



Hybrid Development Models: Sociological Perspectives On Science, Tradition, And Society Among The Dongria Kondh Tribe Of Odisha

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Abstract: In India, in an attempt to find a balance between technological advancement and regional sustainability practices, development paradigms are increasingly exploring hybrid techniques. These techniques incorporate modern scientific discoveries with traditional knowledge systems (Modernization Theory). This paper presents a sociological analysis of such hybrid development approaches in the setting of the Dongria Kondh tribe of Odisha. The lifestyle of this tribe is closely connected with forest ecosystems, traditional agriculture and community governance structures.

The study adopts a sociological lens, drawing on theories of community participation, social structure, gender and governance to understand how hybrid development models function in local contexts.

The study is based on secondary data from government reports, NGO case studies and academic literature. The study focuses on the interaction between scientific interventions such as contemporary farming methods, soil testing and water conservation technologies and the tribe's traditional ecological knowledge such as sacred groves, seed preservation and sustainable forest management. The study highlights how social structures, gender norms (Gender Role Theory), caste, tribal identity and participatory governance influence the uptake and results of hybrid development projects. For instance, the Gram Sabha and clan-based councils are crucial in determining how new technologies are incorporated, guaranteeing that ecological principles and communal values are honoured. The involvement of women in minor forest produce management and seed preservation further highlights the significance of gendered knowledge in maintaining hybrid traditions (Gender Role Theory).

The findings suggest that hybrid development models can disclose sociological constraints including marginalisation, policy gaps and conflicts between tradition and modernity (Modernization Theory, Globalization Theory), while simultaneously achieving people-centric, ecologically sustainable and socially inclusive outcomes. The study shows that creating development initiatives that are both culturally sensitive and scientifically successful requires an understanding of community dynamics, social hierarchies and local governance processes. In addition to providing insights for policymakers, practitioners and researchers interested in fusing indigenous knowledge with contemporary development frameworks in a globalising world, this research adds to a nuanced understanding of sustainable development in India by examining the intersections of science, tradition and community.

Index Terms - Hybrid Development, Indigenous Knowledge, Modern Science, Dongria Kondh Tribe, Community Governance, Sustainable Development.

1. Introduction

1.1 Background of the Study

India, following independence began a developmental model focused on industrial growth and state-led resource extraction. Drawing from modernization theory and Western welfare ideas, the postcolonial state interpreted development as the quick process of industrialization, building infrastructure and extracting resources (Escobar, 1995; Sachs, 1992). The policy caused socio-ecological problems, especially in tribal belt areas containing forests and minerals. Large scale construction of dams, mining and creation of industry corridors has led to the displacement, dispossession and loss of customary livelihoods of tribal people living in these areas (Fernandes, 2006; Guha, 1989).

Tribal groups designated as Scheduled Tribes in the Constitution have been most affected. The development of extractive industry in forest areas has been ecologically and socially unsustainable, the relationship between land, people and the state that governed earlier generations has eroded (Baviskar, 2004). The dominant development model, therefore, presents a structural contradiction for it has historically endeavored to declare its success in national progress, whilst dispossessing and marginalizing the very people whose socio-cultural and ecological practices constitute alternative models of sustainable existence. It represents the wider constellation of tensions between modernization and indigenous epistemologies and livelihoods, raising fundamental sociological questions of epistemological authority.

1.2 Indian Knowledge Systems (IKS) in Development Discourse

Indian Knowledge Systems (IKS) are bodies of knowledge that have developed over time and are specific to certain contexts. They are part of community practices, ecological interactions, and cultural views. These systems include farming methods, forest management, water-saving techniques and spiritual beliefs that support biodiversity and community well-being. Scholars of Traditional Ecological Knowledge (TEK) believe that indigenous knowledge systems are dynamic and adaptable. They are based on real-world experience rather than being static or primitive (Berkes, 2012).

However, colonial epistemologies and postcolonial developmentalism have tended to render these epistemologies marginal through the emphasis on technocratic knowledge and scientific rationality (Escobar, 1995). This marginalization of epistemologies tends to reduce indigenous knowledge to folklore or survival strategies, ignoring the complex ecological rationality that underlies these practices. The scholarship in political ecology also shows that knowledge production is necessarily entangled with power and that development projects tend to silence subaltern epistemologies (Peet & Watts, 2004).

