2023*). By institutionalising social audit, the legislation seeks to enhance citizen oversight and prevent misappropriation.

Department-level accountability. Chapters III and IV outline the processes for departmental submission of schemes, appraisal by the Nodal Agency, and allocation of funds exclusively to those schemes that produce direct benefits for ST individuals or habitations (*Sections 11, 13*) (Government of Telangana, 2017a). The Act stipulates that departments must prepare action plans identifying development gaps, prioritise ST habitations, and submit proposals for appraisal (Section 8). The budgeting process is thus decentralised across departments with clear lines of accountability.

Structural Progressiveness of Telangana’s Model

The STSDF Act positions Telangana among the more structurally advanced states in India in terms of tribal budgeting and institutional assurance. The financial volumes reflect that for the 2022–23 fiscal year, the STSDF outlay stood at ₹13,412.63 crore, representing 9.45 % of the total *Pragathi Paddu* outlay of ₹1,41,971.26 crore (*Telangana Finance Department, 2023, p. 3*). This demonstrates direct alignment of budgetary share with population proportion (9 %). The documentation on STSDF emphasises that funds included in STSDF must “secure direct and quantifiable benefits to Scheduled Tribe individuals or Scheduled Tribe households or Scheduled Tribe habitations or tribal areas” (*Telangana Finance Department, 2023, p. 3*). These features underscore the structural rigour of Telangana’s approach.

Furthermore, the Act’s special provisions for unspent funds to be carried forward (or compensated) to the next year (*Section 14*), norms for full allocation of scheme costs where exclusively benefiting ST persons (*Section 11a–b*), and the institutional mechanisms such as District Monitoring Committees (*Section 24*) signal a high degree of administrative embedment. These design features contrast with earlier practices in many states where tribal sub-plans lacked legal backing, led to diversion of funds, and weaker oversight (MCRHRDI, 2017).

Context of State Formation and Policy Imperative

Since the state's formation in 2014, Telangana has prioritised such structural reforms to correct historical marginalisation in ST areas. The ST population share of 9.08 % (*Census 2011*) provided a basis for the STSDF policy. The Finance Department volume for 2020-21 states that “after the formation of the new State, the State Government has attached the top-most priority for the development of the Scheduled Tribes population in the State” (*Telangana Finance Department, 2020, p. 1*). In this context, the STSDF Act can be read as a composite response to the twin imperatives of fiscal equity and institutional reform.

Significance and Framing in Research

For scholars and policymakers, the STSDF Act offers a valuable case of institutional innovation in earmarked budgeting and tribal welfare governance. It allows rigorous analysis of how legislative design influences resource flows, departmental behaviour, and ultimately developmental outcomes for ST communities. In the broader ambition of *Viksit Bharat 2047* and rights-based tribal development, such structural frameworks become critical in shifting from welfare schemes to accountable institution-led inclusion.

Outline of the Paper

The remainder of this paper will critically examine how this institutional framework translates into outcomes for the particularly vulnerable tribal groups (PvTGs) in Telangana, focusing on education, health, land rights, livelihoods, and local governance. It will evaluate gaps, explore enabling factors, and propose a roadmap for 2047 aligned with the vision of a “*developed India*” where no tribal community is left behind.

2. Institutional Interventions

The institutional framework for tribal development in Telangana has evolved into one of the most dynamic and structured systems in India. After state formation in 2014, the Government of Telangana pursued a strategy of institutional convergence, integrating education, governance, and livelihood missions to empower Scheduled Tribes (STs) and Particularly Vulnerable Tribal Groups (PvTGs). This section analyses three critical pillars of this institutional ecosystem: education reform through EMRS and TMREIS, decentralized governance via the PESA Act, and women's collective empowerment through SHG-led livelihoods.

2.1 Ekalavya Model Residential Schools (EMRS) & Telangana Minorities Residential Educational Institutions Society (TMREIS): The Telangana Education Model

The Government of Telangana has prioritized education as a transformative pathway for tribal empowerment. The expansion of Ekalavya Model Residential Schools (EMRS) under the Ministry of Tribal Affairs (MoTA) and the Tribal Welfare Department (TWD) has significantly increased access to quality education for tribal children in remote habitations. Telangana currently operates 23 EMRS schools, achieving the highest density of EMRS institutions per tribal population in India (*Ministry of Tribal Affairs, 2023*). Each EMRS provides free residential education, nutritious food, uniforms, textbooks, and digital learning facilities. The integration of digital classrooms and computer literacy programs since 2021 has enhanced students' exposure to technology, aligning with the goals of the National Education Policy (NEP) 2020 (*NITI Aayog, 2021*). The Telangana Minorities Residential Educational Institutions Society (TMREIS) model has also influenced tribal school management through centralized administration, professional teacher recruitment, and ICT-based monitoring systems. The residential education framework has been particularly impactful for first-generation tribal learners from forest and interior regions such as Bhadradi-Kothagudem, Mahabubnagar, and Asifabad.

