Harnessing Technology for Land Rights and Empowerment of Tribal Women in Odisha

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Abstract

The advent of Globalisation and the Liberalisation of the Indian economy in 1991, particularly for Foreign Direct Investments (FDIs) underscored the need for India's readiness to provide the FDIs with resources. Ensuring the continued economic development of India relied heavily on allocating resources to support FDI prospects. Due to limited technical advancement, India encountered obstacles beyond macroeconomics, particularly concerning poverty and inequities. The Eleventh Five Year Plan aimed to achieve significant progress in infrastructure development, including power, roads, transport, ports, and airports. It also focused on promoting growth in manufacturing, information technology (IT), information technology-enabled services (ITES), and the financial sector. The absence of systematic and suitable documentation across many sectors resulted in bureaucratic inefficiency and delays in numerous procedures, ultimately leading to corruption. This was also evident in the condition of the land records in the country, which exacerbated inequities across all levels, especially among tribal communities. Although there is documentation of interventions involving the use of technology for other developmental projects, such as women's empowerment, the use of technology to secure land rights for women has not been thoroughly examined. This paper discusses significant insight gathered through an exploratory study on land rights and the empowerment of tribal women in Odisha. The findings are based on the primary data gathered from 250 Indigenous women who possess land titles in Kandhamal and Mayurbhanj. Further, secondary field data from other implementing agencies in the state provides insight into how technology supports women in overcoming obstacles and safeguarding their land rights.

Background

The Indian economy experienced a significant transformation in the early 1990s as a result of globalization and the liberalization of its economy. India's ability to provide resources was crucial to retaining the significant interest of the FDIs. The allocation of resources, such as land, licenses, and so on, played a vital role in supporting the chances for FDI to be established, thereby ensuring the ongoing economic growth of India. Both globally and in India, the introduction of technology has played a significant role in improving efficiency in business and governance. As a result, the government has implemented policy measures to enhance infrastructure and implement technology to manage the digitization of records. The revenue records were digitized to facilitate the reorganization of land records, hence enhancing the governance process in several states, including Odisha.

The paper intends to examine the role of technology in facilitating the acquisition of land rights, particularly concerning empowering women. Although previous studies recognize the importance of technology in promoting women's development in areas such as skills training, financial literacy, healthcare, and education, there persists a lack of awareness regarding its use

SOCIAL INNOVATIONS *Journal*

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

in securing land rights for Odisha's vulnerable population. This is crucial because land is essential for survival, food security, and financial stability, making it closely interconnected with rural poverty. In India's agrarian economy, the continued absence of enforceable land rights remains a significant obstacle. There is a significant association between secure land rights and the economic prosperity of individuals, as land ownership encourages better land management, and investments in land could improve productivity.

Lack of sufficient land access is a significant problem in rural India and a major cause of poverty. In the absence of land security, all attempts to promote the sustainable utilization of natural resources are bound to be unsuccessful. Land serves as the foundation of one's societal identity in many rural communities. It instills a feeling of safety and belongingness within the community. Moreover, property serves as a valuable asset that can ensure access to credit and provides various financial opportunities for improving chances for a better life through education, health, etc. As a result of the uneven nature of the distribution of land in India following its independence, many land reform laws were created to address the issues. These sought to narrow the disparity between the landless poor and the rich landowners. According to the report from the 11th Five Year Plan Working Group on Land Relations, there are approximately 13 to 18 million families in rural India who do not own any land. Out of these, over 8 million families also do not have their own homes. These families lack fundamental human security and are deprived of various essential benefits of life. Land is crucial, especially for the survival of women in rural India, since the majority of farm labourers are women, as reported by the 68th Round of the National Sample Survey. According to the Agriculture Census, conducted between 2015 and 2016, about 73% of rural women workers were employed in the agriculture sector. However, just 14% of them were operational holders.

