

Indigenous Agricultural Knowledge and Generational Transition among Tribal Youth: A Case Study of Dumka District, Jharkhand

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Abstract

Indigenous agricultural knowledge is very essential for sustainable development and maintaining ecological balance in rural and tribal regions. The sustainability of these traditional agricultural practices largely depends upon transfer of this knowledge to future generations. However, the new generation has different opinions about doing things or accepting previous methods in this globalized world. The rapid spread of modern communication technologies, the internet, education, urbanization, and external culture is infiltrating tribal communities, leading to noticeable changes in their lifestyle, thinking patterns, and occupational preferences. Agriculture has traditionally been important part of tribal culture, but many tribal youths are gradually moving away from indigenous agriculture and adopting modern intensive subsistence agriculture in pursuit of higher productivity and time efficiency. At the same time, increasing awareness regarding the environmental and health impact of modern chemical intensive agriculture has encouraged many young people to consider sustainable organic farming. Awareness by school education, government initiatives, and NGOs has contributed significantly towards this generational shift of perception. A section of tribal youth view organic farming not an entirely new concept, but a modern form of traditional indigenous agricultural system and comfortable to shift towards organic farming. This study attempts to examine the changing attitudes of tribal youth toward indigenous agricultural practices in Dumka district, Jharkhand while exploring the influence of modernization, education and environmental awareness.

Keywords: *Indigenous Knowledge, Indigenous Agricultural Practices, Tribal Youth, Agricultural Sustainability, Modernization, Organic Farming, Tribal Communities, Sustainable Development, Generational Change, Dumka District, Jharkhand.*

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Introduction

Indigenous knowledge refers to the understanding and practices developed by indigenous communities over generations and rooted in their relationship with the natural environment. Such knowledge contributes significantly to sustainable resource management and biodiversity conservation. Indigenous agricultural knowledge has long played a significant role in sustaining rural livelihoods, conserving biodiversity, and maintaining ecological balance across traditional societies. (UNESCO)

In recent years, indigenous agricultural systems have gained increasing global recognition for their contribution to sustainable agriculture and climate resilience. Indigenous Peoples' food and knowledge systems are among the oldest, most resilient, and sustainable systems on earth, based on principles of circularity, reciprocity, and ecological balance. Indigenous knowledge has the potential to conserve natural resources, reduce chemical dependency, and promote environmentally sustainable agricultural practices. (FAO)

Agriculture is an important part of tribal life in many tribal dominated regions of India, especially in states like Jharkhand, where a large proportion of the tribal population continues to depend upon agriculture and forest-based livelihood. The tribal communities of Dumka district possess rich indigenous agricultural knowledge that helped them to make agriculture sustainable and ensured food security under difficult environmental conditions. Traditional farming practices such as mixed cropping, organic manure application, seed conservation, and community-based resource management have been an integral part of tribal agriculture. However, the rapid expansion of globalization, urbanization, formal education, and digital communication technologies has brought significant cultural changes to tribal societies. Exposure to modern lifestyles and commercial agricultural practices is gradually influencing the perceptions and aspirations of tribal youth. Younger generations increasingly seek faster agricultural methods, higher productivity, and economic opportunities, leading many of them to adopt modern subsistence farming. These transformations have contributed to decline in transmission of indigenous agricultural practices among tribal youth.

Migration, economic pressures, and modernization are causing the abandonment of traditional farming systems and indigenous agricultural knowledge in many regions of the world. (FAO) Many scholars and institutions now argue that indigenous agricultural knowledge offers important insights for sustainable development, climate adaptation, and ecological conservation. Indigenous agricultural knowledge is an important human resource for improving crop productivity and promoting sustainable agricultural development. (Anteneh Agezew Melash & Amare Assefa Bogale)

Nature of Problem

Agriculture is not only a means of survival but also a way of life. The application of high input technologies in intensive agriculture has undoubtedly increased agricultural production, but now realizing the plateau in the growth, there is serious concern over their adverse effects on agricultural sustainability. Sustainable agriculture aims at achieving permanence through utilization of renewable resources. (Joshi and Singh 2006)

Loss of traditional knowledge- The tribal communities of Dumka district possess rich indigenous agricultural knowledge developed through long interaction with nature. Their indigenous knowledge systems are reflected through their way of life. Today many younger generations are finding it hard to choose between a traditional and modern lifestyle. With their changing lifestyle indigenous agricultural knowledge is also changing and the ultimate result will be the quick degradation of nature. Many young farmers are shifting towards monocropping and external input-based agriculture, which may negatively affect the environment and agricultural sustainability. At present, tribal areas still retain relatively clean soil, low chemical pollution, and eco-friendly farming systems compared to intensive agricultural regions. Therefore, it is important to document, analyze, and preserve indigenous agricultural practices before they disappear completely. Understanding the relevance of these traditional knowledge systems can help promote sustainable agriculture.