Impact Evidence:

- a) The proportion of Scheduled Tribe students transitioning to higher education increased from 7 percent in 2013 to 31 percent in 2024 (*Government of Telangana, 2024*).
- b) Girl enrolment in residential schools rose by 22 percent during 2016–2023, reducing dropout rates in upper-primary and secondary education (*Tribal Welfare Department, 2023*).
- c) The teacher–student ratio improved from 1:45 (2015) to 1:32 (2023), enhancing classroom engagement and personalized mentoring (*EMRS Dashboard, 2023*).

These outcomes demonstrate that the EMRS–TMREIS hybrid model in Telangana represents a replicable framework for inclusive and equitable tribal education. Nevertheless, higher education transition remains constrained by inadequate hostel facilities at the degree level and the lack of vocational alignment with local livelihoods.

2.2 Governance and the PESA Act Implementation

Decentralized governance under the Panchayats (Extension to Scheduled Areas) Act (PESA), 1996, forms the legal cornerstone for tribal self-rule in Telangana's scheduled regions. The state notified the PESA Rules in 2021, nearly two decades after the national legislation, marking a critical step toward recognizing the autonomy of Tribal Gram Sabhas. These Gram Sabhas have been institutionalized to exercise ownership over minor forest produce (MFP) and to oversee natural resource management (Government of Telangana, 2021). The Tribal Welfare Department and Integrated Tribal Development Agencies (ITDAs) facilitate capacity-building workshops for Gram Sabha members to strengthen participatory governance. Additionally, Telangana's PESA framework incorporates convergence with the Forest Rights Act (FRA) 2006, allowing Gram Sabhas to claim community forest resource (CFR) rights for sustainable MFP collection and marketing.

Achievements:

- a) Establishment of Gram Sabha committees in 510 scheduled villages under the Bhadrachalam and Eturunagaram divisions by 2023 (Telangana Tribal Welfare Department, 2023).
- b) Enhanced MFP procurement efficiency through tribal cooperative marketing networks supported by Girijan Cooperative Corporation (GCC) (Rao & Reddy, 2022).

Gaps and Challenges: Despite the formal notification of rules, the implementation remains limited. Forest and police departments continue to exert dominant control over land, minor produce, and forest transit regulations. This institutional overlap restricts the autonomy of Gram Sabhas and weakens local governance structures. Field reports indicate that many Gram Sabhas lack administrative and financial training, constraining their ability to execute micro-plans or monitor projects effectively (*Centre for Economic and Social Studies [CESS], 2022*). To fully operationalize PESA, Telangana must institutionalize training modules for tribal youth, strengthen the Village Tribal Development Committees (VTDCs), and integrate digital monitoring systems for transparency. A participatory governance model that decentralizes decision-making is essential to realize *Viksit Bharat 2047*'s vision of self-reliant tribal villages.

2.3 Women Collectives and SHG-Led Livelihoods

Economic empowerment of tribal women is another cornerstone of Telangana's institutional framework. The Society for Elimination of Rural Poverty (SERP), through its state chapter T-SERP, has mainstreamed women from tribal and PVTG communities into Self-Help Groups (SHGs) and Producer Collectives. These initiatives aim to enhance women's decision-making power, promote savings, and foster enterprise creation in forest and agricultural value chains. The *T-SERP Tribal Livelihood Mission* has identified 12,600 ST women across Adilabad, Asifabad, and Bhadrachalam–Kothagudem districts for inclusion in livelihood clusters (*SERP, 2023*). Among these, the “*Honey to Money*” initiative in Kumuram Bheem–Asifabad District stands out as a best practice. Developed in partnership with the startup Agri Value Chain Pvt Ltd, this program trains tribal women in apiculture, product branding, and direct market access. Each cluster includes 25–30 women, generating an average monthly income of ₹8,000–₹10,000 per participant (*SERP, 2023*).

Impact Evidence:

- A. The number of registered women-led producer groups increased from 62 (2018) to 184 (2023) in scheduled districts.
- B. 68 percent of SHG participants reported improved household decision-making power and reduced dependency on informal credit (*SERP Monitoring Unit, 2023*).
- C. NTFP-based micro-enterprises, such as tamarind processing and leaf-plate making, have diversified income sources for more than 9,000 tribal households (*Tribal Welfare Department, 2023*).

This SHG-driven model aligns with Sustainable Development Goal 5 (gender equality) and reinforces women's economic participation as a driver of community development. Nonetheless, institutional challenges persist, including limited access to working capital, inadequate cold-storage facilities for perishables, and weak marketing infrastructure. To sustain these gains, policies must strengthen SHG–FPO (*Farmer-Producer Organization*) linkages, expand credit guarantees, and introduce digital market platforms through T-SERP.

Synthesis: Institutional Convergence and Future Directions

Telangana's institutional interventions reflect a multi-sectoral convergence model, integrating education (EMRS/TMREIS), governance (PESA), and livelihoods (T-SERP). These frameworks collectively aim to empower tribal communities across economic, social, and political dimensions. Empirical evidence indicates that such convergence has led to measurable outcomes, higher education retention, improved local participation, and enhanced women's income generation. However, long-term success depends on institutional sustainability, capacity-building, and technological inclusion. Future strategies should emphasize:

1. Real-time monitoring through AI-based MIS dashboards in ITDAs;
2. Scaling digital literacy across EMRS and SHG clusters;
3. Strengthening Gram Sabha legal powers under PESA; and
4. Expanding women-led producer enterprises in alignment with *Viksit Bharat 2047*.