According to the Socio-Economic Caste Census (2011), out of the 1.06 million women-headed households, 40% do not own any land and primarily rely on manual labour for their income. The Gender and Land Governance research conducted by the World Bank in Odisha (2015) reveals that women hold a mere 3.3% of the land in the state, far lower than the national average of 13%. According to the data provided by the Odisha Government, a total of 675,000 homestead pattas (land titles) have been issued through different land programs like *Vasundhara* and *Gramakantha Paramboke*. Additionally, a new record has been set for recognizing individual forest rights under the Forest Rights Act (FRA) for 456,000 people. The majority of these titles are recorded under the joint names of both the husband and wife.

According to data gathered by the sample registration system of the Union Government, the Maternal Mortality Rate (MMR) in Odisha is 222 per 1 lakh people, while the Infant Mortality Rate (IMR) is 51 per 1000 children, as stated in a release from the Chief Minister's Office. Although Article 14 of the Indian Constitution grants equal rights to all its citizens regardless of their caste, creed, or gender, the population of women in the country remains low, and they still experience substantial social and economic marginalization.

Under such circumstances, the limited access and control that women have over land is disempowering, as it leaves them dependent on male relatives. The government's attempt at progressive legislation, in reality, has been ineffective in improving the status of women, primarily due to the patriarchal interpretation of these laws, resulting in implementation gaps at the community level. Gender norms and practices restrict women's ability to own or make use of land, and demanding these rights often leads to exclusion from families, communities, and

society. Due to the unfavourable circumstances surrounding women's pursuit of land rights, they frequently choose to disassociate themselves from any requests for land.

Application of Technology for Governance in the State

The Odisha Government introduced its 5T framework, consisting of "Teamwork", "Technology", "Transparency", "Time", and "Transformation."[i] The effort, widely recognized in the state, aims to achieve efficient service delivery at the local level through a collaborative approach, utilizing technology to assure transparency and timely execution, ultimately resulting in significant and positive change.

The state government has made a deliberate effort to utilize technology to enhance governance activities and ensure their accessibility to the population. The 5T governance model emphasizes the importance of transparency and accountability in government departments for timely service delivery and closely monitors these aspects. The implementation of technology has enhanced the monitoring system in government departments and their offices. The government programs and the 5T frameworks are evaluated using both quantitative and qualitative methods. This evaluation process includes the establishment of key performance indicators and the use of technology to monitor progress closely. The framework is integrated into all new government schemes established in the state.

Technology for Land Records

The electronic governance model, also known as e-governance, refers to the utilization of information and communication technology (ICT) to provide government services. The Government of Odisha introduced the Odisha Right to Public Services Act 2012 (ORTPSA) to combat corruption in the provision of public services. The Act empowers citizens to assert their entitlement to public services and imposes legal consequences on government personnel who fail to deliver services within a specified timeframe. Essentially, the Act imposed responsibility on the government to meet the increasing public need for prompt and high-quality services. To enhance the quality of services, the Act additionally implemented sanctions for those responsible for service delivery within the specified deadlines. To mitigate corruption, the Act also requires that all projects be monitored using ICT.

The Revenue and Disaster Management Department directly interacts with the public and is largely responsible for the maintenance of land records. The department has implemented multiple e-governance projects to enable smooth data management and public accessibility. Bhulekh and BhuNaksha

Technological measures have improved and made service delivery at the sub-district or Tahasil level more visible throughout the state. Technology also facilitates the adoption of paperless processes, which is ecologically beneficial, encourages cashless transactions, and serves as a disincentive to unethical practices. Bhulekh[ii] is the official web platform of the Odisha government for accessing and managing land records. The detailed textual content of the land records can be accessed using Bhulekh, and the spatial information can be obtained through BhuNaksha. The Bhulekh and BhuNaksha programs are interconnected to offer users both written and visual information.

This initiative aims to enhance transparency by providing users with access to various information such as landowner details, property value, Record of Rights (RoR), plot number, Bhu Naksha (map) of the land, and other land records.