Methodology

The present study is based on both primary and secondary data to evaluate the role of indigenous agricultural practices in agricultural sustainability in Dumka district, Jharkhand. Primary data were collected through field surveys, personal interviews, observation methods, and structured questionnaires conducted among tribal and local farming communities in selected villages of Dumka district. Information regarding indigenous agricultural practices, crop diversification, traditional seed preservation systems, organic manure usage, crop rotation, weather forecasting techniques, and socio-economic conditions of farmers was collected directly from respondents during the field survey. Secondary data were collected from sources such as the Census of India 2011, District Census Handbook, ICAR reports, Jharkhand agricultural reports, journals, and previous research studies related to agricultural sustainability and indigenous knowledge systems.

Study Area

Dumka District is located in the northeastern part of Jharkhand and forms part of the Santhal Pargana region. The district is characterized by undulating topography, forest cover, tribal population, and predominantly rural settlements.

Dumka district has a geographical area of approximately 6124 square kilometers and experiences a tropical monsoon climate with an average annual rainfall of nearly 1444 mm, most of which is received during the southwest monsoon season. (SAMETI, n.d.) The district is mainly inhabited by tribal communities such as the Santhal, Paharia, Oraon, and Munda tribes, whose livelihoods are closely connected with agriculture, forests, and natural resources. Agriculture is the primary occupation of the rural population, and the district is dominated by small and marginal farmers practicing traditional and rain-fed agriculture. According to secondary sources, nearly 90% of agricultural land in the district is rain-fed, while only around 10% is irrigated through wells, ponds, and other minor irrigation facilities. (SAMETI)

Agriculture in Dumka district is predominantly subsistence-oriented and monsoon-dependent. The district has approximately 2.18 lakh hectares of cultivable land, of which nearly 50% consists of upland areas, 30% midland, and 20% lowland agricultural land. Paddy is the principal crop cultivated during the Kharif season and occupies the largest share of cropped areas in the district. Other important crops include maize, wheat, pulses, oilseeds, finger millet, mustard, groundnut, gram, and vegetables. Traditional mixed cropping, crop rotation, and rain-fed farming systems are common among tribal farmers. In upland areas, drought-resistant crops such as maize, millets, pigeon peas, black gram, and horse gram are widely cultivated due to low moisture availability and poor irrigation facilities. (SAMETI)

In recent years, vegetable cultivation and commercial farming have increased in some parts of the district using well pumps, tube wells, and river water irrigation. Dumka district possesses significant potential for sustainable agriculture due to the continued existence of indigenous agricultural knowledge systems, low chemical usage in many tribal areas, crop diversity, and eco-friendly traditional farming practices. (SAMETI)

Field Survey Results and Findings

The field survey conducted in selected tribal villages of Dumka district revealed significant changes in youths' thinking towards agriculture. Survey findings revealed that approximately 30% of the younger population consider agriculture less promising in terms of economic security, social status, and future opportunities. This section of youth wants to migrate to urban areas in search of better employment, higher income, improved education, and modern lifestyles. This section also considers agriculture as labour-intensive and less profitable due to small landholdings, irregular rainfall and market instability, and increasing costs.

On the other hand, nearly 70% of the younger population showed interest in continuing agricultural activities with their family and staying connected with

their community life. However, more than half of this group also considers part-time employment in nearby towns and increases income. They prefer travel-based work patterns rather than permanent migration. Some tribal youths aspired to secure government jobs, particularly in sectors such as teaching, military services, and police. But they still want to participate in their community life and agriculture because They did not view agriculture solely as an economic activity but also as an important part of their social identity. Another important finding is that educated tribal youth are becoming aware of environmental issues associated with chemical-based intensive modern agriculture. As a result, there is growing interest among young farmers in adopting organic farming and traditional agricultural practices.