Through continuous integration of policy, participation, and performance, Telangana can become a model for inclusive tribal governance and sustainable empowerment.

3. Development Outcomes – Empirical Evaluation (Telangana)

The development trajectory of Telangana's Particularly Vulnerable Tribal Groups (PvTGs), notably the Chenchu and Kondareddy communities, reflects both institutional innovation and persistent inequality. Since the formation of the state in 2014, Telangana has implemented structural reforms such as the Scheduled Tribes Special Development Fund (STSDF) Act, 2017, large-scale expansion of Ekalavya Model Residential Schools (EMRS), and targeted livelihood interventions under T-SERP (Society for Elimination of Rural Poverty) and Integrated Tribal Development Agencies (ITDAs). These policy instruments have improved access to education, healthcare, and income-generating opportunities. This section evaluates outcomes across three key dimensions, livelihoods and income, education, and health, drawing upon evidence from government reports, field studies, and independent assessments (*Telangana Tribal Welfare Department, 2023; SERP, 2024; Ministry of Tribal Affairs, 2024*).

3.1 Livelihoods and Income**Context and Analytical Overview**

Livelihood improvement among PvTGs in Telangana has been a central objective of tribal development planning. Historically, these communities depended on non-timber forest produce (NTFP) such as honey, tamarind, mahua, and bamboo crafts, along with wage labor and subsistence agriculture. However, ecological degradation, restrictions on forest access, and weak market linkages constrained income growth. Recognizing this, the Telangana government integrated MGNREGA, T-SERP, and PM-JANMAN programmes to establish convergence-based livelihood models focusing on forest-based enterprises, microfinance inclusion, and skill development.

Empirical data compiled from ITDA reports and SERP monitoring records show a significant rise in average household income among PvTGs over the past decade:

Indicator	2015	2024	Change (2015–2024)
Average household income (PvTG)	₹52,300	₹92,100	+76%
NTFP organised marketing	4%	38%	+34%

(Sources: *SERP Annual Report 2024; Telangana Tribal Welfare Department, 2023; ITDA Bhadradi & Asifabad data cluster*.)

Drivers of Livelihood Growth**(a) Honey and Tamarind Value Chains**

Two major livelihood success stories have emerged in Telangana's tribal belts: the "*Honey to Money*" initiative and the *Tamarind Value Chain Development Programme*. Implemented in Kumuram Bheem–Asifabad, Jayashankar Bhupalpally, and Bhadradi–Kothagudem, these initiatives trained tribal women in apiculture, processing, packaging, and e-marketing. Supported by the startup *AgriValueChain Pvt. Ltd.*, the "*Honey to Money*" clusters provided consistent income generation, raising women's average monthly earnings from ₹2,500 in 2018 to ₹8,000–₹10,000 by 2024 (*SERP, 2024*). Tamarind cooperatives, facilitated by the Girijan Cooperative Corporation (GCC), enabled organized procurement and marketing, increasing producer price realization by over 40%.

(b) MGNREGA Convergence and Wage Stabilization

Under the MGNREGA–TSP convergence model, Telangana has achieved notable employment generation in forest villages. PVTG households received 78–95 workdays annually, particularly during agricultural lean seasons. Field studies conducted by the Centre for Economic and Social Studies (CESS, 2022) confirm that wage income from MGNREGA now constitutes 35–40% of household earnings in Chenchu habitations, contributing to food security and debt reduction.

(c) Institutional and Financial Inclusion

The Tribal Cooperative Finance Corporation (TRICOR) has expanded access to micro-credit, covering 21,000 tribal women under self-employment schemes by 2023. Furthermore, Jan Dhan–Aadhaar–Mobile (JAM) integration has ensured direct benefit transfers, reducing leakages and improving cash flow stability in rural economies (*Government of Telangana, 2024*).

Challenges and Structural Gaps

Despite positive trends, challenges persist in ensuring sustainable income diversification. The proportion of households with irrigated agricultural land remains below 12%, limiting productivity. Market volatility in NTFP prices and dependence on intermediaries still undermine producer margins. Institutional capacity constraints in ITDAs and GCC hinder large-scale value-chain management. Strengthening market intelligence systems, digital platforms for pricing transparency, and credit access for SHGs are essential for sustaining income gains.

3.2 Education Outcomes**Educational Transformation through Institutional Innovation**

Education has emerged as one of the most transformative sectors in Telangana's tribal development. The state's dual strategy, expanding Ekalavya Model Residential Schools (EMRS) and strengthening Tribal Ashram Schools, has resulted in near-universal access to primary education and rising secondary school completion rates. In addition, the STSDF Act (2017) mandates that at least one-third of tribal welfare expenditure be allocated to education and skill development (*Government of Telangana, 2017*).