The utilization of geo-mapping technology for land records in a specific area allows for discrepancy detection in the records and the making of necessary updates. The Bhulekh serves as a feedback system, allowing the public to report any inconsistencies they encounter in land records. This enables the portal to be updated and minimizes the probability of errors.

Table 1

Statistics from *Bhulekh*		
1	Number of Districts	30
2	Number of Tahasils	317
3	Number of R.I Circles	2,712
4	Number of Villages	51,784
5	Number of *Khatiyans*	18,123,011
6	Number of Plots	58,025,214
7	Number of Tenants	37,365,329

Source: Bhulekh Website (http://bhulekh.ori.nic.in)

Table 1 provides information on the 1.81 crore Record of Rights, or *Khatians*, which represents the population of Odisha, adding up to 3.73 crore. Additionally, it includes records on more than 5.8 million plots.

Technology and Challenges in its Use for Recognition of the Individual and Community Forest Rights

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, was passed to formally recognize and grant rights to the occupation of forest land to Scheduled Tribes and Other Traditional Forest Dwellers (OTFDs) who have been living in these forests for many generations, but whose rights were not officially recorded. The Act also establishes a system for recording these forest rights and specifies the type of evidence needed for such recognition and granting of rights concerning forest land.

The Forest Rights Act (FRA) grants authority to local self-governance to tackle poverty by conserving and managing natural resources within the country. Additionally, the FRA rule has established a particular procedure to apply for the recognition of forest rights, as well as the required documentation that must be presented to the designated authorities following the appropriate processes. The Act gives the Gram Sabha authority to initiate the process of vesting rights to vulnerable tribal people based on an assessment of the extent of their needs and the forest areas under their possession for generations. Following the evaluation, the Gram Sabha receives claims from their communities and then proceeds to consolidate and verify those claims. Afterward, it proceeds to adopt a resolution and forwards the Individual and Community Forest Rights claims, together with the resolutions, to the sub-divisional level committee. These Committees are established by the state governments as per the prescription of the FRA and have individuals from diverse backgrounds as their official members. If any community or communities have any grievances regarding the claim, they have the option to submit a petition to the Sub-Divisional Level Committees. These Committees will evaluate the claims and submit

SOCIAL INNOVATIONS *Journal*

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

their resolution to the Sub-Divisional Officer, who will then forward it to the District Level Committee for the final decision. The District Magistrate and Collector are in charge of the District Level Committee, and their decisions are considered final and binding. The state government consults the State-Level Committee to oversee the process of recognizing forest rights.

The Revenue and Disaster Management Department has issued an order to tackle the problems related to the correction of Registers of Rights (RoRs) and maps. The order states that as part of the Department's e-governance initiatives, all mutation (or change in land records and maps in RoRs) cases are being handled through the Land Records Management System software, while all other revenue-related cases are being processed using the Revenue Court Case Monitoring System software. The implementation of this software has significantly changed the legal environment in the state by streamlining the management of revenue court cases and providing transparency. The ruling additionally directs the department to cease the physical storage of case records and RoRs. The directive mandates the updating of all RoRs of recorded forest areas in revenue villages in the Bhulekh system and the updating of maps in the BhuNaksha system. According to the order, the sketch maps will be posted onto the Land Records Management Systems portal at the district level. Utilizing technology is essential for efficiently resolving IFR and CFR claims and ensuring that the appropriate authorities make the necessary revisions following a thorough inquiry.

