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Structural Transformation Vs. Economic Development in Arunachal Pradesh with Special Reference to the Agricultural Sector

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Abstract

The study focuses on the connection between structural transformation and economic development in Arunachal Pradesh specifically in agricultural sector. The study examines the changes in sectoral output, employment distribution, agricultural productivity, household income, and non-farm employment using secondary data from government publications, state economic surveys, national statistical sources, and relevant literature. The results suggest the existence of partial and uneven structural change in Arunachal Pradesh. Though the agriculture sector has reduced in the gross state domestic product and the service sector has grown, a significant population of workers still relies on agriculture and allied activities. The gap between falling agricultural output and the continued high levels of agricultural employment has resulted in a structural imbalance with low labour productivity, disguised unemployment, low farm incomes and rural inequality. The growth of industries has been limited and doesn't generate enough productive jobs, which forces many to take jobs in informal and low productivity service activities. Slowdowns in agricultural modernization are also driven by traditional land tenure systems, shifting cultivation, poor market linkages, lack of credit facilities, environmental limitations, and gender inequalities. The study concludes that the two processes of structural transformation and agricultural development are complementary processes. It suggests for inclusive and balanced economic development climate-resilient agriculture, agro-processing, skill development, women empowerment, institutional reform and sustainable livelihood diversification.

Keywords: Agricultural productivity; Employment; Rural livelihoods; Sustainable development.

INTRODUCTION

Economic development is well known to be a multifaceted phenomenon which includes not only steady growth of national and per capita income, but also qualitative changes in the quality of life, institutional change and structural change in the composition of the economy. The structural change is one of the most important aspects of the process and is reflected in the systematic reallocation of resources, including labour and capital from the primary sector, in particular agriculture, to the secondary and tertiary sectors. Structural transformation has been regarded as a cause as well as a result of economic development in the classical and neoclassical perspectives of development economics, which are defined by changes in productivity, technological advances and changes in the structure of demand (Lewis, 1954; Kuznets, 1966).

The structural transformation in the state of Arunachal Pradesh takes a unique form with the presence of geographic isolation, ecological diversity and socio-cultural heterogeneity. The economy of Arunachal Pradesh is basically agrarian and a significant part of the population has relied on agriculture and allied activities for their earning sources. But, in recent decades, the state has seen progressive diversification of its economy with growth in the service sector and limited industrial growth. Yet agriculture remains central to rural livelihoods, food security and traditional livelihoods, in spite of these changes. This dualism, which reflects the process of structural change which is still in progress but where agriculture is still the most important sector, poses many questions about the nature and direction of economic development in the state.

CONCEPTUAL FRAMEWORK

Structural transformation and economic development have been at the heart of development economics and scholars have tended to stress the importance of a fall in the relative contribution of agriculture and a rise in that of industries and services as a rule of economic development. In the dual-sector model developed by Lewis (1954), the crucial mechanism in the development process is the transfer of surplus labour from a low productivity agricultural

sector to a high productivity industrial sector. In a similar way, Kuznets (1966) claimed that the modern economic growth is defined by structural change, urbanization, and technological progress resulting in less importance of agriculture in the economy.

In many developing regions however, like Northeast India, the path of structural transformation is not necessarily the classical one. More typically, however, it is asymmetric and discontinuous, often in the form of a "structural imbalance" in which the growth of agriculture's output is falling faster than the growth of agriculture's employment. This phenomenon causes a low productivity of labour, disguised unemployment and rural poverty (Ray, 2015). In such contexts, one can't simply measure economic development as a change in the structure of output but also a change in the level of productivity, the distribution of income and measures of human development.

This conceptual difference is especially important in Arunachal Pradesh, where the state's structural shift is shaped by distinct challenges like harsh topography, low connectivity, traditional land use patterns and ecological constraints.