In the current scenario of climate change and environmental crises, there is a rediscovery of indigenous knowledge as a resource for sustainable development. However, this recognition is often instrumental and not transformative. A sociological rethinking of development, therefore, is to go beyond token recognition to epistemic justice, recognizing indigenous knowledge systems as legitimate frameworks for organizing economy, ecology and society.

2. Focus of the Study

In this larger context, the Dongria Kondh of the Niyamgiri range in Odisha provide a fascinating example for sociological analysis. The Dongria Kondh have a highly integrated relationship between nature, religion and livelihood. Their agroforestry system, especially the podu (shifting) system combined with horticulture and forest conservation, is a complex and diverse system of resource use (Nayak & Berkes, 2010). Contrary to what would be expected of a destructive nature relationship, this system exemplifies adaptive ecological knowledge based on collective resource governance and religious cosmology.

The case of the Dongria Kondh resisting large-scale mining projects is another example of the political aspect of indigenous knowledge and autonomy (Baviskar, 2004). Their claim to rights over land and forest resources highlights development as more than an economic phenomenon but also a cultural one. Through the study of agroforestry and sacred ecology of the Dongria Kondh via secondary sources, this paper aims to contribute to the discourse of rethinking development in India.

This research aims to critically examine the prevailing development paradigms and explore the possibilities of alternative development pathways through the Indian Knowledge Systems, as represented by the Dongria Kondh's ecological knowledge. In this context, the role of indigenous knowledge is placed at the center of sociological inquiry into development in contemporary India, rather than being relegated to the margins.

3. Review of Literature

3.1 Socio-Cultural and Ecological Worldview of the Dongria Kondh

The Dongria Kondh of Odisha are popular for their deeply ingrained ecological worldview, according to which the Niyamgiri hills' forested scenery is essential to their way of life, spirituality and social structure. According to ethnographic and development research (Bocha & Kotnak, 2021), food security and ecological sustainability are ensured by their subsistence economy, which is centered on horticulture, shifting cultivation (podu), and the harvesting of minor forest produce (MFP). A diverse agroforestry mosaic is produced by Dongria agricultural techniques, which differ from monoculture-based commercial agriculture in that they rely on fruit orchards, native millet types, mixed cropping, and seasonal forest resources.

According to academics studying indigenous ecological knowledge, these structures are advanced environmental management techniques based on adaptive learning and intergenerational transmission. Fikret Berkes (1999) challenges the idea that indigenous activities are unchanging or illogical by conceptualizing Traditional Ecological Knowledge (TEK) as dynamic, cumulative, and ingrained in social structures. The importance of indigenous knowledge in biodiversity protection is also highlighted by Madhav Gadgil, Berkes and Folke (1993), who show that community-managed ecosystems frequently have more ecological resilience than centralized state-managed systems. Vandana Shiva (1993) argues for biodiversity-based agriculture as an alternative epistemology based on ecological balance in the Indian setting, while also criticizing reductionist scientific paradigms.

In the context of the Dongria Kondh, for instance, the sacred groves and the practice of Niyam Raja worship, which is the presiding deity of Niyamgiri, serve not only as religious rituals but also as tools for ecological conservation and management. This convergence of cosmology and ecological management is consistent with the views of anthropologist Philippe Descola (2013), who suggests that many indigenous cultures do not demarcate nature from culture but instead view ecological relations as being situated within social and cosmological frameworks.

The Political Ecology approaches also extend this analysis by locating indigenous ecological systems within larger power structures. Ramachandra Guha (1989) illustrates how colonial forest policies undermined community management and instead asserted state control over forests, effectively displacing tribal use of the land. Joan Martinez-Alier (2002) describes the environmentalism of the poor, which emphasizes the role of marginalized groups in defending the environment out of necessity. Such observations are highly relevant to the Dongria Kondh situation, where ecological worldview and political resistance meet.

Podu agriculture, which has been criticized in state discourses for its destructive nature, has been reconceptualized in recent studies as a controlled and knowledge-intensive process that ensures soil fertility through crop rotation and diversity (Priyadarshini & Abhilash, 2019). Through the application of TEK and political ecology theories to podu, the literature resists modernization discourses that favor scientific agriculture over indigenous knowledge. In sum, the literature that currently exists confirms that the Dongria Kondh have a well-integrated socio-ecological system based on indigenous knowledge and are therefore an important case study for the analysis of culturally embedded development paradigms.

