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# Livelihood Diversification and Economic Resilience among Tribal Communities in Assam: Evidence from Secondary Data

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**Abstract:** The paper reviews the livelihood diversification and economic resilience of the ST communities in Assam, covering the occupational structure, dependence on agriculture and non-farm employment and access to livelihood opportunities. The study adopts secondary data research design that relies on official statistical publications, labor-force reports, tribal development documents and recent research that have been published since 2023. The master data for analysis of Scheduled Tribes is Census 2011 and for more recent labor-market information, Periodic Labor Force Survey (PLFS) is available but the data lacks subgroup inference at the state level. The evidence shows that livelihood resilience is not measured just in terms of transitioning from agriculture to non-agricultural activities. It relies on the quality, frequency and stability of employment; access to productive assets; education and skills; market linkages; financial services; social protection; gender relations and climate and price shocks. Agriculture continues to be significant as it is practiced (cultivation), as agriculture is practiced (agricultural labor), as livestock is practiced (livestock), as forestry is practiced (forest-linked activities) and as local exchange is practiced (local exchange) and as wages are earned (wage work), as construction is done (construction), as public service is taken (public employment), as small trade is practiced (small trade), as transport is carried out (transport), as services are provided (services), as handlooms are produced (handlooms) and as other household enterprises are undertaken (other household enterprises). While diversification can lessen dependence on one source of income, casual/lower paid employment can also result in a transfer of risk. The paper outlines a diversification framework for the analysis of diversification along income, occupation, seasonality and shock recovery. It highlights information gaps such as the lack of disaggregated statistics for individual tribal communities in recent years, and the lack of longitudinal evidence. The priority areas of the policy range from the development of skills which are relevant to the area, producer groups and micro-enterprises, adaptation to climate change and agriculture, equal access to assets and markets, improving public employment delivery, digital connectivity and transport connectivity, and collecting and harmonizing tribal livelihood statistics.

**Keywords:** Assam; Scheduled Tribes; livelihood diversification; economic resilience; agriculture; non-farm employment; secondary data; labor market

## 1. Introduction

Livelihood diversification is the process of integrating various activities and assets to help households meet income requirements, meet food, service and/or social reproduction needs. In rural and tribal areas, it typically encompasses farming, farm work, livestock, forest production, wage work, public works, small-scale trading, craft-making and migration. Diversification is not an occupational mobility process. A second activity may be added to a household's activities if the primary one is unreliable, if there are insufficient agricultural returns, or if the household has discovered new educational and/or market avenues. The same trend can thus indicate opportunity, distress, or a mix of the two. In recent times, development reports have highlighted the importance of quality of employment, social protection, and productive capacity in addition to the simple indicator of employment (International Labour Organization et al., 2024; NITI Aayog, 2024).

Assam offers a valuable context for this study as the tribal population is spread across various ecological, administrative and economic landscapes: The Brahmaputra Valley, Barak Valley, hill area, forest border and within the autonomous council region. There are variations in land access, farming practices, language, educational opportunities, infrastructure, and distance to towns between communities. A single description that applies to the whole state may mask these differences. The Census official tables also provide data for workers and occupation, and tribe-specific and rural-urban data, and the labour force surveys and development reports are broader based and give information of employment conditions and public programmes (Office of the Registrar General and Census Commissioner, 2023; Ministry of Tribal Affairs, 2024).

The core question is how households mix their agricultural and non-farm activities, and what factors enable this mix to safeguard consumption and living standards in the face of shocks. Rainfall fluctuations, flooding, erosion, crop loss, input costs and market-price fluctuations continue to pose challenges to agriculture. Non-farm employment can provide cash income and lessen the seasonal reliance on cultivation, but employment can be casual, insecure, poorly paid and/or remote from the household. Migration can boost income but also lead to increased housing expenses, care responsibilities and labour market vulnerability. The resilience outcome is linked to the reliability of returns from new activities, and to the continuity of land access, food systems, community institutions and social protection (Sharma and Mishra, 2024; Ministry of Rural Development, 2024).