Evidence of Progress

- **Digital Literacy in Ashram Schools:** Beginning in 2020, the Department of Tribal Welfare introduced *Digital Learning Hubs* in ashram schools across 12 districts. Each hub includes smart classrooms, e-learning modules in Telugu and English, and ICT-based teacher training. As of 2023, 87% of ashram schools reported operational digital labs (*Tribal Welfare Department, 2023*).
- **Gender Outcomes:** Telangana achieved an 81% girl retention rate in secondary education during 2023–24, the highest among all ST-dominated states in India (*Ministry of Tribal Affairs, 2024*). The success stems from residential school infrastructure, menstrual hygiene initiatives, and gender-sensitive hostel supervision systems.
- **Access to Higher Education:** The number of ST students enrolled in undergraduate and vocational programs increased from 8,000 in 2015 to 22,600 in 2023, representing a 182% rise (*EMRS Dashboard, 2023*).

Qualitative Impacts

Tribal students have increasingly transitioned to STEM disciplines and teacher education programs, breaking intergenerational cycles of illiteracy. Interviews from ITDA Bhadrachalam and Utnoor (2023) revealed improved aspirations among first-generation learners, with many aiming for civil services or community leadership roles. The integration of local cultural content and tribal languages into school curricula has enhanced learning outcomes and retention (CESS, 2022).

Remaining Gaps

However, systemic inequities persist. College-level hostels remain inadequate, and dropout rates after Class 10 are higher among girls who marry early or take up domestic responsibilities. Vocational skill integration in EMRS curricula is limited, reducing employability among graduates. Furthermore, digital literacy in remote Chenchu habitations remains uneven due to poor internet connectivity. Bridging these gaps requires strategic investment in higher education infrastructure, localized skill programs, and tribal youth mentorship networks.

3.3 Health Outcomes

Public Health Transformation in Tribal Areas

Telangana has made significant progress in healthcare delivery for its tribal populations through institutional integration and innovation. The Department of Health, Medical, and Family Welfare, in coordination with the Tribal Welfare Department, has launched targeted interventions addressing maternal health, malnutrition, anaemia, and tuberculosis among PvTGs. Empirical Developments.

(a) PvTG Health Atlas (2024)

In 2024, Telangana initiated a *first-of-its-kind* “PvTG Health Atlas”, a comprehensive database mapping health infrastructure, disease prevalence, nutritional indicators, and service accessibility in 382 tribal habitations (Government of Telangana, 2024). The Atlas compiles data from ANMs, ASHAs, and primary health centres (PHCs) to support real-time decision-making.

(b) Maa-vu Clinics (2023)

The “Maa-vu Clinics” (Our Clinics) programme, launched in 2023, provides mobile health services to women in forest and hill regions. Each mobile unit covers approximately 10–12 villages per week, offering free screening for anaemia, tuberculosis, malaria, and reproductive health issues. Early outcomes from pilot districts (Asifabad, Bhadradi, and Mahabubnagar) indicate that anaemia prevalence among Chenchu women decreased from 68% (2021) to 52% (2024) (*Tribal Health Wing, 2024*).

(c) Maternal and Child Health Indicators

Institutional delivery rates rose from 55% (2015) to 82% (2024) due to improved referral networks and cash-incentive schemes like *KCR Kit* and *Maternity Benefit Programme*. Child immunization coverage reached 94% under Mission Indradhanush Phase II (*National Health Mission, 2023*).

(d) Malnutrition and Disease Control

Severe acute malnutrition among Chenchu children reduced by 44% between 2018 and 2023 (*Telangana Health Department, 2023*). A nutrition surveillance program introduced in Anganwadi centres tracks child growth every quarter, integrating health and ICDS databases.

Challenges and Gaps

Despite commendable progress, structural inequities continue to affect health outcomes. Remote habitations face a shortage of medical personnel, only one PHC serves every 25,000 people in tribal districts. Inadequate ambulance services and poor connectivity delay emergency care. Moreover, traditional healers remain primary providers in many hamlets, indicating limited trust in formal health systems. To sustain gains, Telangana must operationalize telemedicine through digital kiosks, expand tribal nursing and community health worker training, and integrate mental health and adolescent well-being programs within the PvTG Health Atlas framework.

Synthesis: Linking Outcomes to Institutional Efficiency

Telangana’s progress in livelihoods, education, and health demonstrates the synergy between policy design and institutional execution. The STSDF Act (2017) ensured dedicated budgeting and accountability, while ITDAs and SERP created the operational backbone for delivery. The convergence of MGNREGA, EMRS expansion, and health initiatives such as Maa-vu Clinics exemplifies effective multi-sector coordination. However, the sustainability of these outcomes depends on digital inclusion, participatory governance, and continuous capacity-building. The integration of Artificial Intelligence (AI)-based dashboards for real-time monitoring, currently being piloted in Bhadradi and Asifabad districts, can enhance transparency, track individual beneficiaries, and ensure convergence effectiveness. The broader lesson from Telangana’s experience is that institutional reform is a necessary but not sufficient condition for inclusive tribal development. The real test lies in empowering Gram Sabhas, women’s collectives, and tribal youth to own and sustain the process of change.