3.2 Development Interventions, Displacement, and Resistance

The Dongria Kondh have also been at the forefront of debates on development-induced displacement and environmental justice, especially in connection with proposed bauxite mining projects in the Niyamgiri hills. The conflict between industrial extraction and indigenous rights to land has been extensively documented as a case study in India's development history (Padel & Das, 2010). Researchers have suggested that modernization initiatives initiated by the state frequently perceive tribal lands as resource frontiers but ignore their cultural and spiritual values.

The literature on displacement offers critical analytical frameworks. Walter Fernandes (2006) shows that the proportion of tribal populations displaced by large development projects is disproportionately high in India. Michael Cernea (1997) develops the Impoverishment Risks and Reconstruction (IRR) model of displacement, which identifies landlessness, joblessness, and social disarticulation as significant risks of displacement. These models help to understand the structural vulnerabilities of communities such as the Dongria Kondh in extractive development states.

The resistance groups in Niyamgiri are also in line with the subaltern studies school of thought. Ranajit Guha (1982) defines subaltern agency as an autonomous political practice that lies outside the elite discourse. Again, Gayatri Chakravorty Spivak (1988) emphasizes the epistemic marginalization and silencing of the subaltern voice. The Dongria Kondh's resistance against mining can be read not only as an environmental movement but also as an epistemic intervention against the dominant development discourses.

The passage of the Forest Rights Act (FRA), 2006 and Gram Sabha consultations thereafter, represented an important turning point in the recognition of tribal autonomy. Environmental governance scholars such as K. Sivaramakrishnan (1999) have argued that decentralized systems have the potential to balance conservation and community rights, although there are still contradictions between state power and tribal institutions. Nandini Sundar (2016) also highlights the complexities of tribal governance in relation to state and market encroachment.

Therefore, the literature shows that the development of the Dongria Kondh is not only technical but also political in nature. Hence, hybrid models of development need to be understood in the context of histories of marginalization and rights claims.

3.3 Gender, Knowledge Systems, and Governance

The gendered aspects of ecological knowledge have been increasingly explored in the literature on tribal development. In the Dongria Kondh, women are central to seed conservation, minor forest produce, and food security. The application of feminist political ecology to these issues is useful. Bina Agarwal (1992, 2001) contends that women's engagement with environmental governance enhances sustainability and equity. Dianne Rocheleau (1996) highlights the gendered nature of ecological knowledge, which is constructed through varying degrees of access.

These observations imply that the involvement of Dongria women in seed choice, crop diversity and forest management is not random but embedded in the ecological system of the community. Modernization and market integration may change this involvement, possibly marginalizing women's traditional power.

The governance systems of the Dongria Kondh tribes are a combination of traditional systems based on clans and statutory institutions such as the Gram Sabha. Theoretical contributions to the literature by Elinor Ostrom (1990) on the management of common-pool resources illustrate that local communities are capable of managing common resources in a sustainable manner if the rules of decision-making are collectively designed and enforced. James Manor (1999) also emphasizes the significance of decentralization in enhancing participatory governance in India.

However, literature also indicates that decentralization does not necessarily lead to equality, there may be hierarchies within communities based on gender and age. Hence, hybrid development needs to critically analyze power relations within and not assume homogeneity in participation.

4. Sociological Relevance of the Study

Through these three themes, the literature shows that the Dongria Kondh's agroforestry and ecological systems are part of a complex web of cosmology, political struggle, gendered knowledge and governance. Although mining conflicts and displacement dominated the earlier literature, the more recent theoretical work in political ecology, feminist environmentalism and commons governance offers a more nuanced approach to the study of development alternatives.

However, there is still a lack of integrative studies that conceptualize Dongria agroforestry as a holistic hybrid model of development. This is what makes the current study important, as it provides a sociological perspective on agroforestry, embedded in broader discussions of indigenous rights, epistemic justice and sustainable development.

5. Theoretical Framework

The current research relies on a number of sociological and interdisciplinary theories to critically analyze the prevailing paradigms of development and to locate the Indian Knowledge Systems in the larger discourses of sustainability, power and social justice. By incorporating the theories of Modernisation, Globalisation, Political Ecology, Traditional Ecological Knowledge and Gender Role Theory, the framework provides a multi-layered approach to the phenomenon of development.