There are four purposes of the paper. It explores the occupational profile of the ST communities in Assam with the most appropriate official sources, and discusses the linkages between agricultural dependence and non-farm activities, and the determinants of livelihood diversification and economic resilience, and formulates policy and research agenda for livelihood security in ST communities. No synthetic primary survey is created, and no synthetic household observations are created during the analysis process. It analyses the available secondary evidence and clarifies the issues in relation to the specific context of Assam and its findings with the national context.

## 2. Conceptual Framework

### 2.1 Livelihood diversification

A livelihood consists of the capacities, assets and practices required for living. The assets are natural resources, labour, skills, financial resources, physical infrastructure and social networks. Diversification means that households engage in a variety of income-generating activities (in the same time period and/or across seasons). It can be based on farms (e.g. integration of farming with livestock or horticulture); off-farms (e.g. processing, purchasing inputs for farming, agricultural transport); or non-farms (e.g. construction, retail trade, transport, public services, education, tourism, and household services). The difference is important because the transition from cultivation might still require agricultural value chains. There are opportunities for rural enterprise development and market access to link farm production with processing, storage, distribution and services (MSME Ministry, 2024; Ministry of Agriculture and Farmers Welfare, 2024).

When there is a discrepancy in the sensitivity of the various income sources, diversification serves a protective role. When crop income is negatively affected by flood, but wage income is not affected, the household can assure consumption. But there can be multiple income channels that are vulnerable to the same shock. Crops, roads and small shops can all be impacted by floods and local construction can be affected as well. A series of low-priced casual jobs might not be enough if there is a downturn in the local economy. Their stability, returns, timing and correlation are also relevant and the number of activities is therefore an incomplete indicator (World Bank, 2024; UNDP, 2024).

### 2.2 Economic resilience

Economic resilience is the ability to prepare for and endure economic shocks and stress, adapt, and adapt and recover from them without further degradation of living conditions or productive assets. It can be measured at the household level such as income continuity, consumption smoothing, savings, debt burden, food security, asset retention, recovery time and maintaining education and health expenditure. It also has components at community level such as functioning markets, accessible roads, local institutions, public services, collective resource management and responsive disaster support. But resilience cannot be seen as a natural attribute of a community; it is created by public investment, rights and markets, and unequal access to resources (UNDRR, 2023; Ministry of Statistics and Programme Implementation, 2024).

### 2.3 Tribal livelihoods and structural conditions

The households of the Scheduled Tribes are not homogeneous. Social organization of land, customary institutions, education, gender relations, settlement geography and market integration are different amongst communities and places. There is a category in the Constitution which is recognized and useful for both public policy and statistical reporting, but it is not an alternative to community-based analysis. Research should not consider cultural practices as causes of poverty, and should not overlook other barriers to poverty alleviation, including insecure land access, limited transport, poor bargaining power, and the lack of formal job opportunities in rural areas. The education, entrepreneurship, forest-based livelihoods, infrastructure and access to public services are emerging areas of concern for education development policy, but they are not necessarily available in programme form (Ministry of Tribal Affairs, 2024; Ministry of Finance, 2024).

## 3. Review of Recent Literature and Policy Evidence

Agro-technology, skills, infrastructure and market access can help increase livelihood security, but this requires affordability and continuity. Sharma and Mishra (2024) studied scientific agricultural technologies among tribal farmers in Assam and found better livelihood security of the farmer beneficiaries. The other barriers they identified in their study were input availability, cost and accounting of capital and enterprise. The results suggest that there are uneven impacts when technology is distributed without proper supply chains, financing and extension.

The national employment picture illustrates the need to distinguish between participation in the labor market and the nature of jobs. The PLFS Annual Report 2023–24 estimates the participation of the labour force, worker population ratio, the proportion of the population that is unemployed and the proportion that is employed, by rural–urban location, and sex. Its sampling design was not designed to provide adequate estimates for each Scheduled Tribe or small subgroup at the state level, thus subgroup interpretations ought to be used with caution (Ministry of Statistics and Programme Implementation, 2024). According to the national reports, there are also many people in the informal workforce, which highlights the importance of social security and earnings regularity as indicators of the resilience of workers.