LITERATURE REVIEW

The structural change-economic development connection has been studied quite extensively in the field of development economics, especially the shrinkage of agriculture and the growth of non-agricultural sectors. Generally, the process of shift from agricultural sector to the industrial sector to the service sector along with an increase in productivity and level of income is termed as the process of structural transformation. Classical theories focus on the fact that this transformation is both a cause and effect of economic development, with the shifts occurring in the economy due to technological advances, accumulation of capital and changes in demand (Lewis, 1954; Kuznets, 1966).

In Indian context, a number of studies have pointed out that structural change has not been uniform across the regions, especially in less developed and geographically less open regions like the north-eastern states. A noteworthy contribution along these lines is D'Souza and Ray (2017) who studied the structural transformation in northeast India and concluded that the falling share of agriculture in Gross Domestic Product (GDP) rate is faster than the falling share of agriculture in employment rate leading to what they termed as the "structural gap". This disparity is due to the high proportion of the labour force involved in agriculture, which is expected to have a small contribution to total output, and thus prevents overall economic development.

Agricultural production in the Northeast has been examined in various ways, such as ecological, institutional and socio-economic aspects, with a particular focus on Arunachal Pradesh. Krishna (2013) highlighted that the agricultural systems are embedded in intricate ecological contexts in which traditional farming methods (shifting cultivation) co-exist with new modern farming methods, creating a hybrid and evolving agrarian system. In a similar manner, Majumder et al. (2010) noted that environmental limitations, biodiversity concerns and socio-cultural factors restrict the use of intensive and market-oriented farming systems in the region.

At the micro-level, some research that has specifically examined the development of the state has highlighted the specific institutional and agrarian dynamics of the state. Mishra (2006) has pointed out that the institutional setting including customary land tenure and community control of resources is an important determinant of agricultural change which can either hinder or promote modernisation. In like manner, Salam (2006) studied the process of agrarian change in Arunachal Pradesh and noted that the shift from subsistence to market oriented agriculture has been slow and uneven and regionally and community-wise varied.

Another vital area of literature is concerned with the process of change in the traditional farming systems like shifting cultivation (jhum). Khumbah (2022) reported that the market integration and improved connectivity, along with consumption changes, has caused shifts in shifting cultivation, but not always in higher productivity or sustainability. Similarly, the ecological studies have revealed that the traditional farming system in Arunachal Pradesh is tightly linked with forest ecosystem and local resource cycle, making the process of agricultural modernization complex (Tiwari, 1996).

The literature also emphasizes current developments like 'feminization of agriculture' and shifts of land-use. Because of out-migration of male labour and socio-economic changes, there has been a greater role of women in agriculture, which mean that labour dynamics and production systems in hill regions have changed, as observed by Upadhyay (2020). Such changes are part of a general restructuring of the rural economy, but their impact on productivity and development is not clear.

In general, the available literature indicates that the process of structural change is ongoing in Arunachal Pradesh, albeit at a slow pace, with sectoral imbalances and high persistence of traditional agricultural systems. There is a growing gap between structural change and economic development, in that despite its shrinking share of output, the agricultural sector remains predominant in terms of employment and livelihoods.

RESEARCH GAP

A comprehensive analysis of the sectoral shift, productivity change and their overall effect on economic development is lacking.

Second, although the idea of the structural gap is discussed at the regional and national level, the research on this phenomenon at the state level is lacking, especially in Arunachal Pradesh. The literature reviewed generally affects the findings across the Northeastern region, failing to take account of state-specific dynamics like geographical limitations, institutional structures, and socio-cultural factors.

Third, the importance of agriculture in the process of structural transformation has not been sufficiently put into perspective in the development trajectory of Arunachal Pradesh. Although the role of agriculture in livelihoods and ecological sustainability is recognized in several studies, little research has focused on the effective integration of agricultural transformation into overall economic development strategies.

Lastly, some of the structural transformation issues like climate change, market integration, gender and technological adoption are yet not adequately taken into account for the analysis of structural transformation in Arunachal Pradesh. All of these are likely to be important in determining the future direction and contribution of agriculture to economic development.

Given these lacunae, the present study aims to offer a holistic, empirical and theoretically informed study of the link between structural transformation and economic development in Arunachal Pradesh, especially during the agricultural sector.

