Impact of Changing Land Use Policies on Adima Janajati Livelihoods of Jharkhand

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***Abstract*:**
This comprehensive review comprises into the intricate web of consequences resulting from the evolving land use policies in Jharkhand, India, with a specific focus on the Adima Janajati, indigenous tribes whose lives are intimately intertwined with the land. Examining economic, cultural, and environmental dimensions, the paper navigates the complex landscape shaped by industrialization, urbanization, and infrastructure development. Insightful literature reviews on ethnomedicinal plant use, maternal health disparities, soil resilience, and urban heat islands complement the primary analysis, enriching our understanding of the broader implications. The abstract sets the stage for a nuanced exploration of the multifaceted impact, emphasizing the need for adaptive policies that prioritize indigenous rights, cultural preservation, and sustainable development.

***Keywords*: Land Use Policies, Indigenous Livelihoods, Sustainable Development**

1. Introduction

Jharkhand, a state located in eastern India, is home to diverse communities, including the Adima Janajati, or indigenous tribes, whose livelihoods have historically been intricately linked to the land they inhabit. Over the years, the region has witnessed dynamic changes in land use policies, driven by economic, industrial, and infrastructural development goals. This evolving landscape has significant implications for the Adima Janajati communities, impacting their traditional lifestyles, cultural heritage, and economic sustenance. The Adima Janajati, comprising various tribal groups, have long thrived on sustainable practices deeply rooted in their connection to the land. However, shifts in land use policies, often driven by urbanization, industrialization, and natural resource extraction, have brought about challenges that intersect with issues of displacement, cultural disruption, and environmental change. This discussion explores the multifaceted impact of changing land use policies on the livelihoods of the Adima Janajati in Jharkhand. From economic repercussions and cultural transformations to environmental consequences, the implications extend beyond mere policy adjustments to deeply affect the fabric of indigenous life. As we delve into this complex interplay, it becomes apparent that a nuanced understanding of the intersection between land use policies and the well-being of Adima Janajati is essential for fostering sustainable development that respects their rights, preserves their cultural heritage, and ensures a harmonious coexistence with the changing landscape.

Fig: The Scheduled Tribes in Odisha- Adima Janajati
Source: https://bigwire.in/2016/07/30/the-scheduled-tribes-in-odisha-a-demographic-analysis/

1.1 Adima Janajati Livelihoods

The livelihoods of Adima Janajati (indigenous tribes) in Jharkhand have historically been intimately tied to the land, embodying sustainable practices, cultural traditions, and a profound connection to the natural environment. Understanding their livelihoods requires an exploration of various aspects:

Agriculture and Subsistence Farming: Agriculture forms the backbone of Adima Janajati livelihoods, with communities practicing subsistence farming techniques passed down through generations. Traditional crops, well-adapted to local ecosystems, are cultivated to meet food and economic needs.

Forest-Based Livelihoods: Many indigenous communities depend on forests for their livelihoods, engaging in activities such as hunting, gathering, and non-timber forest product collection. Forests provide essential resources for food, medicine, and materials for traditional crafts.

Livestock Rearing: Livestock, including cattle and poultry, are integral to the livelihoods of Adima Janajati. They contribute to food security, provide raw materials for traditional crafts, and serve as a source of income through the sale of milk and other products.

Traditional Arts and Crafts: Indigenous communities often possess unique skills in traditional arts and crafts, creating handmade items that reflect their cultural identity.
These crafts, ranging from pottery to weaving, contribute both to cultural preservation and economic sustenance.

Spiritual and Cultural Practices: The land holds spiritual significance for Adima Janajati, and traditional ceremonies and rituals are integral to their way of life. Livelihoods are closely intertwined with cultural practices, reinforcing the importance of maintaining a harmonious relationship with the environment.

Impact of Changing Land Use Policies: Changes in land use policies, often driven by industrialization and urbanization, can disrupt these traditional livelihoods. Displacement, loss of access to natural resources, and environmental degradation pose significant challenges to the economic and cultural sustainability of indigenous communities.

Challenges and Opportunities: Adima Janajati face challenges such as poverty, lack of access to education, and limited representation in decision-making processes. Opportunities for sustainable development lie in

policies that recognize and respect indigenous rights, support traditional livelihoods, and promote inclusive economic strategies.