Choudhury, Pranab, and Mohapatra, Pravanjan, in their publication "Enhancing Tribal Land Tenure Security in Odisha: OTELP - Landesa Partnership" (March 26, 2021), have emphasized that the government's measures are specifically aimed at resolving the concerns raised in the policy recommendations of the Land Governance Assessment Framework (LGAF), World Bank 2014, study. LGAF is a participatory and data-driven tool used to evaluate the status of land governance in the state. It is also an exercise aimed at gathering specific areas and issues that require immediate policy interventions. The inadequate access of the tribal community to land is not only due to the transfer of land to non-tribal individuals but also a consequence of the land and forest policies implemented by the government. These include the absence of accurate documentation of the land occupied by the tribal community during the survey and settlement procedure, the denial of property rights for areas classified as state land due to shifting cultivation, and the exclusion of un-surveyed land with a slope above 10%. It is worth noting that the areas classified as un-surveyed with steeper slopes are frequently inhabited by tribal communities. Additionally, it is crucial to comprehend that the revenue and forest departments in Odisha collectively possess nearly two-thirds of the total land in the state (Kumar et al., 2005), with 60% of the area being characterized as upland and hilly. The report states that this proportion of state land is primarily because this area is officially un-surveyed. Generally, it is so as the land with a slope of above 10% is considered to be state land by default.

The analysis further highlights that the main cause for the absence of surveys throughout the state is the utilization of these lands by the tribal population for both shifting cultivation and permanent terraced cultivation. Consequently, the un-surveyed land has effectively displaced the tribal population that previously depended on these lands, 'legally landless' (Kumar et al. 2005). The Odisha Tribal Empowerment and Livelihood Project (OTELP) state project, supported by the International Fund for Agricultural Development (IFAD), made an effort to tackle these issues by developing a strategy to identify and train local youth as Community Resource Persons (CRPs). Due to the large scope of the assignment, it was initially tested in a smaller area. Data was collected at the community level, and maps were created manually. The intention was to

SOCIAL INNOVATIONS *Journal*

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

eventually expand the implementation to a larger scale. The report states that during the scale-up stage, the settlement process was delayed due to various legal challenges, such as:

- the need to amend the Orissa Survey and Settlement Act 1956,
- the approval delay for surveying land with a slope of 10 to 30 degrees,
- the procurement of a Differential Global Positioning System (DGPS)
- and Electronic Total System (ETS) equipment, and change in leadership, etc.

Use of technology for facilitating departmental convergence and FRA

In 2018, media reports indicated that the Odisha State Forest Department implemented geospatial and IT measures to address various issues. The department currently monitors ground force patrols utilizing mobile devices and specialized Personal Digital Assistants (PDAs). The data is validated geospatially by an enterprise-class Geographic Information System (GIS) server. This technology facilitates the monitoring of forest health and supports numerous mobile applications with features such as Incident Reporting, Asset Mapping, Forest Fire Monitoring, Forest Survey, Inspection of Departmental Activities, and Survey of Forest Right Titles for communities. Its purpose is to improve overall forest management. The mobile-based monitoring operates efficiently even in rural places where Internet access is not available. The Forest Department's application necessitates a single instance of internet access to synchronize data with the server. It enables the tracking of attendance and monitoring of departmental work by the ground force, with data utilized at the Division, Circle, and State levels. The Forestry Mobile App, developed for the FRA Survey effort, assists both the Revenue and Forest Departments in accurately identifying and marking the land of the beneficiary by utilizing mobile devices and GIS technologies.

Based on the context discussed above, the contribution of technology towards the land rights and empowerment of tribal women in Odisha is examined. Further, it will study the role of technology in granting land rights to the tribal population of Odisha, specifically focusing on its inclusivity and accessibility for women. Additionally, it explores the crucial question of whether technology facilitates the protection of land rights of women in the tribal districts of Odisha.

Methodology

This was an exploratory study of land rights and women's empowerment in tribal districts of Odisha. A mixed method of both quantitative and qualitative data collection was employed to gather data from primary and secondary sources. A structured interview schedule with both open-ended and close-ended questions was administered to 250 women with land titles registered in their names. The respondents were from six villages in the Tikabali and G. Udayagiri blocks of Kandhamal and six villages in the Karanjia and Jasipur blocks of Mayurbhanj districts. For gathering qualitative data participatory methods like FGDs, IDIs, and case studies were collected. The data collected from primary sources were then analysed based on the knowledge and information gathered by the authors from the existing secondary literature on technology and land rights to address the research questions. Secondary data related to the field-level application of technology-based interventions on ensuring land rights were also gathered from implementing agencies working in other geographies in the state by was also gathered.