5.1 Modernisation Theory

The Modernisation Theory gained prominence during the post-Second World War era as the principal theory of development for newly independent states. Rostow (1960), in his seminal work *The Stages of Economic Growth*, defined development as a linear and evolutionary process from traditional society to high mass consumption. This theory held that the processes of industrialisation, technological development, urbanisation and rational bureaucratic administration were required for modernisation.

In the Indian scenario, the planning of development after independence incorporated several notions from modernization theory, especially the focus on heavy industry, planning and infrastructure development. Nevertheless, modernization theory has been criticized for its Eurocentric approach and for positing Western

industrial society as the universal standard of progress (Escobar, 1995; Sachs, 1992). This approach often represents indigenous systems as primitive and obstructive, thus justifying intervention to disturb the traditional socio-ecological balance.

In this study, modernization theory acts as a critical lens to understand how tribal communities and their knowledge systems were historically marginalized within national development discourse.

5.2 Globalisation Theory

This theory studies the impact of global economic integration on local economies, governance and social relations. Giddens (1990) has described globalization as the intensification of worldwide social relations that connect localities across the globe. Harvey (2005) focuses on the significance of neoliberal capitalism in creating accumulation by dispossession.

In India, the liberalization of the economy since the 1990s has increased corporate access to natural resources, especially in tribal areas that are rich in minerals. Global capital movements and transnational corporations have had an increasing impact on state policies concerning mining, land and forests. This has resulted in the displacement of people and degradation of the environment in indigenous territories (Harvey, 2005).

The theory of Globalisation, therefore, positions local development conflicts in global political-economic structures to demonstrate how indigenous peoples are caught up in global extractive networks.

5.3 Political Ecology

Political Ecology provides a critical tool for examining the interplay between power, environment and development. Political Ecology contests the idea that environmental degradation is a technical issue that can be solved and instead locates environmental issues in political and economic contexts (Peet & Watts, 2004). Political ecology focuses on how state politics, capital and global markets influence access and control of natural resources. Environmental conflicts are thus seen as struggles over power and knowledge rather than just environmental issues.

In the tribal areas, the management of resources is highly political, with claims and counter-claims between traditional rights and state sovereignty. Political ecology helps to explore how indigenous knowledge systems about nature are delegitimized in favor of extractive industrial models.

5.4 Traditional Ecological Knowledge (TEK)

Traditional Ecological Knowledge is defined as a cumulative body of knowledge, beliefs and practices that have evolved from long-term interactions between communities and their environments (Berkes, 2012). TEK is a dynamic, adaptive and observationally grounded body of knowledge.

It has been suggested that indigenous agricultural practices, forest management practices and sacred ecological knowledge traditions tend to have high levels of biodiversity conservation and sustainability (Berkes, 2012). However, these knowledge traditions have also been rendered peripheral to colonial and postcolonial state structures that favor scientific-technical knowledge.

TEK is an alternative epistemological paradigm for understanding development, emphasizing ecological balance, intergenerational transmission of knowledge and community stewardship.

5.5 Gender Role Theory

Gender Role Theory is the study of how these social roles are constructed and how they affect the roles, responsibilities and power of both men and women in society (Eagly, 1987). It is important to note that the division of labor and power structures are socially constructed and not biologically based.

In the context of the environment, gender roles play an important part in the use of resources, decision-making and the transfer of knowledge. Feminist ecological studies also contend that women have unique knowledge of the environment that has been gained from their roles in agriculture, seed conservation and home subsistence (Agarwal, 1992).

Inclusion of Gender Role Theory in the study of development will enable the analysis of development not only at the macro-level but also at the intra-community level.

Together, these theories form a multi-dimensional framework that transcends economic determinism. These theories allow the study to think of development as a contested, culturally embedded, and power-laden process, thus facilitating a sociological rethinking of development in India through the prism of Indian Knowledge Systems.

6. Objectives of the Study

1. To examine how hybrid development models integrate modern scientific interventions with the traditional ecological knowledge of the Dongria Kondh tribe.
2. To analyze the role of community governance structures and gender dynamics in shaping the implementation and outcomes of hybrid development initiatives.
3. To critically assess how hybrid development approaches negotiate tensions between tradition and modernity within the broader processes of modernization and globalization.