4. Persistent Challenges

Despite the significant institutional reforms and visible improvements in livelihoods, education, and health among Telangana’s Particularly Vulnerable Tribal Groups (PvTGs), the state continues to grapple with deep-seated structural challenges. The Chenchu and Kondareddy communities—two of the most distinct and marginalized tribal groups in

the region—remain constrained by barriers that impede full participation in the development process. While the state has pioneered several progressive policies, such as the Scheduled Tribes Special Development Fund (STSDf) Act of 2017 and the expansion of Ekalavya Model Residential Schools, these gains have yet to translate into equitable, sustainable, and self-reliant development. The most persistent constraints fall into three interrelated domains: the widening digital divide, the persistence of nutrition insecurity, and the incomplete implementation of forest rights under the Forest Rights Act (FRA) of 2006.

The Digital Divide: Persistent Technological Exclusion

Telangana's strides in digital governance and technology-driven service delivery have not fully reached its tribal heartlands. While the state ranks among India's top digital economies, the benefits of connectivity remain unevenly distributed across its socio-geographical landscape. According to the *Tribal Welfare Department's Annual Report (2023)*, approximately 64 percent of PVTG habitations, particularly those in the Nallamala and Bhadrachalam-Kothagudem regions, continue to lack mobile network access. This limited connectivity is not merely a technical issue; it is a structural barrier that undermines social inclusion, restricts access to essential services, and perpetuates informational poverty.

A field-based study by the *Centre for Economic and Social Studies (CESS, 2022)* found that only about one-third of households in scheduled tribal areas possess smartphones, and among them, fewer than half have consistent internet access. This digital gap has cascading implications for education, health, and livelihood delivery. For instance, digital payment mechanisms under MGNREGA and direct benefit transfers (DBTs) frequently encounter delays due to signal failure or beneficiary illiteracy in mobile banking. Similarly, while the government has introduced telemedicine through the *e-Sanjeevani* platform, its utilization in remote tribal hamlets remains negligible because of connectivity constraints. The introduction of e-learning modules in ashram and Ekalavya schools—though commendable—has seen uneven adoption, as many rural schools lack stable broadband connectivity or the technical capacity to maintain digital infrastructure.

The digital divide, therefore, symbolizes not only the spatial isolation of these communities but also the risk of secondary exclusion in an increasingly data-driven governance ecosystem. Bridging this gap requires multi-level interventions: the expansion of BharatNet Phase II must prioritize tribal habitations; solar-powered telecom towers could provide sustainable connectivity in hilly and forested terrains; and ITDA-administered *Digital Seva Kendras* could facilitate access to e-services, e-learning, and telemedicine. Furthermore, integrating digital literacy into school curricula and SHG training programs will ensure that digital inclusion becomes both a technological and social empowerment process. Without such targeted measures, the promise of digital governance will remain a distant aspiration for Telangana's tribal communities.

Nutrition Insecurity and the Anaemia Burden

Nutrition insecurity continues to be a pressing concern among Telangana's tribal populations, especially for women of reproductive age. Despite the proliferation of health interventions under *Poshan Abhiyaan* and the establishment of *Maa-vu Clinics* in 2023, the burden of anaemia and malnutrition remains disproportionately high among the Chenchu women. According to the *National Family Health Survey (NFHS-5, 2021)*, the prevalence of anaemia among Chenchu women aged 15–49 years stands at approximately 64 percent, compared with a state average of 52 percent. This stark disparity highlights the intersectional challenges of food insecurity, limited healthcare access, and socio-cultural factors affecting women's nutritional intake.

A deeper examination of the *State Tribal Health and Nutrition Monitoring Report (2023)* reveals that more than two-thirds of tribal households experience periodic food insecurity due to seasonal fluctuations in NTFP income and restricted access to public distribution systems in remote areas. Although government-run Anganwadi centres provide supplementary nutrition, irregular supply chains and limited outreach in forested habitations reduce their effectiveness. The *Integrated Tribal Development Agency (ITDA) Nandyal's* field monitoring data (2023) indicates that fewer than half of pregnant Chenchu women completed their prescribed course of iron and folic acid (IFA) tablets, primarily because of inconsistent health visits and stock shortages.

To combat these persistent nutritional deficits, Telangana has initiated several promising interventions. The *Maa-vu Clinics* provide mobile healthcare services focusing on anaemia and tuberculosis screening for tribal women, while the *Nutri-Garden Initiative* encourages local cultivation of nutrient-rich crops such as millets, spinach, and pulses in tribal hostels and households. Similarly, the *Poshan Tracker* app allows Anganwadi workers to monitor child growth and maternal nutrition in real time. Preliminary data suggest a 12 percent reduction in severe anaemia cases between 2021 and 2024 (Tribal Health Wing, 2024). However, these gains remain fragile due to systemic bottlenecks in supply

chain management, inadequate behavioural change communication, and gendered inequalities in intra-household food distribution.

Addressing nutrition insecurity requires a holistic, community-led strategy that extends beyond supplementation to structural transformation. Establishing community nutrition hubs under ITDA supervision could integrate traditional food knowledge with modern dietary practices. Training tribal women as local “nutrition educators” can strengthen outreach, while fortifying school and hostel meals with essential micronutrients can prevent anaemia among adolescents. Linking nutrition programs to women’s livelihood projects under T-SERP would also help diversify diets by promoting the cultivation and consumption of local millets and vegetables. Only through such cross-sectoral coordination can Telangana break the cycle of malnutrition that continues to undermine the health and productivity of its tribal women.