Research Setting

Out of the total population (41,974,218) of Odisha, 22.85% (census 2011) is tribal. Mayurbjanj and Kandhamal are tribal-dominated districts in the state. Out of the total population of the Mayurbhanj district, 58.72% is tribal, and 53.58% of the population in the Kandhamal district is tribal (census 2011). The government, through its land allocation programme, has identified homesteadless households and provided land titles to them. In this exercise, the revenue department has issued such titles, the names of both husband and wife, as joint titles. Similarly, the FRA mandates that the claims recognized are in joint names with the names of family members recorded as dependents. In this context, claims recognized in the Mayurbhanj district are lower than in the Kandhamal district. Two tribal-dominated blocks from each district were taken for the study.

Limitations of the Study

The availability of data on women's land ownership itself is a limitation, as government records do not capture gender desegregated data. The COVID-19 pandemic had serious implications for land ownership issues. The study has not explored the technological aspect of land rights in-depth, and primary data touches the surface of the critical issue. Further, there is limited research related to land rights and women's empowerment among the tribal population in Odisha, which has led to a dearth of secondary data. The research has, therefore, predominantly relied on government reports and primary data collected from the women respondents who have titles in their names. Secondary data was also gathered from implementing agencies that work through their partners in various districts in the state to gather an overall picture of the technological use in the context of land rights and women's empowerment.

Result and Discussion

Profile of respondents who are women with land titles

The residents of a nation experience a sense of belonging, stability, and rootedness when they own land ownership, which fosters the growth of communities and the development of distinct cultural identities that span across multiple generations. It is widely recognized that the tribal population has traditionally relied on forest resources and practiced forest cultivation for many centuries. The Britishers in India implemented laws that resulted in the government taking ownership of land that once belonged to everyone. This action marginalized the tribal population from their land. The decision of the community to deny land rights to women in response to cases where non-tribal men married tribal women to acquire their land had a negative impact on the position of women within the tribal population. The prevailing notion that tribal women are empowered by their presence in public spaces like marketplaces and their visibility outside their homes is misleading, as visibility is not always equivalent to empowerment. According to Keera Allendorf, land rights can be viewed as legal claims to land and the benefits and goods derived from it. This definition encompasses several perspectives on land rights, as supported by studies conducted by Schlager and Ostrom (1992), Meinzen-Dick et al. (1997), and Mearns (1999). It is important to emphasize that land rights encompass a variety of other rights. Alongside stringent legality and effective management, social legitimacy is also a crucial feature of rights (Mearns 1999).

SOCIAL INNOVATIONS Journal

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

To ascertain whether tribal women who possess land titles in their own names have knowledge, attitudes, and practices that are empowering, all the participants included in the study in Kandhamal have Individual Forest Rights (IFR) titles. This implies that women share family titles with their husbands and children, with their names being included jointly. The respondents in the Mayurbhanj district comprised a mixed bag of women who have revenue land in their names, have land in their names through FRA, and have received land as an inheritance from their family.

Major points for discussions

Based on the field investigation, it has been determined that the majority of land titles in Kandhamal were given to women due to a large-scale initiative for implementing the FRA. The women actively engaged in the process of documentation of their claims and mapping the land parcels they occupied. They also attended the Gram Sabha to seek permission for their claims. Following the government's recognition of joint titling, women were granted co-ownership of the family land. Mandatory joint titling, enforced by the government, acknowledges and guarantees women's rights, eliminating the need for them to face difficulties in having their names included in property titles. The participants are married and have an average age of 40 years. All participants were literate, and their family members had attained primary education. During the group discussion in Damuguda village, in the Gerrisingia Gram Panchayat of G. Udayagiri block, it was noted from the respondents that women have received training at the community level from NGOs such as Landesa, CARE, Swati, and Pradata. This training was part of a project that aimed to improve land literacy.