Scholarships, hostels, entrepreneurship, forest-based value chains, infrastructure and targeted area development are some of the livelihood constraints addressed in tribal development programmes. In addition to scheme announcements, the annual reports of the Ministry of Tribal Affairs (MoTA) are also used to provide information on the programme design and implementation, and the state and district context needs to include analysis of expenditure, coverage and outcomes (MoTA, 2023; MoTA, 2024). The Van Dhan initiative and forest-produce value-chain interventions hold promise of enhancing local processing and collective marketing, but the benefits require good governance, product quality, working capital and reliable buyers (TRIFED, 2023).

Livelihood portfolios is also impacted by rural development programmes. The Mahatma Gandhi National Rural Employment Guarantee Act offers a wage employment mechanism and may be utilized for consumption during

periods of availability of work in time. Rural roads can lower transportation expenses and enhance the access to markets, schools, health services and non-farm jobs. While it is true that membership of a self-help group and/or livelihood mission can enhance savings and credit access and collective enterprise, it is also important to note that the membership of a selfhelp group is not equivalent to viable income growth (Ministry of Rural Development, 2023; Ministry of Rural Development, 2024).

The relevance of climate and disaster reports lies in the fact that environmental factors such as flood and erosion and heavy rainfall may impact livelihood in Assam. The essential building blocks of climate resilience are risk-sensitive agricultural practices, diversified crops, drainage and water management, reliable warnings, insurance (where appropriate), and public works and recovery finance. Migration and non-farm employment are not always possible and should be part of adaptation strategies based on local conditions (Ministry of Earth Sciences, 2024; Government of Assam, 2024).

Four gaps are suggested in the literature. First, there are not many publications from recent years that give the annual estimates of occupations for individual tribal communities in Assam comparable. Second, the broad indicators of employment do not show whether the diversification is of will, distress or sustainability. Third, the impact of diversification on resilience is a relationship that needs evidence across time of income, debt and assets, and shock recovery. Finally, gender, place and community differences must be taken into account when evaluating the programme. This study is an attempt to bridge these gaps by providing a clear secondary-data synthesis as opposed to making causal statements which the data available would not establish.

## 4. Research Methodology

### 4.1 Research design

This study employed descriptive and analytical secondary data design. It brings together official statistical information, labour-market data, tribal development publications, rural development documents, state policy reports and recent academic research. No interviews or questionnaires or original household survey data are used. No simulated observations are added. There is a focus on occupational structure, agricultural dependence, non-farm activities, resilience mechanisms and policy conditions.

### 4.2 Sources and reference period

Scheduled Tribe population, classification of workers and occupation tables are still major sources of information for Census of India 2011. The tables like ST-06 give details of occupation of main and marginal labourers, excluding cultivators and agricultural labourers groups by age, sex, rural–urban area and tribe. These statistics serve as useful indicators for comparison of structures, but not as a reflection of employment conditions at the time. The PLFS Annual Report 2023-24 offers more recent labour-market details, but the survey is not suitable to precisely estimate the population of all small social-group/state-specific intersections (Office of the Registrar General and Census Commissioner, 2023; Ministry of Statistics and Programme Implementation, 2024).

The other sources are the annual reports of the Ministry of Tribal Affairs, statistical profiles, Assam Economic Survey, departmental publications, reports on the agricultural and rural development, forest and climate policy documents, and research studies on tribal livelihood security in Assam. The policy context is given priority for publications released from 2023 onwards. Earlier census observations are kept only if it is explicitly stated that they are doing so.

### 4.3 Analytical procedure

Thematic analysis and source triangulation are the analysis methods adopted. The occupational structure is analysed in terms of cultivators, agricultural labourers, household-industry workers, other workers and non-

workers. Diversification is measured on the farm basis, as well as off-farm and non-farm activities (seasonal wage work, migration etc.). Conceptually, resilience is measured along several economic, social and environmental dimensions of income stability, asset protection, access to saving and credit, public employment, infrastructure, and social protection and recovery capacity. The results of research carried out specific to Assam are segregated from the national level trends and policy aspiration.

### 4.4 Limitations

The main constraint is that there is no recent and comprehensive dataset available which reports on occupation, income, asset ownership, migration and shock exposure at the community level for each Scheduled Tribe in Assam that is freely available and open. Census 2011 is a dated census and PLFS estimates should not be interpreted as estimates for small groups. The benefits of administration programmes are easier to measure than at the household level. Other sources use other definitions and time periods. The paper therefore does not conclude that diversification has led to a measurable impact on resilience, but instead identifies lines of evidence and policy implications.