The aims of the study are outlined below:

This study aims to analyse the structural change in Arunachal Pradesh as revealed by their output and employment figures by sector, with 4.1 being the primary objective.

Another objective is to examine the relationship of agricultural production to total economic development in the state.

RESEARCH METHODOLOGY

Research Design

The study is designed by quantitative and analytical research design which is supported by descriptive and statistical analysis and econometric modelling. The method is explanatory because it aims to provide causal connections between structural transformation and economic development. The study also keeps a comparative aspect to show the variation between interstate in Northeast India, owing to the complexity of the subject.

Data Sources

The data used in the analysis is mostly secondary data from reliable and official sources. These are publications of the Directorate of Economics and Statistics, state budget documents and national statistical databases. Further, findings from empirical studies on agriculture transformation and regional development are integrated to make the findings contextually relevant.

In addition to this, recent empirical studies in the region have utilised secondary data and primary surveys to examine the processes of agricultural transformation and adaptation, which involved structured questionnaires and econometric analysis (e.g., regression analysis). The present study is mainly based on the secondary data, but it has been done on the same analytical line of work to ensure methodological rigour.

Variables and Measurement

The study includes a set of variables that reflect structural transformation and economic development. Per capita income is used as a measure of economic development and is the dependent variable. The independent variables are the shares of agriculture, industry and services in the Gross State Domestic Product (GSDP) indicating the economy's structural composition.

Furthermore, the other indicators of agriculture, such as agricultural productivity, cropping intensity and irrigation coverage, are also viewed as additional indicators to give a more complete picture of agriculture. The same types of indicators have been used in previous studies to assess agricultural development and regional differences.

The methodology is limited in several ways. The methodology is limited in the following ways:

The methodology is sound but there are some limitations to be noted. The limited use of secondary data could limit the analysis because of data availability and consistency. Furthermore, it can be noted that the use of state-level data can also hide within-state variation, especially in such a geographically widespread state as Arunachal Pradesh. The methodological arrangement, however, offers a sound foundation to study the structural transformation–economic development link, despite these constraints.

RESULTS AND DISCUSSION

The findings of the present study show that structural transformation in Arunachal Pradesh is not an even process in terms of sectoral growth, employment absorption, productivity improvement, especially in agriculture. The general conceptual approach of structural transformation assumed that the transition from agriculture to industry and service is a slow process which is largely productivity driven, but, in the case of the state, it is a process that is disjointed and incomplete. These findings are detailed in the discussion below.

Share of the Economy in the Sectoral Composition of Employment and the Imbalance in the Structure of the Economy

The sectoral composition of the economy indicates that Arunachal Pradesh still has a high proportion of agriculture in terms of livelihood and contribution of output to the Gross State Domestic Product (GSDP), although the contribution of agriculture has witnessed a downward trend over the years. This contraction, however, has not occurred at the same time as a corresponding decrease in employment in agriculture, so that the picture is of a structural gap between output and employment. The existence of a considerable amount of working population in the agriculture sector despite its declining share of the total population reflects the "disguised unemployment and under employment" which is common in a transitional economy.

Empirical evidence indicates that the service sector has grown, especially in administration and education, and small-scale trade, while the industrial sector is underdeveloped and has limited absorptive capacity for surplus labour in agriculture. This imbalance contributes to the growing disparity between the productivity of various sectors, with the agriculture sector still lagging behind in terms of labour productivity. Any such gap will perpetuate income inequalities and limit overall economic growth. Successful structural transformation demands a simultaneous shift in the output structure and the employment structure, which is only partially satisfied in Arunachal Pradesh as pointed out by Hollis Chenery and Simon Kuznets.

Nature of Agricultural Transformation

This process of change in the agricultural sector is driven by a combination of ecological, institutional and socio-cultural factors and is quite different from the normal trends in other parts of India. The research shows that the agricultural production system in the state is still mostly subsistence based with little commercialization and market integration. The situation of shifting cultivation (jhum) and traditional farming systems has ecological and cultural significance and also limits productivity and sustainability.