7. Research questions

1. How are modern scientific interventions adapted or negotiated within existing agroforestry, sacred ecology, and traditional resource management practices?
2. To what extent do hybrid practices enhance ecological sustainability and livelihood security compared to purely traditional or purely modern approaches?
3. In what ways do community governance structures and gender dynamics influence the implementation and outcomes of hybrid development initiatives?
4. How do hybrid development approaches negotiate tensions between tradition and modernity in the context of modernization and globalization processes?

8. Research Methodology

8.1 Research Design

For this research, a qualitative, analytical and interpretive research design is employed to study the hybrid development models practiced by the Dongria Kondh tribe in the state of Odisha. As the purpose of this research is to explore the interaction between modern scientific intervention and traditional ecological knowledge in a sociological context, a qualitative research approach is most suitable.

The proposed research is exploratory and explanatory in nature. The research does not intend to produce original empirical information but rather critically interprets the existing documented evidence to understand the process of hybrid development in indigenous social and ecological structures.

8.2 Nature of Data

The research work is purely based on secondary sources of data. The use of secondary data is in line with the conceptual and theoretical objectives of the research paper, which is to critically examine development paradigms rather than empirically measuring them.

8.3 Sources of Data

Data for the study have been collected from the following categories:

I. Peer-reviewed academic literature

- Studies on hybrid development models
- Research on the Dongria Kondh and other tribal communities
- Literature on modernization, globalization, political ecology, and gender

II. Government reports and policy documents

- Forest governance policies
- Tribal development programs
- Reports on sustainable agriculture and water conservation initiatives

III. NGO reports and case studies

- Community-based development interventions
- Participatory governance initiatives
- Women's role in minor forest produce and seed preservation

The selection of sources was guided by relevance to the research objectives and research questions, ensuring thematic consistency and theoretical depth.

8.4 Method of Data Analysis

The study employs a thematic analysis approach to systematically interpret the secondary data. The analysis was conducted in the following stages:

(a) Thematic Categorization

Key themes were identified based on the research questions, including:

- Science–tradition integration
- Agroforestry and ecological sustainability
- Community governance and Gram Sabha
- Gendered ecological knowledge
- Tensions between tradition and modernity

(b) Conceptual Synthesis

The major Findings of this study were interpreted using insights from modernization theory, globalization theory, political ecology, traditional ecological knowledge and gender role theory. This enabled the Dongria Kondh case to be located in the context of broader debates in sociology related to development.

(c) Interpretive Sociological Analysis

Instead of viewing development as a purely economic phenomenon, the study views development as a socially embedded and power-infused process. The concept of hybrid development models is analyzed in terms of negotiated outcomes influenced by social structure, governance institutions, identity and gender.

9. Scope and Limitations

Although secondary data allow for wide theoretical synthesis, the research does not involve primary field-level verification. Thus, the results are interpretive and based on the reliability of the recorded sources. Nonetheless, triangulation of academic, policy and NGO sources improves the validity of analysis.

10. Findings and Discussion

The results are presented in a manner that corresponds to the three research objectives and research questions. On the basis of secondary sources, the discussion draws on theories such as Modernization Theory, Globalization Theory, Political Ecology, Traditional Ecological Knowledge (TEK) and Gender Role Theory to explain the hybrid development processes among the Dongria Kondh of Odisha.

10.1 Integrating Modern Science and Traditional Ecological Knowledge

10.1.1 Negotiated Incorporation of Scientific Interventions

Secondary literature indicates that scientific interventions such as soil analysis, better horticultural practices, water harvesting systems and biodiversity conservation projects have been introduced in the Dongria Kondh areas by state-sponsored tribal development programs and NGOs. However, these interventions do not substitute traditional agroforestry practices. Rather, they are selectively incorporated into the existing framework.

The Dongria Kondh community followed podu cultivation based on multi-layered agroforestry practices that combined millets, legumes, root vegetables, fruit trees and forest products. In contrast to the general perception that shifting cultivation is destructive to the environment, research has shown that such practices can sustain biodiversity and soil regeneration if practiced within traditional limits (Berkes, 2012; Nayak & Berkes, 2010).

From the point of view of Modernization Theory, development is conceptualized as a linear process of transition from traditional to modern modes of production (Rostow, 1960). But in the case of the Dongria Kondh, this teleological assumption is subverted. Instead of giving up traditional ecological knowledge, the community practices selective technological interventions while maintaining the cultural logic of its land use. This is an example of what Escobar (1995) calls the resistance to the homogenizing forces of development discourse.