## 5. Occupational Structure among Tribal Communities in Assam

### 5.1 Agriculture and allied work

Though the dependence is district/ecology specific, based on land access and proximity to markets, agriculture continues to be a significant livelihood base in many rural tribal communities. Cultivation may include paddy, vegetables, horticulture and locally adapted crops, allied work may include livestock, poultry and fisheries and agricultural labour. There may be a rotation between farming and employment within the household throughout the agricultural cycle. This type of mixture can be necessary to fulfill cash requirements in the event farm income is seasonal. Thus, the measure and main occupation of agricultural dependence must be complemented by the contribution of agriculture to the household income, labour days, food consumption and productive assets.

The Census worker categories give a general idea of how to separate cultivators from agricultural labourers, but do not adequately reflect the multiple activities of a household. A person classified by a main activity can also be involved in seasonal activities, harvest forest produce, carry out a family business or move for work. It is important to remember that the product of the census consists of a set of occupations and that the meaning of these occupations should be understood in the context of a livelihood portfolio snapshot (Office of the Registrar General and Census Commissioner, 2023).

Land quality, irrigation, seeds/inputs, extension, storage, transport and price realisation are all critical for agricultural resilience. Smaller and fragmented farms can limit mechanisation and marketable surplus. Production may diminish and productive assets be destroyed or damaged due to floods, erosion, and irregular rainfall. While technological advances in farming practices can boost production, it is possible that costs to farmers, or availability of supplies needed for use, may be a constraint on the extent to which the technology can be adopted. However, the implementation challenges mentioned above were brought to light by tribal farmers in Assam, and the need for ongoing extension and enterprise support after initial interventions was emphasized.

### 5.2 Agricultural labour and seasonal employment

Households with small land holdings or have less production need agricultural labour to earn income. Planting, weeding, harvesting and employment may fluctuate due to local demand. Labourers with irregular work might earn money from construction, transport, public works, domestic work, or migration. These transitions can be diversifications, but their resilience impacts are influenced by wage rates, the availability of work, travel costs and payment timing. Even if a household has more than one occupation, it can be vulnerable if it does not have much savings.

Access to public employment can lead to an alternate source of income for poor people during lean periods, especially if jobs are available locally and when pay is not delayed. But, the assessment of entitlement, work demand, and days of employment and days of timely wage payments should be done independently. Not all households receive enough work as part of a programme (Ministry of Rural Development, 2024).

### 5.3 Household enterprises and traditional skills

The handloom and weaving, bamboo and cane, food processing, livestock products, repair, petty trade and other domestic activities can contribute to the local income generation. These activities could involve leveraging community knowledge and local resources, and also link producers to wider markets. They may lack sufficient working capital, bargaining power, uniformity of products, transport costs and intermediaries which can prevent them from earning adequate profit. Therefore, enterprise support should cover design and technical training, equipment, bookkeeping, payments, market information, collective procurement and stable customer relations. Cultural or traditional skills turn into economic opportunities, when the producers get a fair value and are in control of product development and sales (Ministry of Micro, Small and Medium Enterprises, 2024; TRIFED, 2023).

### 5.4 Public, private and service-sector employment

There are also options to engage in education, health, administration, retail, hospitality, transport, construction and other sectors, which are not directly related to agriculture. Access is related to education level, language, digital competences, certification, mobility and recruitment networks. All the services do not necessarily create jobs for rural tribal youth. Training could not lead to employment if courses are not relevant to the demand of employers or if the young people do not have the means to live and get to work. To enable effective programmes, local labour market mapping, placement support, apprenticeships and wage and retention monitoring are required (MSDE, 2024).

### 5.5 Migration and commuting

Migration can be temporary, seasonal, circular or long-term. It can allow families to access to employment in an alternative geographical area if local employment turns out to be inadequate. Remittances can be used for food, housing, education, health care, farm inputs and debt repayment. Meanwhile, migrants can experience precarious employment, employment risks, fees for recruitment, inadequate housing, and limited access to social protection. The results of migration also rely on who stays in the village to do agricultural work, care work, and management of household assets. Policy interventions should encompass portable benefits, worker registration, worker access to grievance processes and to correct information about employment conditions (International Labour Organization et al., 2024; Ministry of Labour and Employment, 2024).