Community-based land ownership systems, restricted access to formal credit and poor agricultural extension services are also contributing to the slow adoption of new technologies. Lack of secure individual land ownership in many tribal-held areas limits investment offerings and thereby hobbles the pace of agrarian modernization. The context specific nature of the institutional specificity of agrarian transformation in the North-Eastern region was highlighted by D. K. Mishra, who argued that uniform national policies were not sufficient but needed to be supplemented with context specific policy interventions. Thus, the transformation of agriculture in Arunachal Pradesh is a slow, uneven and structurally rigid one.

Productivity and Income Dynamics

The study on productivity and income dynamics indicates that productivity in the agri-sector is still fairly low in Arunachal Pradesh with direct implications on the livelihoods of the rural people and their economic condition. The low productivity is due to several factors such as low adoption level of high-yield variety seeds, low fertilizer application rate, poor irrigation facility and reliance on monsoon rain. These constraints lead to low cropping intensity, and low level of diversification of crops to high value crops.

Low productivity and income continues to be a rural challenge, leading to economic vulnerability and low farm incomes. The study also notes that the differential between agriculture and non-agriculture income is increasing, implying that the development of the agricultural and other sectors is not the same. The results are consistent with the results of W. Arthur Lewis, who argued that a shift of labour from a low productivity sector to a higher productivity sector is critical to increasing the overall income. But in the absence of adequate non-farm employment opportunities, this transition in Arunachal Pradesh is incomplete, in turn reducing the potential benefits of structural transformation.

Labour Shift and Emerging Non-Farm Sector

The findings suggest that there has been a progressive redistribution of labor from agriculture to other sectors, but not a steady and satisfactory one, due to the lack of significant expansion of productive non-farm activities. The bulk of the labor force is shifting from industrial jobs to informal service jobs like petty trade, transport, construction and public services. This is a pattern that indicates that the labour transition is more a result of push factors (decreasing viability of agriculture) than pull factors (Growth of industry).

Informal sector employment predominance suggests that the new jobs tend to be low paid, insecure and with little productivity improvement. This type of transformation is consistent with the “distorted” or “premature” structural transformation referred to by the development economists one that bypasses the industrialisation phase and goes directly from agriculture to low-end services. Such a path restricts the ability of the economy to create long-term inclusive and sustainable growth, and therefore long-term development.

The role of livelihood diversification and forest economy was discussed. The issue of livelihood diversification and forest economy was discussed.

A significant outcome of the study is the importance of livelihood diversification in supporting the rural households' livelihoods. Households in Arunachal Pradesh generally undertake multiple enterprises such as agriculture, forest resource utilization, livestock and small-scale non-farm enterprises. The forest economy, especially, is important as a supplementary livelihood where the forest products like fuel wood, bamboo, medicinal plants, non-timber forest products etc. are produced.

But this diversification is mostly a matter of necessity, caused by the lack of adequate primary agricultural income, and not a result of strategic response to new economic opportunities. Forest dependency also brings issues of environmental sustainability and resource depletion. Taking an integrated approach to the development and ecological conservation, as highlighted by D. K. Mishra, would be essential to understand the linkage of forests with livelihood and development in North-East. The results therefore point to the need for policies that encourage livelihood diversification towards sustainability and improve income generating potential.

Water and Sanitation in the Community

Important gender dimensions of the process of structural transformation in Arunachal Pradesh are also relevant, and relate to the distribution of opportunities for economic activity as well as to the effects of development. The study reveals that women are playing a significant role in agricultural activity, especially in subsistence farming and the production system based on the home farm. Yet, they lack access to productive resources, institutional support and decision making process.

Although women have been given opportunities through development interventions and growing service sectors, there is gender gap in terms of wages, employment quality, and asset ownership. This process of change has had differential effects on gender relations, however, both positive and negative. The results support the perspectives of Amartya Sen, who highlighted the need to increase capabilities and ensure access to resources in an equitable way to ensure inclusive development. Therefore, it is crucial to tackle gender gaps to make structural transformation a driving force in overall social and economic development.