2. Review of Literature

Kunwar et.al., (2010). Plant species had long been utilized as principal ingredients of traditional medicine in far-west Nepal. The medicinal plants, endowed with ethnomedicinal values, were being screened for their therapeutic potential, but their data and information were inadequately compared and analyzed with Ayurveda and the phytochemical findings. The present study had evaluated ethnomedicinal plants and their uses through literature review, comparison, field observations, and analysis. Comparison had been made against earlier standard literature of medicinal plants and ethnomedicine of the same area, the common uses of Ayurveda, and the latest common phytochemical findings. The field study for primary data collection had been carried out from 2006-2008. Herbal medicine in far-west Nepal had served as the basis of treatment for most illnesses through traditional knowledge. The medicine had been made available via ancient, natural health care practices such as tribal lore, home herbal remedy, and the Baidhya, Ayurveda, and Amchi systems. The traditional herbal medicine had not only survived but also thrived in the trans-cultural environment with its intermixture of ethnic traditions and beliefs.The present assessment had shown that traditional herbal medicine had flourished in rural areas where modern medicine was parsimoniously accessed due to the high cost and long travel time to health centers. Of the 48 Nepalese medicinal plants assessed in the present communication, about half of the species had shown affinity with the common uses of Ayurveda, earlier studies, and the latest phytochemical findings. The folk uses of Acacia catechu for cold and cough, Aconitum spicatum as an analgesic, Aesculus indica for joint pain, Andrographis paniculata for fever, Anisomeles indica for urinary affections, Azadirachta indica for fever, Euphorbia hirta for asthma, Taxus wallichiana for tumor control, and Tinospora sinensis for diabetes had been consistent with the latest pharmacological findings, common Ayurvedic, and earlier uses

Abdullah, M. S. (2015). The condition of maternal health among the indigenous people was found to be poorer compared to non-indigenous populations worldwide, a trend evident in both the broader context of Bangladesh and at the local level. Despite this, limited research had been conducted among indigenous communities in Bangladesh. The present study focused on the Patro indigenous people, residing primarily in six villages of the Sylhet district. Utilizing a mixed-methods approach incorporating qualitative and quantitative methods, the research aimed to comprehend maternal health care access and associated factors. Through purposive and snowball sampling, 108 married women, with at least one child under three or with prior delivery experience, were interviewed. Uni-variate, bi-variate, and multivariate analyses were employed to present the data. A comparative analysis of ANC, PNC, and delivery care utilization at the national, regional, and Patro community levels revealed the Patro community's socio-economic challenges and inadequate access to maternal health care services. Both micro and macro-level factors contributed to their limited access, with lower educational attainment among Patro women and their husbands compared to regional and national levels. The majority of Patro men worked as day laborers, contributing to the community's economic poverty. Living in remote, inaccessible areas surrounded by hills and tea gardens, the Patro community lacked maternal health service centers, except for BPI centers. The study underscored the urgent need for collaborative initiatives involving the government, NGOs, and other stakeholders to establish maternal health centers, aiming to alleviate maternal mortality and morbidity among Patro women.

Smith et.al., (2016). Soils were subjected to varying degrees of direct or indirect human disturbance, constituting a major global change driver. Factoring out natural from direct and indirect human influence was not always straightforward, but some human activities had clear impacts. These included land-use change,

land management, and land degradation (erosion, compaction, sealing, and salinization). The intensity of land use also exerted a great impact on soils, and soils were also subject to indirect impacts arising from human activity, such as acid deposition (Sulphur and nitrogen) and heavy metal pollution. In that critical review, the state-of-the-art understanding of these global change pressures on soils was reported, knowledge gaps and research challenges were identified, and actions and policies to minimize adverse environmental impacts arising from these global change drivers were highlighted. Soils were central to considerations of what constituted sustainable intensification. Therefore, ensuring that vulnerable and high environmental value soils were considered when protecting important habitats and ecosystems helped to reduce the pressure on land from global change drivers. To ensure that soils were protected as part of wider environmental efforts, a global soil resilience program should be considered to monitor, recover or sustain soil fertility and function, and to enhance the ecosystem services provided by soils. Soils could not, and should not, be considered in isolation of the ecosystems that they underpinned and vice versa. The role of soils in supporting ecosystems and natural capital needed greater recognition. The lasting legacy of the International Year of Soils in 2015 should be to put soils at the center of policy supporting environmental protection and sustainable development.