## 6. Agricultural Dependence and the Diversification Process

### 6.1 Why households diversify

There are several reasons why households diversify. The low or variable farm returns can lead members to fall into wage work. Opportunities in services and public employment through education and training. Mobile connectivity and roads can help to overcome information and travel barriers. Credit facility can enable a family to begin trading from a shop, purchasing equipment or increasing the size of their livestock enterprise. Household composition also plays a role; young adults might want to look for wage jobs, while older members may stay on the farm and continue farming. Diversification should not be limited to any one driver, but rather all of these drivers can contribute to one another.

One helpful distinction is between diversification that is based on distress and opportunity-based diversification. Distress diversification is when households are employed in low-paying or risky jobs due to the failure of their

main livelihood. Opportunity-led diversification means that the activities in which people enter are ones that are more profitable and offer the opportunity for better control over work, learning and enterprise development. Many house strategies have the two characteristics. Even when jobs are created in the non-farm sector, it does not necessarily mean that welfare has improved, unless the improvements in wages, working conditions and security are taken into account.

### 6.2 Complementarity between farm and non-farm activities

The non-farm sector income can also be used for seeds, fertiliser, equipment, livestock and transport for agriculture. Farm income can help to feed people and lower the need for cash for consumption. Value added within local economies can be enhanced through processing, storage, retailing and transport. The most effective diversification is where there is a complementarity, but not an exclusion of the activities under unfavourable conditions. For instance, small-scale processing can generate employment locally and minimise post harvest losses, and producers' groups could enhance market access. Electricity was seen as essential as were the roads, the storage, quality control, finance and reliable demand for these benefits (Ministry of Agriculture and Farmers Welfare, 2024).

### 6.3 Constraints on non-farm employment

Opportunities outside of the farming sector are not evenly distributed. Proximity to markets and training institutions can be a long way in remote settlements. Factors such as collateral requirements, high costs of credit, low bookkeeping or digital access skills can stifle small businesses. Women may have limited mobility, unpaid care duties, and limited control of income and productive assets. Youth can be trained and never get a job that is appropriate for them. These barriers can lead to high and uncertain cost of diversification. Infrastructure programmes, entrepreneurship support and skills development need to be implemented in a coordinated manner and not as standalone programmes (NITI Aayog, 2024; Ministry of Skill Development and Entrepreneurship, 2024).

### 6.4 Forest-linked livelihoods and common resources

Incomes from forest produce, bamboo, cane, medicinal plants and others natural resources can be included. The sustainability of these livelihoods relies on resource availabilities, access rights, sustainable harvesting, processing and marketing. Raw-material sales may be less valuable than processing and/or branded or collective marketing. Community institutions and producer groups can boost bargaining power by having transparent governance and distributing benefits fairly. The enterprise development from the forest should not lead to overexploitation of forests and should preserve ecological services (Ministry of Environment, Forest and Climate change, 2024; TRIFED, 2023).

## 7. Economic Resilience: Mechanisms and Risks

### 7.1 Income stability and consumption protection

A diversified livelihood portfolio can balance income over the seasons. Expenses may be covered by regular wages prior to the harvest of the crops, and when there are less opportunities for regular wages, farm production can help provide food. Households who are able to save and access affordable credit and social protection, are less likely to be forced to sell livestock, tools or land-use rights. But in a world of all informal and fluctuating earnings, diversification might not result in significant stability. Predictable income, frequency of work, wage levels, ability to repay debts and meet essential expenditure after shock should thus be among the resilience indicators.

### 7.2 Climate exposure and disaster recovery

In Assam, houses, crops, farm animals, roads, storage and local markets may be affected due to flooding and erosion as well as extreme rainfall. Climate shocks can also disrupt learning and health care, and lead to rising debts within households. Examples of resilience measures are: livelihood and crop diversification, extension to be climate-informed, access to seeds and fodder, drainage, raised storage facilities, warning systems, access to relief, public works and reconstruction support. It is important to note that diversification away from agriculture is not a replacement for climate resilient agriculture, but can be considered in addition to productive adaptation if necessary. The policy framework is provided by the state's disaster management and climate planning documents, but the effectiveness of support in reaching tribal-affected settlements as well as the recovery of productive assets should be assessed locally (Government of Assam, 2024; Ministry of Earth Sciences, 2024).

