

CHAPTER IV

Resilient Livelihood for Self-Reliant Community Building

4.1 Introduction

This section of the present thesis investigates the limitations of earning from forests, engaging in marginal farming, and migrating from rural to urban areas. A substantial number of the people were interviewed, and they have acknowledged a need for additional arable land. The scope of our study was centered on the *Jangal Mahal* area in West Bengal, with a particular emphasis on the southwestern section of West Bengal located in the Chhotonagpur plateau boundary. The tremendous dependency on natural resources significantly affects people's lives in the studied area. In specific geographical regions, the land with the most extraordinary capacity for farming is mainly used for growing a single crop at a time due to a strong dependency on monsoon water. Further, the majority of the population consists of indigenous communities, such as the Santal, Savar, Singh, Munda, and others. Instead of dealing with a variety of intricate difficulties, the inhabitants of this area face enduring poverty, making it imperative to identify prospects for sustainable means of subsistence. It reduces the impact of restricted social mobility and inequalities within the research area. The current study aims to assess the influence of expanding agroforestry, particularly in fruit and medicinal plant cultivation, on empowering economically disadvantaged rural populations. The primary objective was to propose a viable strategy for rural development that provides different options for earning a living. We prioritized Sustainable Development Goal 8 in order to address widespread problems in the study area. Chapter four focuses on suitable practices for the poor people on their land to make them self-reliant. Further, this chapter describes persistent poverty and the circular mobility of marginalized people, forcing them to search for means of subsistence. Investment in rural infrastructure extension and its application can lead to productive employment, active workforce participation (irrespective of gender), and long-term economic growth.

4.2 Natural barriers and subsistence farming

Further, people living in rural areas face enormous hardship due to the prevalence of natural barriers and subsistence farming. The quantity of land allotted per person is significantly lower than what is needed, and farming is the only activity that generates a significant amount of cash in our study area. There is a significant unemployment rate in the area under investigation. The land is typically divided across generations, resulting in minimal arable land. Further, the land could be more productive, adjacent to forests, uneven, and mono-cropped, with a strong dependency on monsoonal rainfall. Homes with modest incomes suffer due to an excessive dependence on natural resources. *Jangal Mahal* in West Bengal is our focus area for this research. A majority of these people live on the periphery of mainstream culture, identifying with one of many distinct marginal groups. The predominant cropping pattern of the area consists of paddy, potato, and oil seed-like mustards, yet the annual gross production needs to meet their expectations. Consequently, the residents face significant challenges due to prolonged poverty. One new tactic men are using to get rid of poverty is emigration. The primary emphasis was on the effect of the Sustainable Development Goals (SDGs) on the resilience of community building. By advocating for stable, egalitarian, and long-term economic growth and full and productive employment, we intend to help our study region overcome its challenges.

4.2.1 Farming and allied economic activities

A large portion of rural India's income is still generated by farming. In our study area, the maximum amount of this large section also depends on agriculture and allied economic activities. As the global population keeps growing, resources like land, water, and energy are becoming increasingly limited. Consequently, there is an immediate need to implement new ideas for agricultural system integration. Modern technology and extension services are still required nationwide to make a livelihood sustainable.

Further, persistent poverty in rural areas is caused by resources that need to be distributed adequately. Disasters prevent people from making progress toward a brighter future. Additionally, poverty makes food insecurity and a toxic social

atmosphere worse in the studied population. Consequently, the people of the studied area are compelled to go to unauthorized lenders who charge high interest rates. Their financial situation is also precarious.

4.2.2 Financial inclusion and economic security

Financial inclusion and sociodemographic variables impact workers' economic security substantially. The persistence of inequality amplifies the vulnerability of those with less resources. Further, the unique circumstances of marginalization shape several aspects of susceptibility and variations in effect. Poverty is not the primary factor that makes people vulnerable; however, those living in poverty are more prone to reside in unstable places and have fewer means to take precautions. When people do not have access to social protections, they often have to spend what little money they have to deal with devastating losses. Resultantly, this creates catastrophe risk and is worsened by poverty. It has catastrophic impacts on the already marginalized people, including a total loss of income, forced displacement, and food insecurity.

In this context, we can talk about resilience, and it is a suitable action to minimize the challenges here. A system's resilience can be defined as its ability to anticipate, reduce, adapt to, or recover from the negative consequences of an event or trend in the social, ecological, or socioecological domains (Nelson *et al.*, 2007). There are some nuances to how agriculture and agro-based economic growth and development are affected. This chapter suggested a sustainable lifestyle for people to follow. Therefore, it required external forces to operate a sustainable way of life, an encompassing, home-based strategy that incorporates all accessible resources (physical, natural, social, and economic). In order to achieve equitable and sustained prosperity, people from disadvantaged social backgrounds must have access to financial services. This study exposed a terrible economic and monetary crisis that assessed the financial stability of agricultural laborers in the studied region.