Master trainers were selected from the women in the community to receive coaching on how to instruct other women in the community. These master trainers also took the lead in using technology and participating in the claim process of the Gram Sabha.

Women have reported their active involvement in the mapping process utilizing GIS, either by direct participation enabled by NGOs or through participation in training programs focused on the utilization of GIS-based technology for mapping. They stated that the maps for IFR and CFR created using GIS technology appear to be more precise. The respondents shared that during the process, some of the women in the community expressed uncertainty about its accuracy. The introduction of technology in the formulation of the claim documentation process of FRA and the involvement of women also faced some resistance from within the community. These issues were addressed by the community-level workers of the various implementing agencies through community meetings, capacity building, and creating a sense of ownership among women. The participants in Mayurbhanj consisted of married women with an average age of 39 years. 10% of these women were found to be illiterate and older than 50 years. During the Focus Group Discussions (FGDs), women expressed that the *Sampoorna* and *Swyamsiddha,* which are two sub-district level federations of Self-Help Groups (SHGs) at the block level. The federations consist of members from both the Gram Panchayat and village levels and were promoted by Pradan, an NGO. During the FGDs, the women expressed that they have actively obtained information, such as RoR, from the government technological platform, Bhulekh software, with the assistance of NGO representatives.

Approximately 40% of the participants also indicated that the IFR and CFR processes utilized mapping tools that provided reliable and precise information regarding the territory they controlled. Women in Jhumkakudar village, located in the Karanjia block, which has a tribal

SOCIAL INNOVATIONS Journal

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

population and is designated as a revenue village, have been granted revenue land titles under the Vasundhara (land allocation) scheme implemented by the state government and it aims to provide land to landless households.

The Common Land Mapping Tool used for mapping land for IFR and CFR under FRA (2006) The FRA was implemented through the efforts of development organisations like the Foundation for Ecological Security (FES) and their implementing partners. It is estimated that an area of 117,285 hectares covering 1,509 villages in 16 districts, where FES and its 12 partner NGOs are working, was mapped through the Common Land Mapping (CLM) tool. CLM is a valuable tool that aims to accurately identify and define common land resources by using precise geographical referencing and a comprehensive questionnaire. This questionnaire covers important aspects such as land classification, tenure status, current land utilization, and any existing community regulations. Subsequently, this data can be graphically depicted using interfaces that are based on maps. The CLM functions as a significant resource for recording and documenting essential evidence that is necessary for developing conservation and management strategies led by the community. Moreover, it streamlines the implementation of the Gram Panchayat Development Plans (GPDP) of the Panchayats by integrating crucial information necessary for well-informed decision-making. One of the notable accomplishments of CLM is its ability to tackle the widespread problem of inadequate recording of land rights. CLM facilitates the identification and delineation of areas that qualify for Individual Forest Rights and Community Forest Rights under the Forest Rights Act by providing a consolidated platform. Moreover, it aids in the systematic recording of grazing lands in Panchayat Assets Registers. This integrated approach simplifies the process of asserting rights, and it accurately documents traditional borders, enabling local people to participate in productive discussions and efficiently resolve disputes over ownership.

About 36 NGOs in Odisha, 30 in Andhra Pradesh, and one in Telangana are actively utilizing CLM. Currently, a combined area of 48,000 acres of communal land has been accurately charted in 264 communities. FES is facilitating the use of CLM in communities where FES is working directly. The coverage and the use of the CLM tool reveal that it is effective in helping local initiatives for community development.