### 7.3 Social protection and institutional access

Household resources can be safeguarded and the need for high-cost borrowing minimized through public distribution, employment guarantees, pensions, health coverage, and scholarships and other entitlements. The impact is dependent on awareness, documentation, proximity to points of services, migrants' administrative responsiveness and portability. Digital systems can lower transaction costs but leave out people if there is weak connectivity, authentication or grievance redress. Monitoring of a programme should take into account actual access and outcomes, and not just the number of registrations (Ministry of Rural Development, 2023; Ministry of Tribal Affairs, 2024).

### 7.4 Gender and intergenerational dimensions

Women are engaged in farming, raising animals, weaving, domestic activities, and gathering resources and unpaid domestic work. This contribution could be underestimated by traditional employment categories. Diversification can raise women's cash income and can provide paid work without a reduction in unpaid care, but also has the potential to do the latter. Whether new income will enhance household resilience depends on whether women have access to land, credit, training, markets, producer organisations, and decision-making. Youth experience a unique set of barriers, such as skills mismatch, restricted local work opportunities and the cost of migration. Participation in programmes should not be the only indicator of women's earnings and control over income, but the evaluation of the employment outcomes after the training period should also be done for youth (Ministry of Women and Child Development, 2024; Ministry of Skill Development and Entrepreneurship, 2024).

### 7.5 Digital access and market participation

Mobile connectivity and digital services can enhance access to price information, government applications, payments, training and distance customers. However, having access to digital doesn't mean you have digital capability. Use is influenced by language, device cost and reliability, digital literacy and trust. Product quality, fulfilment logistics, financial literacy, and dispute resolution support are the best when used in conjunction with digital market platforms. Digital interventions should not supplant existing institutions and face-to-face services (Ministry of Electronics and Information Technology, 2024).

## 8. Discussion

The evidence reveals a multi-dimensional meaning of livelihood diversification among tribal communities of Assam. The first is that, occupational change must be understood in the context of the security and productivity of the occupation. The change from farming to non-farm, informal sector activities like building and repairs could increase cash income for some months but increase vulnerability to labour demand and health risks for the household. On the other hand, a mix of production, livestock and a successful enterprise can work to share risk without loss of food production or assets.

Secondly, the protection from diversification also relies on the level of complementarities of activities. Process, transport, store and retail within a local area can form a local economic chain if linked to the farm. This diversification can help maximize the value for the community, provided producers are able to access finance, technology and collective bargaining and have secure buyers. One-off training or equipment provisions are unlikely to create sustainable businesses. Sharma and Mishra (2024) have identified constraints, showing the value of post-intervention support.

Thirdly, regional variation is at the core. Different patterns of land access, market access, and settlement in hill and plain areas, remote settlements, and communities with varying access cannot be expected to provide a common pathway. Local planning should identify employment opportunities, natural-resource assets, transport constraints and education needs at a level that is relevant to the specific community in which they are intended to be applied, as well as exposure to climate change. Census tables provide a useful baseline and other surveys and administrative data require better disaggregation.

Fourth, public systems as well as choices of household economic activity influence economic resilience. Risks facing households are related to public employment, education, roads, healthcare, market infrastructure, social security and disaster response. Even if a family has different professions but lacks access to relief and affordable healthcare, the family may face a dramatic deterioration of assets due to illness or flood. Livelihood promotion and risk reduction and basic services provision must be integrated into resilience policy.

Fifth, there needs to be a distinction between access and outcomes in the evaluation process. Qualifying as a success does not depend solely on the number of people trained, number of self-help groups formed or enterprises registered. Good outcome measures are net earnings, number of months at work, workdays, enterprise survival, debt, savings, distance to market, women's control over income, and time needed to recover from a shock. The importance of longitudinal data is evident since a year-on-year income gain or decline could be due to weather or market conditions and may not be a reflection of long-lasting improvements.