Delphin et.al., (2016). The provision of ecosystem services from forests was directly impacted by land use change in the form of urbanization. To comprehend this driver, the effects of urbanization on three regulating and provisioning ecosystem services in two distinct watersheds in Florida, USA, were modeled. Geospatial and plot-level forest inventory data were integrated into the study to assess future changes in carbon storage, timber volume, and water yield over a 57-year period. A 2003–2060 scenario of urbanization and land use change was developed using land cover data and a population distribution model. The Integrated Valuation and Ecosystem Services Tradeoffs model quantified changes in ecosystem services. In the urbanized 2060 scenario, carbon storage decreased by 16% and 26% in the rural Lower Suwannee and urban Pensacola Bay watersheds, respectively. Timber volume reduced by 11% in the Lower Suwannee and 21% in the Pensacola Bay watershed. However, water yield increased by 4% in both watersheds. The study identified and mapped specific sub-watersheds most susceptible to urbanization, discussing ecosystem service interactions, trade-offs, and synergies. The findings underscore how urbanization drove the spatio-temporal dynamics of ecosystem services and their trade-offs. The study's insights provide policy makers and planners with an approach to developing integrated modeling scenarios and designing mapping and monitoring protocols for land use change and ecosystem service assessments.

Tran et.al., (2017). The exploration of changes in land use land cover (LULC) to comprehend the urban heat island (UHI) effect was deemed valuable for both communities and local governments in cities in developing countries. In these areas, urbanization and industrialization often occurred swiftly without the implementation of coherent planning and control policies. The study aimed to determine and analyze the relationship between LULC change and land surface temperature (LST) patterns in the context of urbanization. Initially, the researchers delved into the correlation between LST and vegetation, man-made features, and cropland using normalized vegetation and built-up indices within each LULC type. Subsequently, the impacts of LULC change and urbanization on UHI were assessed through hot spot analysis (Getis-Ord Gi∗ statistics) and urban landscape analysis. Ultimately, a model employing non-parametric regression was proposed to estimate future urban climate patterns using predicted land cover and land use change. The results yielded an effective methodology for UHI characterization, revealing that LST depended on a nonlinear interaction with LULC types. Hotspot analysis using Getis Ord Gi∗ statistics facilitated the analysis of LST pattern changes over time. Furthermore, it was established that UHI is influenced by both urban landscape and urban development type. The proposed model, utilizing nonlinear regression and simulated LULC change scenarios, proved capable of forecasting LST patterns and examining UHI effects. The study focused on an inner-city area of

Hanoi as a case-study—a small, flat plain area experiencing significant LULC change due to urbanization and industrialization. The methodology presented in the paper holds broad applicability in other cities undergoing similar dynamic growth. The findings serve as a useful tool for policymakers and community awareness, providing a scientific basis for sustainable urban planning and management.

Some, S., & Mukherjee, J. (2018). Wild leafy vegetables were consumed by the general population in both crude extract and recipes in a regular fashion for centuries. Immense knowledge on the medicinal and nutritional values of these vegetables existed among ethnic communities. These vegetables served as an earning source for socio-economic backward rural people. People either bought these vegetables from the market or collected them directly from their natural habitat. An investigation was carried out for the documentation of wild leafy vegetables at Chanchal in the Malda district of West Bengal. Thirty-two species of such vegetables belonging to twenty-nine families of twenty-eight genera had been documented through this investigation, conducted in and around the study area. The exploration revealed their significant nutritional and medicinal importance.The majority of wild leafy vegetables (53%) were used for curing several ailments in the study area.

Gautam, K. (2018). The study was conducted to assess the nutritional status of 6-59 months children of Bagchaur, municipality and to find out the factors associated with it. A community based cross sectional descriptive study was conducted on children aged 6-59 months for assessing the nutritional status and factors associated with it in Bagchaur municipality. A sample of 205 children were selected from the 4 wards of a municipality and 4 wards were selected using simple random sampling. Anthropometric measurements were then used to determine if children were underweight (weight-for-age), wasting (weight-for-height) and stunting (height-for-age) based on WHO reference. Statistical Package for the Social Sciences (SPSS) 20.0 version and World Health Organization (WHO) Anthro 3.2.2 version were used for analyzing the data. Chi-square test was used to identify the associated factors of malnutrition. This study revealed that, 51.2%, 20.5% and 7.3% of children were stunted, underweight and wasted, respectively. The main associated factors of wasting were found to be caste (p=0.017) and immunization (p=0.013). Underweight was found associated with family occupation (p=0.049) and religion (p=0.029) was found associated with stunting. From the findings of this study, it is concluded that malnutrition is still an important problem among children aged 6-59 months. Therefore, special attention should be given on intervention of malnutrition.