Globalization, along with modern communication technologies such as mobile phones, computers, and internet connectivity, is increasingly reaching in remote tribal regions of the Dumka district. As a result, the younger generation is becoming more aware of educational opportunities, urban lifestyles, and diverse employment options available outside villages and outside traditional agriculture. Exposure to digital media and modern communication networks has broadened their understanding of economic development and career opportunities. This growing awareness is gradually influencing their occupational aspirations and contributing to changing attitudes toward indigenous agriculture and rural life



Modernization, Traditionally, tribal agriculture was largely subsistence-oriented, where production was mainly intended for household consumption and local community needs. However, the younger generation wants to move this subsistence agriculture to market oriented agriculture with the objective of improving income.

And to increase the income level, increasing production is needed and for that reason they are shifting towards modern agriculture. To increase the production to sell in the market for that reason many younger farmers using High Yielding Variety (HYV) seeds, and to aid HYV seeds they are using chemical fertilizers and to save

these non-native varieties of seeds they need to use pesticides and protect crops from pest and diseases. These modern inputs are used for cultivating non-indigenous crops that are more vulnerable to pests and require intensive agricultural management. As a result, traditional indigenous agricultural practices are declining. The growing dependence on modern agricultural inputs and commercial farming methods is reducing the relevance and importance of traditional agricultural practices within the tribal farming system. Although modernization has contributed to higher productivity and increased income opportunities for some farmers, it has also accelerated the erosion of indigenous agricultural knowledge and environmental sustainability.



Changing Lifestyle Patterns among Tribal Youth

During the field survey, many elder respondents expressed concern regarding the changing lifestyle and excessive engagement with social media, mobile phones, and digital online games is reducing the time and effort previously devoted to agricultural work and field preparation. According to their perceptions, some youths are prioritizing social relationships over education, agriculture, and community responsibilities. Growing consumption of alcohol and other unhealthy habits among certain sections of youth, which they believe negatively affects work discipline and educational progress. The survey findings suggest that these behavioral and lifestyle changes are viewed by older villagers as an effect of modernization, and exposure to media and digital communication technologies. Elderly farmers often associated it with declining participation in traditional agricultural practices and weakening intergenerational transfer of indigenous knowledge. But the study also indicates that these perceptions vary among different households and communities. The study also indicates that these perceptions vary among different households and communities. While some youths are moving away from traditional lifestyles, others are attempting to balance modern aspirations with agricultural responsibilities and community values.



However, the study observed that while modernization and globalization are influencing tribal youth, but the complete rejection of agriculture is not present. Instead, a gradual transformation is taking place in which young people seek a balance between traditional agricultural life and modern life. This shows that agriculture is still important and holds strong places in tribal communities. In addition, modern agricultural infrastructure, inadequate market access, low financial returns, and limited government support are a few major reasons behind declining youth's interest in agriculture.

Conclusion

Everything to destine to change in the natural world and every society, and tribal communities are no exception. With the passage of time, all aspects change like social structure, lifestyle, technology, and economic aspirations. However, the direction and intensity of these changes determine whether development becomes sustainable and beneficial in the long run or destructive and harmful to both society and the environment. Just like it's a responsibility of the present generation to plant good seeds so that future generations may benefit from them, it's equally important to pass the values of sustainability, environmental conservation and traditional agricultural knowledge to younger generations. Indigenous agricultural practices form an important part in sustainability and can provide valuable solutions to present day environmental and agricultural problems.

The research also suggests that NGOs, educational institutions, and awareness programs play a positive role in promoting environmental consciousness and sustainable agricultural practices among tribal youth. However, larger and more organized efforts are required from government institutions, local communities, researchers, and policymakers to preserve and promote indigenous knowledge systems effectively.

NGOs, educational institutions, and awareness programs are playing a positive role in promoting environmental conservation and agricultural sustainability

along with organic farming practices among tribal youth. But larger and more organized efforts are needed from government institutions, local communities, researchers, and policymakers to preserve and promote indigenous agricultural knowledge systems effectively.

There is an urgent need for systematic documentation, preservation, and revitalization of indigenous agricultural knowledge before it disappears due to rapid socio-economic transformation and generational change. Community participation, educational integration, sustainable agricultural policies, and support for organic farming can help bridge the gap between traditional wisdom and modern scientific approaches.

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