Lastly, there are evidence gaps that limit definitive conclusions. Census 2011 is much detailed but still an outdated data source while PLFS is not designed to give a reliable estimate for all the individual tribal communities of Assam. Programme reports may talk about expenditure and coverage, but not outcomes for households in the long term. These restrictions further underscore the need for a common definition of tribal livelihoods and transparent metadata at the state level in a tribal livelihood information system. The system should not be a substitute for national statistical surveys, but rather a complement to them, using carefully designed and well-chosen administrative and sample information, which is ethically controlled and is updated regularly.

## 9. Policy Recommendations

### 9.1 Strengthen climate-resilient and market-oriented agriculture

Extension needs together with access to appropriate seed, tools, irrigation, soil management, storage and livestock services and market information should be made available to support agricultural production. Programmes should be tailored to the local agroecological conditions and should incorporate planning for floods and erosion. Producer groups can consolidate production and bargain for prices and decrease transport expenses. A focus on market access and post-harvest facilities should be given due consideration along with production technology in public investment.

### 9.2 Create pathways to non-farm jobs related to local demand

District and community level labour-market assessments should be the start of the process of skill development. There is a need to collaborate with employers, cooperatives and local businesses in training providers to create courses, apprenticeships and placement support. Retention and employment and job quality should be monitored

6 and 12 months after training. Business development services can complement repair services, food processing, weaving, bamboo products, tourism services, transport and other locally viable services, where formal jobs are limited.

### 9.3 Improve finance and enterprise support

Micro enterprises need working capital, cheap credit, accounting assistance, product development and market linkages. Credit programmes must not end with the disbursement of the loan. Failure risks can be mitigated through business mentoring, collective procurement, digital payment literacy and buyer agreements. Eligible local products can have a demand in public procurement and institutional procurement when the quality and delivery requirements are well communicated.

### 9.4 Support women's economic agency

This should be achieved through Livelihood Programmes on improving women's access to productive assets, financial services, training and producer organisations. Reduction of participation barriers such as childcare, safe transport and flexible training times. The distribution of unpaid work and its control by women should be considered in programme evaluation. However, the strong enterprise and market support of the selfhelp groups can be a useful forum if it is not restricted to the savings and credit aspect alone.

### 9.5 Enhance social protection and migration protection

Work allocation and grievance redress should be made easier and faster, and wages paid timely, when implementing employment guarantees. Migrant workers require mobile benefits, registration facilities, information about contracts and complaint procedures. DR assistance must not only ease the immediate impact but also help to rebuild productive assets and local infrastructure. A need to coordinate between rural development, tribal welfare, labour, agriculture and disaster-management agencies exists to minimize administrative gaps.

### 9.6 Improve tribal livelihood data

Harmonised livelihood monitoring framework should be built in Assam, taking into account Census baselines, PLFS context, agriculture and enterprise statistics, programme records and periodic assessments at community level. Indicators should be disaggregated by tribe, district, gender, age, rural–urban and disability, as appropriate, and ethically safe. False precision must be avoided with small sample sizes, and such sample size must be reported transparently. Consultation of communities, privacy protection and clear access and use guidelines should be part of data governance. The framework should measure the stability of income, occupational change, seasonality, assets, debt, social protection, and shock recovery, among other measures.

## 10. Conclusion

Livelihood diversification is a key strategy whereby tribal households in Assam engage in a mixture of agriculture and wage labour, household enterprises, forest-based activities, service activities and migration. It is not simply the number of occupations, but the stability of, return on, and security and compatibility of, income sources that contribute to economic resilience. Agriculture continues to be significant for food, assets and local economic linkages, and non-farm activities can generate cash income and help to minimise seasonal reliance. But the benefits of diversification can be limited due to insecure jobs, inadequate infrastructure, lack of finance, climate risks, and weak market access.

Secondary data available supports a policy approach for the combination of resilient agriculture, demand responsive skills, enterprise development, women's economic agency, social protection, migration protection and enhanced connectivity. The study reveals that input availability and capital and ongoing institutional support for agricultural livelihood interventions are important themes in Assam specific research. National labour

statistics provide a current employment context but should not be used as a substitute for data on individual tribal communities which must be current and well powered. The most critical research need is a clear and consistent evidence system that can measure occupational change and household recovery over time, and that is disaggregated. This can help to underpin policies that increase meaningful livelihood options and conserve productive assets, rights and living standards.

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