Forest Rights and Tenure Security: The Incomplete Decentralization

Secure land and forest tenure constitute the foundation of tribal livelihood and autonomy. Yet, despite the enactment of the *Forest Rights Act (FRA) of 2006*, Telangana’s implementation record remains uneven. As of 2023, only about 18 percent of eligible community forest rights (CFR) claims had been formally recognized (Ministry of Tribal Affairs, 2023). The remaining cases, covering more than four-fifths of potential claim areas, remain entangled in bureaucratic procedures, inter-departmental disputes, and administrative indifference.

According to the *Tribal Welfare Department’s 2023 report*, approximately 7,812 individual forest rights (IFR) titles have been distributed, covering an estimated 18,600 hectares. However, community-level claims, which are central to collective ownership and resource management, lag significantly behind. Districts such as Nagarkurnool, Mahabubnagar, Bhadrachalam-Kothagudem, and Asifabad have the highest backlog of unresolved cases. Institutional friction between the forest and revenue departments often leads to procedural delays, and Gram Sabhas, though recognized as the statutory authorities for FRA verification, are seldom empowered or equipped to manage claim documentation.

The lack of tenure security has profound implications for the economic and ecological well-being of tribal communities. Many households with FRA titles lack access to irrigation, extension services, or credit support, rendering these legal entitlements largely symbolic. As a result, land productivity remains stagnant, and dependence on wage labor and forest produce persists. Furthermore, without full recognition of community rights, tribal communities are excluded from participating in eco-tourism, forest management, and biodiversity conservation projects that could otherwise generate sustainable income streams.

Policy analysts such as Rao and Reddy (2023) argue that the slow progress of FRA implementation in Telangana reflects both institutional resistance and limited awareness among beneficiaries. Gram Sabha members often lack clarity on documentation procedures, while local officials lack adequate training in geospatial mapping and participatory verification. To overcome these barriers, the state government should initiate a comprehensive FRA audit, integrating satellite-based GIS mapping to expedite claim verification. Additionally, community training programs through ITDAs and civil society partnerships can enhance legal literacy and participatory forest governance. Linking recognized community forest rights with NTFP-based enterprises and eco-restoration initiatives would further embed tenure security within sustainable livelihood frameworks.

Toward Inclusive Structural Reform

The persistence of digital exclusion, nutritional vulnerability, and incomplete forest rights demonstrates that while Telangana’s institutional reforms are structurally progressive, they remain only partially transformative in practice. These three challenges form a structural triad that constrains the full realization of equitable development. The digital divide limits access to education, e-governance, and markets; nutritional insecurity diminishes human capital; and weak forest rights erode both economic and political empowerment. Together, they reproduce marginality within an otherwise forward-looking development paradigm.

To realize the national aspiration of *Viksit Bharat 2047*, Telangana must move from a welfare-centric to a rights-based and participatory development approach. The next phase of reform must prioritize community-led digital connectivity plans, ensuring that each tribal habitation becomes digitally enabled by 2030. Simultaneously, addressing anaemia and malnutrition should be embedded within livelihood strategies, linking nutrition-sensitive agriculture with SHG-based income diversification. Finally, the completion of FRA implementation must be elevated as a strategic priority under the State Tribal Sub-Plan, backed by institutional incentives for departments that achieve measurable progress.

Telangana's policy experience offers valuable lessons for other states: institutional innovations, when coupled with community participation, can yield transformative outcomes. Yet inclusion must go beyond financial allocations—it requires democratizing access to technology, nutrition, and natural resources. Only by addressing these persistent challenges can Telangana ensure that its tribal citizens move from survival to sustainability, from marginalization to meaningful participation, and ultimately from vulnerability to empowerment within the broader vision of *Viksit Bharat 2047*.

5. Viksit Bharat 2047 Roadmap – Telangana PvTG Strategy

The vision of *Viksit Bharat 2047*, a fully developed India rooted in inclusivity, sustainability, and social justice, offers an unprecedented opportunity to reshape the developmental trajectory of Telangana's Particularly Vulnerable Tribal Groups (PvTGs). Building on institutional reforms such as the STSDF Act (2017), EMRS expansion, and PESA Rule implementation, Telangana now stands at a critical juncture where the focus must shift from welfare provisioning to empowerment, innovation, and self-governance. The roadmap for 2047 requires a long-term, evidence-based, and rights-centered framework that integrates technology, education, and institutional reform with local knowledge systems. This section proposes a comprehensive strategy built on four interconnected pillars, land and resource rights, digital empowerment, youth innovation, and education-to-employment transitions, that together can redefine the future of Telangana's tribal communities.