The 2030 Agenda prioritizes full employment and economic growth that is equitable and inclusive. Our attention in this sub-cluster has been directed toward some SDG 8 employment-related objectives. Further, efficiency and progress goals are inseparably related to them. As stated in SDG 8, achieving more substantial equity

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can strengthen a nation's capacity to attain sustainable economic growth—numerous reputable authorities from modern macroeconomics back this assertion (Cingano, 2014; OECD, 2015). In the current study, it is found that the studied population satisfies two of SDG 8's objectives. Further, it is stated in Objective 8.5 that people living in rural areas should "achieve adequate and worthwhile work and decent wages regardless of gender, and offering equal wages for jobs of equal value." Objective 8.6 states that by 2020, there must be a significant decrease in the percentage of youths (those aged 15–24) not in school, training, or the labor force.

Therefore, the present study's focus is to show how to secure resilience at the community level and economic growth in remote areas. To fully grasp the concept of social inclusion in rural networks, one must be familiar with the unique social traits of rural communities and the possibilities and threats that contemporary local social life presents. Further, observing the social foundation that allows rural resilience is possible by examining several facets of rural living (Nooji, 1997). Our findings underscore the importance of additional field studies to illustrate migration trends. In addition, we establish connections between the existing theoretical hypotheses and analyze them critically. Subsequently, we paid attention to significant gaps in the literature. In this regard, we need more research investigating the links between commodity concessions and livelihood loss.

The preliminary research on the connection between migration and agricultural studies indicates the need for a thorough multi-site comparative study. There is a great deal of regional variation, such as concession agreements, and how they have been incorporated into the historical contexts of rural areas. Both are the product of intricate webs of employment and ownership frequently at odds with one another. The impact of migration on managing land and livelihood resources will vary across time according to different political-economic epochs, employment conditions, governance processes, and production cycles.

The Santal, Mahato, Savar, and Bhumij cultures and methods of life have attempted to be documented by multiple authors in the recent past (Roy, 2015; Bandyopadhyay, 2000). However, the livelihood challenges require additional written work with proper emphasis. The present work aims to provide new insight into said

subject by concentrating on the research mentioned above challenges. Bhattacharjee and Siddique (2016) conducted a study on livelihood resilience for the sustainable economic development of *Jangal Mahal* in rural West Bengal. The study revealed the daily hardships of marginalized people linked to unfavorable environmental conditions. Fear of the dangers of continuing to live in poverty, pride in themselves and their community, and growing aspirations and ambitions. In order to safeguard the economically disadvantaged and technologically backward population, some preventive measures can be taken. We can consider the Sustainable Rural Livelihoods (SRL) framework in this context. The SRL framework provides a conceptual underpinning for studying the effects of interventions on livelihood outcomes like household resilience. According to Ellis (2000) and Pagnani *et al.* (2020), a family's standard of living is mainly determined by their natural, human, social, physical, and financial capital. Natural capital promotes productive entrepreneurial activity, human capital helps understand the risks associated with the importance of implementing proper oversight strategies, physical capital helps adopt resilient livelihood tactics, and financial capital advances adaptation efforts and speeds up recovery repercussions. One or more family members leaving the farm are the most common solution among the many off-farm diversification techniques. Doing so ensures that non-migrating families may share the wealth created by wage workers' remittances (Paavola, 2008).

To support development planners and practitioners in providing suitable economic activities that boost pro-conservation behavior in specific situations, the present research seeks to understand how revenue or land utilization has been changed. Thus, the current study decided to investigate the following concerns—

- (i) The losing grounds of rural food sources and its effect on the social status of the study area,
- (ii) The pattern and indicators that perpetuate the income issue of the studied population throughout the year,
- (iii) Provide an account of the challenges they repeatedly encounter. The thrust zones may need some improvement,

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(iv) The initiatives need to be taken to enhance the social and economic sustainability of the studied rural areas.

To achieve this goal, we created a detailed survey plan covering several socioeconomic aspects and utilized suitable data analysis methods. Afterward, using a multi-stage sampling strategy, we collected primary data from 576 households and enhanced our findings with additional information from reliable sources. Constructing resilient infrastructure enables the establishment of a comprehensive framework that fosters sustained economic growth, gainful employment, and active workforce participation. In this context, looking back and using a mixed method research approach is essential.

By applying conventional economic theory to the ecosystem services viewpoint, we construct the "Ecosystem service opportunities" framework (Deshingkar, 2009; Anderson, 2001). Financial strategies for environmental preservation and their execution can be better understood and supported by this paradigm. In this context, we prioritized a land-based economy. After that, we delve into the fundamental concerns of placemaking, such as migration, and examine the intricate relationship between economic activities and indigenous groups' way of life. The present research sheds light on the causes behind the exclusion of rural communities and their revenue sources, migratory patterns, and farming methods. Further, the disasters such as unemployment, migration, relocation, and starvation hit people with low incomes hardest. We have investigated the roots of these issues. After that, we put forward our plans to mitigate the calamity and protect people's homes and their way of life.