Women were included in the process as Community Resource Persons (CRPs), the community cadres, who were given training and hand-holding support to facilitate the mapping process using the CLM tool. During FGDs, women shared that they were not confident in using technology-based tools for land mapping due to a lack of knowledge and capacities.
"In our area, women do not often use mobiles and may not understand them well, so there was some concern about how to explain it in the field. However, when they saw the four coloured pictures, the women became very excited" said Rashmita Champi, CRP Deopottangi in Pottangi Block of Koraput district.

Meena Kumari Pangi, CRP from Rallagada in Pottangi Block of Koraput district, shared, "During a village meeting when, I initially inquired about the extent of the forest in Jadimali village, only to find that nobody had the correct information. Recognizing the importance of understanding the size of the surrounding forest, I suggested measuring it and finding out. The entire gathering fell silent, and the meeting ended abruptly. Later, some of the young people from the village approached me, expressing their concern that they did not have a measuring tape long enough to measure the vast forest, and it would also take many days to complete the exercise. In response, I took out my mobile phone and introduced them to the CLM Application.

SOCIAL INNOVATIONS *Journal*

Vol. 25 (2024): Digital Empowerment: Transforming Community Growth, Health, Economic Development, and Conservation through Innovative Technologies

Intrigued, several people joined me, and together, we walked in the forest for about 2 to 2.5 hours, enjoying the music playing on my phone along the way. When we returned to the village, I asked for some details, and then they asked me about the size of their own homes. I shared some details, which seemed to ease the reservations that had cropped up in their minds regarding the use of CLM for forest land mapping. Some of the young people also laughed and asked if they had mapped the forest or just taken a forest trail trek listening to music. That day, a few young people learned about CLM and installed the application on their mobile phones."

Conclusion

Despite the presence of progressive laws in Odisha to guarantee entitlements for all its residents, the tribal population has long been experiencing challenges in attaining their rights. Within tribal communities, women experience marginalization as a result of limited awareness, a lack of gender-disaggregated data, and gaps in the implementation of policies. The tribal women in the state have faced significant challenges in terms of poor land productivity, landlessness, and hurdles in access to poverty alleviation schemes and initiatives. The presence of systemic inadequacies and the attitudes of the accountable authorities significantly contribute to the obstacles encountered while trying to access schemes and programs. Land rights are crucial for the tribal people, particularly for women within the tribal community, as they rely on land and forests for their means of subsistence. Education has a crucial role in enhancing accessibility and instilling self-assurance in women, enabling them to effectively use user-friendly technology. Technology is crucial for effectively tackling the diverse institutional challenges outlined by the state government in its 5T framework consisting of "Teamwork", "Technology", "Transparency", "Time", and "Transformation". Through the utilization of technology, data may be collected to facilitate the development of a strategy that is transparent and implemented promptly through collaborative efforts and convergence. This ultimately leads to the change of women's lives at the community level.

The integration of revenue and forest departments is crucial for developing strategies to engage with communities at different levels and guarantee the restoration of tribal rights. By allowing the community to exercise their rights, it will foster an environment that promotes women's empowerment. This will be achieved by enhancing their agency, enabling them to make informed decisions, thereby exercising their rights.

It is important to note that the overall development of India also impacts the states like Odisha. The former Chief Minister and leader of Biju Janata Dal (BJD) had formed the government for more than two decades under his leadership. As per media reports, Naveen Patnaik, in a meeting, claimed that there had been a substantial decline in the poverty rate from 70% to 10% due to the endeavors of his government in the areas of agriculture and irrigation and their commitment to promoting women's empowerment. This decline in poverty rate during the last 24 years of his tenure as the Chief Minister of Odisha makes of him believe there is no reason "to be ashamed of" his governance. Though data from government sources might validate the statement, field realities may reflect a different reality that might not have impacted the women and tribals at levels that appear different from the claim. Researching the relationship between technology and land rights of tribal groups in the state, with a focus on gender, is crucial for comprehending the advances made and limitations faced for policy and intervention improvements.

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