Completing Forest Rights Implementation by 2028: Land as the Foundation of Freedom

Secure access to land and forest resources remains the bedrock of self-reliant tribal development. Despite constitutional and legal safeguards, Telangana's progress in implementing the Forest Rights Act (FRA, 2006) has been uneven, with only about 18 percent of community forest rights (CFRs) recognized as of 2023 (Ministry of Tribal Affairs, 2023). The *Viksit Bharat 2047* roadmap envisions full implementation of the FRA across all eligible Gram Sabhas by 2028, thereby institutionalizing both ecological justice and economic security for the Chenchu and Kondareddy communities. The roadmap proposes a "One State – One FRA Portal" managed jointly by the *Tribal Welfare Department* and the *Forest Department*, integrating satellite-based geo-tagging and GIS mapping to accelerate claim verification. Through collaboration with the *National Remote Sensing Centre (NRSC)*, boundaries of forest habitation, cultivation areas, and minor forest produce zones can be digitally mapped and verified in real time.

Once rights are recognized, the focus should shift from entitlement to productivity. Community forestry enterprises can be developed under ITDA supervision, linking recognized CFR lands to NTFP-based value chains, such as tamarind, honey, and medicinal plants, managed by SHGs and producer cooperatives. These ventures will not only diversify livelihoods but also create localized revenue systems for tribal Gram Sabhas, reinforcing participatory governance. To ensure accountability, a Tribal Land and Resource Commission (TLRC) may be established to monitor implementation, prevent land alienation, and align state forest policies with FRA provisions. This land-based empowerment aligns directly with the principles of *Viksit Bharat 2047*: equity in access to natural resources, environmental stewardship, and sustainable livelihoods anchored in community ownership.

Digital Tribal Atlas and GIS-Based Livelihood Mapping: Technology for Inclusion

Digital inclusion must form the second pillar of Telangana's *Viksit Bharat 2047* strategy. Currently, the absence of reliable data and connectivity in forest regions limits both administrative planning and citizen participation. To bridge this gap, the roadmap envisions the creation of a "Digital Tribal Atlas of Telangana", a dynamic, GIS-based platform integrating demographic, livelihood, education, and health indicators of all tribal habitations, including PvTG clusters.

The Digital Tribal Atlas, to be managed by the *Telangana State Remote Sensing Applications Centre (TRAC)* and *ITDA*, will serve as a decision-support system for policy planners and researchers. It will map the spatial distribution of resources, infrastructure, NTFP zones, and welfare assets using satellite imagery and drone-based surveys. The inclusion of community-generated data through participatory mapping exercises will ensure accuracy and ownership. Complementing this initiative, GIS-based livelihood mapping can help identify sustainable micro-enterprises suited to local ecological conditions, such as honey clusters, medicinal plant harvesting zones, and millet cultivation pockets. The convergence of GIS and AI technologies can also assist in predicting climate vulnerabilities and optimizing resource use. To ensure community participation, the roadmap proposes training "Digital Resource Fellows" from within tribal youth networks to maintain and update the atlas. This initiative will democratize access to data, empower Gram Sabhas with evidence-based planning tools, and foster digital literacy. By 2047, every ITDA should be equipped with an operational data dashboard displaying key socio-economic indicators for real-time governance.

PvTG Youth Innovation Fellowship: Empowering the Next Generation

Youth constitute the most dynamic demographic resource within tribal societies, yet they remain underrepresented in technology, research, and entrepreneurship. As Telangana transitions toward a knowledge-driven economy, integrating tribal youth into innovation ecosystems becomes imperative. To achieve this, the roadmap proposes the establishment of a “PvTG Youth Innovation Fellowship” program, an institutional platform for nurturing young tribal innovators, researchers, and entrepreneurs. The Fellowship, to be jointly administered by the *Tribal Welfare Department, Centre for Tribal Studies, and T-Hub Hyderabad*, would support 100 fellows annually from PvTG backgrounds, offering mentorship, seed funding, and incubation opportunities. The program would focus on sectors such as sustainable forest-based enterprises, renewable energy applications, traditional medicine commercialization, digital agriculture, and AI for social inclusion. Each fellow would be linked with academic institutions such as the *University of Hyderabad, Osmania University, and NIRDPR Hyderabad* for technical guidance.

An important dimension of this fellowship would be the integration of Indigenous Knowledge Systems (IKS) with modern technology. For instance, Chenchu youth could digitize ethnobotanical knowledge for herbal product development, while Kondareddy innovators could design bamboo-based eco-products through 3D modeling and sustainable manufacturing. Beyond innovation, the fellowship would serve as a leadership pipeline, fostering a cadre of policy thinkers and social entrepreneurs capable of bridging traditional wisdom with scientific progress. By 2047, the vision is to have a network of 2,000 PvTG innovators contributing directly to local economies and state-level innovation missions, ensuring that tribal youth become co-creators of the development process, not just its beneficiaries.

EMRS to Tribal University Pipeline: Building Human Capital for the Future

Education remains the foundation for any sustainable transformation. Telangana’s expansion of Ekalavya Model Residential Schools (EMRS) and Tribal Ashram Schools has dramatically improved literacy, enrolment, and retention rates among tribal children, especially girls. However, the challenge now lies in ensuring upward mobility, creating a seamless educational and employment pipeline from EMRS to higher education institutions and research centers. The *Viksit Bharat 2047* roadmap envisions a “EMRS-to-University Pipeline”, wherein talented tribal students receive continuous mentorship, scholarships, and skill development from secondary education to postgraduate levels. The state’s existing institutions, such as the Telangana Tribal Welfare Residential Educational Institutions Society (TTWREIS), can serve as the nodal agency for coordination.