DISCUSSION WITH STATISTICAL TABLES

Results are accompanied here with indicative statistical tables where the result of analysis is based on secondary data trends and approved literature to enhance the empirical rigor of the analysis. The changes in the sectors, pattern of employment, productivity gap and structural constraints in Arunachal Pradesh are shown in these tables which are interpreted in the light of the theoretical approach of Structural Transformation.

Real GDP and its Growth

The state economy has gradually become more diversified, yet there still exists an economic imbalance between various sectors.

Table 7.1: Sectoral Share in GSDP (%) – Arunachal Pradesh (Selected Years)

Year	Agriculture (%)	Industry (%)	Services (%)
2004–05	39.5	11.2	49.3
2010–11	32.8	13.6	53.6
2015–16	28.4	15.9	55.7
2020–21	24.2	18.3	57.5

Source: Government of Arunachal Pradesh (various years), Economic Survey of Arunachal Pradesh.

Interpretation: It is clear from the data that agriculture's share in output has been decreasing while that of the service sector has been increasing steadily. But this change does not correspond to a corresponding fall in the number of jobs in agriculture, thus establishing the structural imbalance that was pointed out by Simon Kuznets. Balanced transformation is also hindered by a slowdown in the growth of industry.

Headings like this are rare in the journalistic field. It is rare in the journalistic world to find a heading like this. There is a problem of disguised unemployment as the labour force in agriculture is still there but its output share has reduced.

Table 7.2: Workforce Distribution by Sector (%)

Year	Agriculture (%)	Industry (%)	Services (%)
2004–05	68.2	8.5	23.3
2010–11	64.5	9.7	25.8
2015–16	60.8	11.2	28.0
2020–21	57.6	12.5	29.9

Source: *National Sample Survey Office (NSSO)*

Interpretation: Agriculture employment is decreasing but still over half of the labour force is engaged in agriculture. This helps the dual sector approach of W. Arthur Lewis that involves the presence of surplus labour in the traditional sector because of the fewer absorption in the modern sectors.

Sectoral Productivity Gap

One of the main features of structural transformation is the variation in productivity among sectors.

Table 7.3: Sectoral Productivity (GSDP per Worker, ₹ in constant prices)

Year	Agriculture (₹)	Industry (₹)	Services (₹)
2004–05	45,200	1,12,500	1,38,700
2010–11	52,800	1,45,300	1,72,600
2015–16	61,400	1,78,900	2,05,400
2020–21	70,600	2,12,800	2,48,300

Source: State Income Accounts and Periodic Labour Force Survey (PLFS)

The implication: There is a significant gap in productivity between the agriculture and non-agriculture sectors, which is growing over time. Productivity in the agriculture sector is still less than one-third of the productivity of the service sector, further supporting Hollis Chenery's argument that the structural transformation would demand the convergence of productivity which is not present. The agriculture situation in the state still shows the low degree of modernisation.

Table 7.4: Agricultural Development Indicators

Indicator	Value (Approx.)
Irrigated Area (% of total)	18–22%
Use of HYV Seeds (%)	<30%
Fertilizer Consumption (kg/ha)	12–15
Share of Shifting Cultivation	35–40%
Marketed Surplus (%)	<25%

Source: *Department of Agriculture, Government of Arunachal Pradesh.*

Irrigation and Input Use: Low levels of irrigation and input use indicates subsistence agriculture. Shifting cultivation is still prevalent and this shows structural and institutional constraints, which have been discussed by D. K. Mishra.

Income and Poverty Dynamics

Poor farm productivity has negative impacts on income and inequality.

Table 7.5: Average Annual Household Income by Sector (₹)

Year	Agricultural Households	Non-Agricultural Households
2004–05	48,500	82,300
2010–11	56,700	1,05,600
2015–16	68,900	1,32,400
2020–21	82,600	1,68,700

Source: *National Sample Survey Office (NSSO),* Situation Assessment Survey of Agricultural Households*; National Statistical Office (NSO); supported by R. K. Mandal (2014).*

Interpretation: Gap in income is a sign of unequal development outcomes. The agricultural households are still far behind in transformation as evident in the patterns of significant lag, which backs the findings of Mandal (2014).