Hybridization thus does not connote a passive absorption into modernity. It represents a negotiated engagement where indigenous epistemologies remain central.

10.1.2 Ecological Sustainability and Adaptive Knowledge

The integration of TEK with selected scientific inputs has led to livelihood diversification and resilience. Sacred groves, clan-based forest protection and seed conservation systems are still maintaining control over ecological use. TEK is based on the principles of cyclical regeneration, diversity of intercrops, and spiritual accountability to nature (Berkes, 2012).

Political Ecology can be used to understand why these systems are still in place despite the external pressures. Environmental governance is not an equal process, it is based on power relations that give priority to certain forms of knowledge over others (Peet & Watts, 2004). In most development projects, scientific forestry and monocropping approaches are considered better. However, empirical research has shown that indigenous agroforestry systems are more climate-resilient and biodiverse.

Therefore, when scientific interventions are integrated into indigenous ecological rationality rather than imposed upon it, hybrid development improves sustainability.

10.2 Community Governance and Gendered Dynamics in Hybrid Development

10.2.1 Community Institutions as Mediators of Development

The Gram Sabha and the clan governance systems have a very important mediating role in the hybrid development processes. The decisions regarding land use, technology, and forest management are taken jointly, keeping in mind the principles of participatory governance.

Political Ecology highlights that the use of natural resources is shaped by power relations (Peet & Watts, 2004). In the tribal setting, the community institutions act as a counterweight to the external state or corporate intervention. The assertion of community rights in the context of decentralized governance helps in promoting autonomy in development decision-making.

In the context of Globalization Theory, the tribal areas are increasingly being integrated into the global resource market (Giddens, 1990; Harvey, 2005). However, this process of globalization is filtered through the participatory democracy of the Dongria Kondh. Hybrid development is successful when the new technology is compatible with the existing structure of authority, it is unsuccessful when it is imposed.

This shows that governance is not only administrative but also sociocultural. Community legitimacy determines developmental outcomes.

10.2.2 Gendered Ecological Knowledge and Social Structure

The role of women is pivotal but remains invisible in Dongria Kondh agroforestry practices. They are key stakeholders in seed diversity, management of minor forest produce, and home food security. Gender Role Theory states that labor roles are socially mediated and influence resource and power differentials (Eagly, 1987).

Feminist ecological studies also state that women's ecological knowledge is experiential and relational, embedded in subsistence activities (Agarwal, 1992). In the context of hybrid development approaches, women's engagement in development adds to sustainability by conserving indigenous seeds but adopting new agricultural practices.

However, development initiatives tend to favour male leadership structures, which results in the exclusion of women's voices in decision-making. A hybrid form of development will only be able to provide inclusive results if gender knowledge systems are acknowledged in governance structures.

Therefore, sustainability is closely linked with gender equity. Neglecting the risks of intra-community hierarchies may lead to the perpetuation of inequalities in the name of modernization.

10.3 Negotiating Tradition and Modernity in a Globalizing Context

10.3.1 Structural Pressures of Modernization and Global Capital

The tribal areas in India are often considered for the establishment of extractive industries because of the mineral resources available in these areas. The process of globalization further accelerates this process by linking the local resources to the global capital circuits (Harvey, 2005). Development is often equated with the extraction of industry and the development of infrastructure.

Modernization Theory equates development with economic growth (Rostow, 1960). However, this paradigm fails to consider the aspects of cultural autonomy and sustainability. The Dongria Kondh's struggle against the establishment of large-scale mining projects in their area makes it clear that development is not a universally accepted process but a political one.

According to Political Ecology, such struggles are about knowledge, land and sovereignty (Peet & Watts, 2004). The hybrid development models arise in this situation as a strategy of adaptation that accepts some modernization but resists the exploitative ones.

10.3.2 Hybrid Development as Plural Pathway

The results indicate that hybrid development is neither a full acceptance of modernity nor a return to tradition. Rather, it is a pluralistic approach that combines cultural continuity with selective engagement with science. According to Escobar (1995), there should be an acceptance of alternatives to development and not alternative development imposed from above. The Dongria Kondh example illustrates this point. Agroforestry practices show that sustainability can be achieved through epistemic pluralism, where indigenous knowledge and modern science coexist.