Liu et.al., (2018). Wild leafy vegetables were consumed by the general population in both crude extract and recipes in a regular fashion for centuries. Immense knowledge on the medicinal and nutritional values of these vegetables existed among ethnic communities. These vegetables served as an earning source for socio-economic backward rural people. People either bought these vegetables from the market or collected them directly from their natural habitat. An investigation was carried out for the documentation of wild leafy vegetables at Chanchal in the Malda district of West Bengal. Thirty-two species of such vegetables belonging to twenty-nine families of twenty-eight genera had been documented through this investigation, conducted in and around the study area. The exploration revealed their significant nutritional and medicinal importance. The majority of wild leafy vegetables (53%) were used for curing several ailments in the study area.

Long, H., & Qu, Y. (2018). The theoretical model of regional land use transitions, developed in this paper, was grounded in the expansive and deepened conceptualization of land use transition. As socio-economic development unfolded, transformations between diverse land use types over a specific period instigated a shift in conflicts arising from the regional land use morphology pattern—from a state of strength to one of weakness. These transitions resulted in a novel equilibrium of the regional land use morphology pattern,

comprising various land use types aligned with respective economic sectors. Ultimately, this evolution realized a qualitative transformation within the urban-rural land use system. Subsequently, a three-fold framework encompassing the natural system, economic system, and managerial system was employed to explore the mutual feedback mechanism between land use transition and land management. Broadly, land use transitions were found to be influenced by land management through economic measures, land engineering, policy, and institutions. Reciprocally, land use transitions played a role in shaping adjustments to land management measures through socio-ecological feedback. The authors contended that the formulation of land management policies and institutions must consider the land use transition phase of the targeted region. This consideration should extend beyond the current phase, encompassing subsequent phases aligned with regional socio-economic development transformations.

Searchinger et.al., (2018). Land-use changes were considered critical for climate policy due to the fact that native vegetation and soils stored abundant carbon, and their losses from agricultural expansion, along with emissions from agricultural production, contributed approximately 20 to 25 per cent of greenhouse gas emissions1,2. Most climate strategies required the maintenance or increase of land-based carbon3 while meeting food demands, which were expected to grow by more than 50 per cent by 20501,2,3,2,4. The finite global land area implied that fulfilling these strategies necessitated an increase in the global land-use efficiency for both storing carbon and producing food. However, measuring the efficiency of land-use changes from the perspective of greenhouse gas emissions was challenging, particularly when land outputs changed, for instance, from one food to another or from food to carbon storage in forests. Intuitively, if a hectare of land produced maize well and forest poorly, maize should be the more efficient use of land, and vice versa. Yet quantifying this difference and the yields at which the balance changed required a common metric that factored in different outputs, emissions from different agricultural inputs (such as fertilizer), and the different productive potentials of land due to physical factors such as rainfall or soils. The authors proposed a carbon benefits index that measured how changes in the output types, output quantities, and production processes of a hectare of land contributed to the global capacity to store carbon and reduce total greenhouse gas emissions. Notably, this index did not evaluate biodiversity or other ecosystem values, which needed separate analysis. The index was applied to a range of land-use and consumption choices relevant to climate policy, such as reforesting pastures, biofuel production, and diet changes. The findings indicated that these choices could have much greater implications for the climate than previously understood because standard methods for evaluating the effects of land use4,5,6,7,8,9,10,11 on greenhouse gas emissions systematically underestimated the opportunity of land to store carbon if it was not used for agriculture.

Conflict and Social Strain

The imposition of changing land use policies in Jharkhand has intensified conflict and social strain within Adima Janajati communities. As traditional lands are repurposed for industrial or urban development, competition for resources escalates, leading to internal tensions and conflicts between indigenous groups and other stakeholders. The introduction of new industries also disrupts established social structures, creating strains within the communities. The resulting social upheaval challenges the cohesion of Adima Janajati, highlighting the need for inclusive policies that consider the socio-cultural fabric and mitigate the negative social consequences of changing land use.