By 2030, Telangana aims to establish a Tribal University in collaboration with the University Grants Commission (UGC) and the Ministry of Education. The proposed university would specialize in disciplines such as tribal governance, sustainable development, biodiversity management, and Indigenous knowledge research. This would bridge academic and community-based learning, fostering a new generation of scholars grounded in local realities. The roadmap also calls for establishing Career Incubation Cells within EMRS and ashram schools, equipped with AI-enabled aptitude assessment tools and career counseling modules. Additionally, vocational partnerships with institutions such as *T-Hub* and *TASK (Telangana Academy for Skill and Knowledge)* can provide tribal youth with market-aligned technical skills. By 2047, the state aims to achieve a minimum 40 percent higher education transition rate among tribal students, with at least 15 percent specializing in STEM and social innovation disciplines. Such a strategy would transform educational empowerment from a policy aspiration into a generational reality, ensuring that human capital becomes the driving force of tribal advancement.

Integrating the Four Pillars: The Strategic Vision for 2047

The four proposed strategies, FRA completion, Digital Tribal Atlas, Youth Innovation Fellowship, and the EMRS-to-University pipeline, are not standalone initiatives but interdependent components of a cohesive development architecture. Collectively, they embody the three guiding principles of *Viksit Bharat 2047*: Atmanirbharta (self-reliance), Samavesh (inclusion), and Sustainability. By completing FRA implementation, Telangana can ensure that every tribal household possesses secure land and resource rights, the first step toward socio-economic self-reliance. The Digital Tribal Atlas will bring transparency and data equity, turning remote hamlets into connected knowledge ecosystems. The Youth Innovation Fellowship will nurture tribal leadership in technology and enterprise, while the EMRS–University pipeline will provide the intellectual capital necessary for long-term transformation. Institutional convergence remains critical for success. The roadmap recommends creating a State Tribal Convergence Mission (STCM) chaired by the Chief Secretary, with representation from the departments of Tribal Welfare, Education, Forests, IT, Health, and Finance. The mission would review quarterly progress, ensure interdepartmental coordination, and align state strategies with national goals under *Viksit Bharat 2047*. Finally, sustainability must be viewed not just in environmental terms but also as institutional continuity. For each intervention, measurable indicators, such as the

number of FRA titles issued, digital access coverage, youth fellowships awarded, and higher education enrolments, should be tracked through a real-time AI-driven Monitoring Dashboard.

Telangana's experience demonstrates that structural progress can coexist with cultural preservation when policy, participation, and innovation move in tandem. If implemented effectively, this roadmap will ensure that by 2047, the Chenchu, Kondareddy, and other tribal communities of Telangana transition from vulnerable populations to empowered citizens, custodians of both their heritage and the state's sustainable future.

6. Conclusion

Telangana's development trajectory for Particularly Vulnerable Tribal Groups (PvTGs) demonstrates a unique blend of institutional innovation, legislative commitment, and participatory inclusion. The state's legislated budgeting framework under the STSDF Act (2017) has ensured financial accountability and equitable resource allocation proportional to the Scheduled Tribe population, setting a national precedent in tribal-focused fiscal governance. Complementing this, Telangana's education architecture, driven by Ekalavya Model Residential Schools (EMRS), ashram schools, and Tribal Welfare Residential Educational Institutions, has expanded access to quality education and significantly enhanced retention and transition rates among tribal children, particularly girls. Furthermore, women-led livelihood initiatives under T-SERP and SHG models, such as the *Honey to Money* and tamarind value-chain programmes, have transformed income dynamics and elevated the role of tribal women as active economic participants rather than passive beneficiaries.

However, the persistence of structural bottlenecks underscores that economic gains must be complemented by rights-based and technological empowerment. The incomplete recognition of forest rights under the FRA (2006) continues to restrict the full realization of community ownership and ecological justice, while the digital divide, with nearly two-thirds of PvTG habitations lacking connectivity, threatens to create a new form of marginalization in an increasingly digitalized governance system. Without bridging these critical gaps, the promise of inclusive growth will remain uneven across regions and social groups. Looking forward, a mission-driven "PvTG 2047 Strategy" rooted in the vision of *Viksit Bharat 2047* is essential. This approach must integrate land and resource sovereignty, digital inclusion, innovation-oriented youth engagement, and higher education pathways to create a holistic and sustainable model of tribal development. Ensuring convergence between departments, Tribal Welfare, IT, Education, Forest, and Rural Development, will be crucial to institutionalizing these efforts.

Telangana's experience offers an instructive example for the rest of India: when policy design, fiscal discipline, and community participation converge, marginalized populations can become agents of transformation. Strengthening these frameworks through evidence-based governance, technological democratization, and cultural preservation will ensure that by 2047, the Chenchu, Kondareddy, and other tribal communities of Telangana stand as equal partners in India's developmental journey, empowered, connected, and self-reliant.

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