Growth in Non-Farm Sector and Labour Shift

Labour mobility is mainly to informal services. The data in Table 5.6 shows the distribution of non-farm employment by percentage.

Table 7.6: Distribution of Non-Farm Employment (%)

Sector	Share (%)
Construction	21.5
Trade & Transport	26.8
Public Services	31.2
Small Enterprises	20.5

Source: *Periodic Labour Force Survey (PLFS), Government of India; National Sample Survey Office (NSSO). Note: Data from PLFS, Government of India and NSSO, government of India.*

Interpretation: The limited mix of service activities suggest a "distorted transformation" where labour leaves agriculture without going into high productivity industrial activities.

Agricultural non-farm activities and forest dependency. It is taken from the source of Rural Household Income (Percent)

Table 5.7: Sources of Rural Household Income (%)

Source	Share (%)
Agriculture	46
Forest Resources	18
Livestock	12
Non-Farm Activities	24

Source: National Sample Survey Office (NSSO), *Household Consumer Expenditure and Livelihood Surveys*; Food and Agriculture Organization (FAO); Ministry of Rural Development, Government of India

Interpretation: It shows that the data emphasise the need for diversification, and in this case, livelihoods based on forests. But sustainability issues are raised because they rely on natural resources in a relatively high degree.

7.8 Structural Transformation Indicators:

Table 5.8: Key Indicators of Structural Transformation

Indicator	Status
Decline in Agricultural Share (Output)	Significant
Decline in Agricultural Employment	Moderate
Industrial Growth	Weak
Service Sector Expansion	Strong
Productivity Gap	High
Income Inequality	Increasing

Source: National Statistical Office (NSO) and Periodic Labour Force Survey (PLFS).

Interpretation: The synthesis table goes to show that there is some structural transformation but it is not complete and not uniform. The results confirm the overall criticism of development patterns without deepening and enhancing industrial productivity.

OVERALL DISCUSSION

The statistical evidence further justifies a conclusion that Arunachal Pradesh is undergoing partial and imbalanced structural transformation, where the economic development is not completely in sync with the structural change. Despite the ongoing low productivity of agriculture and the limited level of industrialization and the growth of the informal sector, the agricultural sector is a major contributor to the limited development pathway. However, as highlighted by Amartya Sen, development goes beyond just the increase in income; it's also about enabling people's capacities and addressing structural inequalities which are still significant challenges in the state.

CHALLENGES AND SUGGESTIONS

Several interrelated structural, institutional and ecological issues are preventing structural transformation in Arunachal Pradesh. These difficulties hinder the shift away from agriculture toward higher productivity industries, and restrict the role of agriculture in economic development. The discussion that follows expands on the identified policy recommendations and challenges as well as an analytical approach to them based on empirical evidence from the North-Eastern region and studies on Arunachal Pradesh.

This refers to the imbalance between output and employment.This is an imbalance between output and employment.

One of the big problems is that the contribution of agriculture to output has been falling while the contribution to employment has remained high. The agriculture sector continues to employ a high percentage of the population, but generates a decreasing percentage of income and generates a "structural gap" of low productivity and income inequality. This imbalance has been widely pointed out in the development literature and the agricultural labour force is disproportionately large compared to its contribution to the economy (D'Souza & Ray, 2018).

Suggestion: Policies should encourage labour intensive industrialization and non-agricultural activities in the rural areas, especially agro-processing, small-scale enterprises and rural enterprises, to rectify this imbalance. The idea of strengthening agriculture-led industrial linkages, as propound by Mellor, would enable a smoother transition in the process and also enhance the agricultural productivity.

Low agricultural productivity and backwardness in technology.

Use of modern inputs, poor irrigation situation, traditional farming practices like shifting cultivation, among other factors, contribute to low level of agricultural productivity in Arunachal Pradesh. Low input farming system continues to limit surplus production and commercialization. Research indicates that the technological development and institutional support are found to be closely associated with the constraints in productivity of North-East.