Hybrid development defies the binary oppositions of tradition and modernity. Development is a social process that is mediated by identity, governance, gender and power.

11. Conclusion

This paper aimed to critically examine the paradigms of development in India and re-evaluate them in the light of Indian Knowledge Systems (IKS) using secondary sources and a sociological perspective. Based on modernization theory, globalization theory, political ecology, traditional ecological knowledge (TEK) and gender role theory, this paper has argued that the mainstream development discourse in India is still framed within Eurocentric, growth-oriented, and technocratic perspectives that disregard indigenous knowledge systems.

From the above discussion, it is clear that modernization theory, which has been a major paradigm in shaping the postcolonial development path of India (Rostow, 1960; Lerner, 1958), emphasizes industrialization, urbanization, and technological rationality as universal indicators of progress. Although this paradigm has helped in the development of state-led planning and development infrastructure, it has also led to the institutionalization of a knowledge hierarchy in which Western scientific rationality was given primacy over indigenous knowledge systems. This has resulted in the labeling of many community-based practices, ecological systems and indigenous knowledge systems as backward or pre-modern, thus justifying their exclusion from development policy and governance frameworks.

The theory of globalization further explains how the neoliberal policies of globalization since the 1990s have accentuated these tendencies (Giddens, 1990; Harvey, 2005). The global development regime, with its transnational capital flows and institutions, has consolidated market-led development as the hegemonic policy paradigm. In this, local knowledge systems have been increasingly commodified, appropriated, or marginalized rather than institutionally integrated. The findings indicate that development in the age of globalization increasingly emphasizes competitiveness and efficiency over social equity and ecological sustainability, further widening regional, caste, gender, and rural-urban gaps.

Political ecology is a critical counter-narrative that highlights issues of power, access and environmental justice (Blaikie & Brookfield, 1987; Escobar, 1995). The findings indicate that development projects, especially in resource-rich but socio-economically marginalized areas, are increasingly characterized by the re-making of land, forest and water regimes that have a disproportionate impact on Adivasi, Dalit and rural populations. By locating the degradation of the environment within the larger political and economic structures, political ecology reveals how development is simultaneously a source of dispossession and ecological crisis. This approach highlights how development is not simply a technical exercise but a political terrain marked by imbalanced power relations.

In contrast, the traditional ecological knowledge framework (Berkes, 1999) emphasizes the richness and resilience of indigenous ecological knowledge that has developed over time through the interactions of communities with their ecosystems. The literature review reveals that Indian Knowledge Systems are rooted in holistic, place-based, and long-term knowledge traditions that bring together ecological sustainability, social ethics and cosmological perspectives. These systems resist the reductionist logic of mainstream development by foregrounding relationships, reciprocity and collective well-being. Nevertheless, the integration of these systems into mainstream development policy is still piecemeal and symbolic.

The gender role theory (Connell, 1987) further extends the sociological meditation by showing how both development practices and knowledge systems are gendered. The review reveals that women, especially in rural and indigenous settings, are key bearers of ecological knowledge and community resilience. Nevertheless, development policies tend to reinforce patriarchal norms by denying women decision-making and resource rights. A transformation of development thinking must therefore include gender-just perspectives that acknowledge women's epistemic authority.

Cumulatively, the results establish that the crisis of development in India is not only economic but epistemological and political in nature. The hegemony of linear and growth-centric models of development has resulted in the concealment of multiple paths to happiness that exist within the Indian Knowledge Systems. A redefinition of development needs to shift its focus from the traditional versus modern paradigm and instead cultivate a dialogical approach where multiple knowledge systems coexist on an equal footing.

From a sociological perspective, the research work contributes to the contemporary discussion on the decolonization of development knowledge. The research points out that the discourse of development in India remains embedded in the global knowledge order, where Western models of development continue to be privileged. The integration of Indian Knowledge Systems into the development agenda requires not only recognition but transformation at the institutional level.

In summing up, this paper contends that a paradigm shift in development thinking in India is required from growth-oriented, technocratic and globally mediated approaches to development, and that Indian Knowledge Systems provide not a nostalgic retrieval of the past but a critical resource for imagining alternative futures. By locating the question of development in the larger sociological concerns of power, inequality, gender and ecology, this research highlights that sustainable development in India must be epistemically plural, politically accountable and socially transformative.

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