Displacement and Loss of Ancestral Lands: The implementation of evolving land use policies in Jharkhand has led to the profound impact of displacement and the consequential loss of ancestral lands among the Adima Janajati communities. As these policies prioritize industrialization, infrastructure development, and natural resource extraction, indigenous groups find themselves forced to vacate their traditional lands. This

displacement not only disrupts the historical connection these communities have with their territories but also results in the relinquishment of livelihoods intricately tied to agriculture, hunting, and gathering. The loss of ancestral lands represents a critical challenge, with implications extending beyond economic concerns to the erosion of cultural identity and a way of life deeply rooted in the geographical and spiritual significance of their lands. Efforts towards sustainable development must, therefore, consider the adverse effects of displacement on the Adima Janajati and work towards preserving their connection to the land.

Economic Instability and Poverty: The changing land use policies in Jharkhand have contributed significantly to economic instability and increased poverty among the Adima Janajati communities. Displacement from ancestral lands, coupled with the disruption of traditional livelihoods tied to agriculture and forest-based activities, has left these indigenous groups grappling with profound economic challenges. The lack of alternative sources of income, exacerbated by limited access to education and employment opportunities, has further entrenched poverty within these communities. Economic instability is not merely a consequence of changing land use patterns; it is also a catalyst for a range of social issues, emphasizing the urgent need for comprehensive policies that address the economic dimensions of the Adima Janajati livelihoods and foster sustainable, inclusive development strategies.

3. Changing Land Use Policies

Changing land use policies in Jharkhand, India, have been instrumental in shaping the socio-economic and environmental landscape of the region. These policies, often driven by economic development goals, industrialization, and urbanization, have had profound impacts on various stakeholders, including indigenous communities like Adima Janajati. Following are key aspects of the changing land use policies:

Industrialization and Urbanization

- Land use policies in Jharkhand have increasingly favored industrial and urban development, leading to the conversion of agricultural and forest lands for non-agricultural purposes.
- The establishment of industries, infrastructure projects, and urban settlements has resulted in the transformation of traditional landscapes.

Mining and Natural Resource Extraction

- The state is rich in natural resources, particularly minerals. Land use policies have often prioritized mining activities, leading to the extraction of coal, iron ore, and other minerals.
- This has significant implications for indigenous communities whose livelihoods are closely tied to the land, as mining can result in displacement, environmental degradation, and loss of access to traditional resources.

Infrastructure Development

- Land use policies have facilitated the construction of roads, dams, and other infrastructure projects. While these developments contribute to economic growth, they can also lead to the displacement of local communities, including Adima Janajati.

Conservation and Environmental Protection

- Some land use policies aim to balance development with conservation, focusing on protecting ecologically sensitive areas and promoting sustainable land management practices.

- The implementation of conservation measures may also impact traditional livelihoods if access to certain areas is restricted.

Inclusive Development and Indigenous Rights

- There is a growing recognition of the need for inclusive development that respects the rights of indigenous communities.
- Policies that involve Adima Janajati in decision-making processes, recognize their land rights, and incorporate their traditional knowledge can contribute to more sustainable and equitable development.

Conflicts and Challenges

- Changing land use policies often lead to conflicts between different stakeholders, including indigenous communities, industries, and the government.
- Challenges include the displacement of communities, loss of cultural heritage, and a potential mismatch between development goals and the preservation of traditional livelihoods.

Policy Reforms and Adaptation

- Ongoing efforts to address the challenges include policy reforms that consider the unique needs of indigenous communities.
- Adaptive policies that balance economic development with environmental and cultural considerations are essential for promoting sustainable development.

4. Conclusion

The conclusion encapsulates the key takeaways, highlighting the urgency of adapting policies to ensure sustainable development that respects the intricate relationship between changing land use and the well-being of the Adima Janajati. It calls for a harmonious balance between economic goals and cultural preservation. Overall, this review paper provides a comprehensive and interdisciplinary exploration of the impacts of changing land use policies on the Adima Janajati, contributing valuable insights to the fields of environmental studies, indigenous rights, and sustainable development.

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