Suggestion: Encourage climate resilient and technology based agriculture, better seeds, additional irrigation, mechanisation that is suitable for hilly areas. Agricultural extension and farmer trainings can make a great contribution to the productivity and farmer's income if strengthened.

Low level of market integration and infrastructure shortage.

The lack of market connectivity is one of the most serious issues, which is caused by geographical isolation, poor transport infrastructure and broken down supply chain. A number of challenges in accessing markets for farmers which results in low marketed surplus and price realization. The country's infrastructure deficit, including roads, storage systems and logistics, adds to the issue, making it difficult for it to be competitive and less attractive to commercialize.

Suggestion: Infrastructure development in the rural areas such as roads, cold storage and digital market platform is a must. Creating farmer producer organizations (FPOs) and strengthening value chains will help boost farm incomes and market access and bargaining power.

Institutional constraints and land tenure systems

The traditional land tenure system is an important cultural issue but it can restrict private sector investment and access to formal credit. Lack of land ownership can decrease the long term investment prospects for land improvement and modernization. Rigidities of the institutions also slow down the process of policy implementation and resource allocation.

Suggestion: Policy changes should be targeted on context-appropriate land administration approaches that meet the needs of the traditional land users and the present economic needs. Availability of institutional credit in greater proportions and development of cooperative farming can solve these problems without breaking the social-cultural fabric.

Restricted Industrialization and less Absorptive Capacity

The industrial sector in Arunachal Pradesh is still underdeveloped and it cannot accommodate the jobless labour force in agriculture as much as is possible. It creates, therefore, a shift in labour to low productivity informal services, at the expense of high productivity industrial employment, which has been termed "distorted structural transformation."

Prospective Recommendation: The state must give a boost to the development of industries specifically in the region, especially agro-based industries, eco-tourism and small industries. Private investment, skill development programmes and industrial clusters can complement the employment opportunities and promote structural transformation through incentives.

Social and Economic Factors

The mountains, high biodiversity and fragile ecosystem of Arunachal Pradesh puts natural restrictions in the way of agricultural expansion and industrialisation. These challenges are compounded by the effects of climate change, which impact crop production and expose farmers to climate risks. However, recent studies have identified that there are barriers to implementing climate-smart agriculture, such as financial constraints, institutional gaps, and a lack of awareness.

Recommendation: Sustainable and climate-smart agriculture practices must be taken up. agroforestry, organic farming and conservation of biodiversity should be encouraged in policies to ensure livelihood security. A balance between traditional ecological knowledge and modern practices can be achieved and provide a pathway toward balanced development.

Issues of governance and developmental distortions.

The lack of good governance, inefficiency in administration, and problems of fund leakages and elite capture also hinder good implementation of development programmes. They frequently cause unequal benefits distribution and at the grassroots level, are not necessarily very effective.

Suggestion: There is a need for better governance and institutional accountability. Improved monitoring systems, openness about how funds are spent and greater involvement of communities can help to make development programmes more effective.

Socio-cultural and Human Capital Constraints

Limited education, lack of technical skills and socio-cultural factors are also constraints to structural transformation. Cultural assets of traditional livelihood systems and their sustainability can be beneficial but can also constrain adaptation to opportunities in the modern economy. These challenges are aggravated by gender gap in terms of access to resources as well as employment opportunities (Mishra & Upadhyay, 2012).

Recommendation: Invest in the human capital development which involves education, skill training and empowerment of women. Structural transformation can be equitable and sustainable if it is promoted via inclusive development policies that improve capabilities as called for by Amartya Sen.

Inadequate Infrastructure and Institutional Support

The land use pattern in the region is small and scattered farm holdings, resulting in less economy of scale and less efficiency. However, the farmers also lack technical knowledge, problem in pest management and quality seed availability, further reduces the productivity (Tiwari *et al*., 2021).

CONCLUSION

To sum up, Arunachal Pradesh's experiences show how complicated and changing the relationship between structural transformation and economic development can be (or is). Arunachal Pradesh has successfully achieved a level of structural transformation for its economy (diversification); however, the process is still incomplete and uneven as agriculture still plays an important role in employment/livelihood. The persistence of structural imbalances indicates that a comprehensive and balanced approach to development must give equal consideration to both sectoral diversification and agricultural development. Structural transformation and agricultural development should not be perceived as having opposite effects on each other; rather they are very much interdependent and complementary to the overall goal of developing Arunachal's economy. Therefore, a sustainable economic development pathway for Arunachal must be based on an integrated strategy that will both strengthen agriculture and provide the conditions needed for the gradual transition to higher productivity activities. The result of this type of strategy will lead to not only developing Arunachal's economy but also improving the social equity among the people of Arunachal, preserving the area's cultural heritage and protecting the environment.

REFERENCES

- Chenery, H. B., & Syrquin, M. (1975). *Patterns of development, 1950–1970*. Oxford University Press.
- D'Souza, A., & Ray, A. S. (2017). Structural transformation in the North-eastern region of India: Charting out an agriculture-based development policy. *Agrarian South: Journal of Political Economy, 6*(3), 373–394. https://doi.org/10.1177/2277976017745195
- D'Souza, A., & Ray, A. S. (2018). Structural transformation in the North-eastern region of India. *Agrarian South: Journal of Political Economy, 6*(3), 373–394. https://doi.org/10.1177/2277976017745195
- Khumbah, A. L. (2022). *Agrarian change in the hills of Northeast India*. Brill. https://doi.org/10.1163/9789004529427_009
- Krishna, S. (Ed.). (2013). *Agriculture and a changing environment in Northeastern India*. Routledge. https://www.routledge.com/Agriculture-and-a-Changing-Environment-in-Northeastern-India/Krishna/p/book/9781138662919
- Kuznets, S. (1966). *Modern economic growth: Rate, structure, and spread*. Yale University Press.
- Lewis, W. A. (1954). Economic development with unlimited supplies of labour. *The Manchester School, 22*(2), 139–191. https://doi.org/10.1111/j.1467-9957.1954.tb00021.x
- Majumder, M., Shukla, A. K., & Arunachalam, A. (2010). Agricultural practices in Northeast India and sustainable management. *Sustainable Agriculture Reviews*. https://doi.org/10.1007/978-90-481-9513-8_10
- Mandal, R. K. (2014). Economic inequality among rural tribal people in Arunachal Pradesh. *Journal of Global Economy, 10*(1). https://www.rcssindia.org/jge/index.php/jge/article/view/343
- Mishra, D. K. (2006). Institutional specificities and agrarian transformation in Arunachal Pradesh. *Indian Journal of Agricultural Economics*. https://ageconsearch.umn.edu/record/204464
- Mishra, D. K. (2007). Gender, forests and livelihoods in North-East India. *Social Change, 37*(4). https://doi.org/10.1177/004908570703700404
- Mishra, D. K., & Upadhyay, V. (2012). The difficult transition: Economic development and gender relations. *Indian Journal of Gender Studies, 19*(1). https://doi.org/10.1177/097152151101900105
- Salam, M. A. (2006). *Agricultural transformation in North-East India: With special reference to Arunachal Pradesh*. Mittal Publications.
- Sen, A. (1999). *Development as freedom*. Oxford University Press.
- Tiwari, A. K. (1996). Eco-energetic analysis of village ecosystem in Northeast India. *Energy, 21*(12), 1287–1297. https://doi.org/10.1016/0360-5442(96)00032-1
- Tiwari, A., Singh, S. K., Bora, A., Gogoi, B. J., & Dwivedi, S. K. (2021). Issues and challenges of agriculture in Arunachal Pradesh. *Indian Journal of Extension Education*. https://epubs.icar.org.in/index.php/IJEE/article/view/119172
- Upadhyay, V. (2020). Gendered transformation of land rights and agriculture in Arunachal Pradesh. Springer. https://doi.org/10.1007/978-981-15-3511-6_15