4.2.3 Informality and status in employment

It is known that most of the world's workers do their jobs in less formal settings. The International Labor Organization (ILO, 2018a) estimates that in 2016, almost 2 billion people (or 61% of the world's workforce) were involved in economic activities that were either partially or fully protected by special legal or practical arrangements (Ghosh *et al.*, 2015)). A clear difference emerges when comparing the poverty rates of regular employees with those of casual workers. It is noteworthy that not having a formal job does not automatically make one poor, and vice versa. It is critical to

recognize that formality does not guarantee emancipation from poverty. Women in poor and lower-middle income countries are likelier to work in informal jobs than men. Conversely, men are more likely to work in informal employment in countries with middle-class or high incomes (Chatterjee and Dwivedi, 2023). Inherent challenges to sustainability emerge from the spatial implications of environmental, technical, life support social systems, economic development, and human well-being.

The present chapter of the thesis emphasized the following avenues–

- i) Determining causes of poverty and year-round livelihood crises,
- ii) Finding out how expanding agroforestry helps rural marginal communities economically and socially to build a sustainable livelihood,
- iii) Making sure the ecosystem can survive in the long run by encouraging sustainable practices and proper resource management.

4.3 Methods

In order to execute the research, a multi-stage sampling strategy was employed to gather responses from 576 people aged between 30 and 60 years. The data collection process involved the use of an open-ended survey schedule. A comprehensive survey schedule captured several socioeconomic dimensions and employed a mixed-method approach for data analysis to achieve optimal results. In this chapter, we used the variables from different socioeconomic parameters, including but not limited to demographic factors, land ownership, predominant crops, income and expenditure patterns, and savings habits, forms of migration, job opportunities, and availability of irrigation facilities. Furthermore, we conducted a comprehensive SWOT analysis utilizing the prevailing and accessible conditions within our study location. For quantitative analysis, ANOVA (Analysis of variance) is used to determine whether independent variables have a significant influence on the dependent variable in a regression study where all the independent variables are categorical. Factorial ANOVA tests the null hypothesis that there are no significant differences in average responses across the different categories of each independent variable. ANOVA splits the observed aggregate variability of a data set into two parts: systematic and random

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factors. The hypothesis tests are developed using these two components. Several researchers use the ANOVA test to determine the influence of independent variables on the dependent variable in a regression study.

4.4 Data analysis

Table4.1: Analysis of Variance (ANOVA)

	Df	Sum Sq	Mean Sq	F value	p-value
Cropping types	2	1.17e+10	5.87e+09	2.9008	0.0359438
House type	1	3.33e+09	3.33e+09	1.6471	0.1999773
Educational Qualification	6	5.55e+10	9.26e+09	4.573	0.0001583
Alternative income sources	3	5.02e+09	1.67e+09	0.8263	0.0247982
Arable land with an irrigation system	3	2.89e+10	4.82e+09	2.3793	0.0689975
Durable assets at home	4	2.89e+10	7.23e+09	3.5709	0.0069693
Family type	1	3.11e+10	3.11e+10	15.3856	0.0001004
Major crop produces	3	3.26e+10	1.09e+10	5.361	0.0012253
Jobless month	3	8.22e+09	2.74e+09	1.3529	0.2565474
Damages by elephant	3	2.24e+10	7.46e+09	3.6835	0.0120733
Geographical location created hindrances	3	4.60e+10	1.53e+10	7.566	5.93E-05
Excessive nature dependency	3	4.84e+10	1.61e+10	7.9633	3.43E-05
Impact of monsoon on crop production	2	4.55e+09	2.27e+09	1.1227	0.0326268
Child labour in your family	1	1.65e+10	1.65e+10	8.1463	0.0045016
Soil suitability for agriculture	2	6.65e+09	3.32e+09	1.6416	0.019475
Distance commutes for job	3	1.43e+10	4.76e+09	2.3532	0.0314101
Distance from the railway station	4	5.97e+10	1.49e+10	7.3675	9.16E-06
Maximum investment for crop	2	2.03e+10	1.01e+10	5.005	0.0070586
Sources of loan	4	1.37E+10	3.42E+09	1.6889	0.0151309

Response: Average Annual Income (Rs.)

*df = degrees of freedom, sum sq = sum of squared error, mean sq = mean squared error

In this section, the researcher has analyzed the concealed factors contributing to the underdevelopment of the specific region under examination. Efforts were made to obtain responses to the inquiries outlined in the introductory section. The measurement is a significant signal for assessing the prevailing economic conditions within a particular geographical area.

Table 4.1 (ANOVA) presents the constructed models utilizing average annual income (in Rs.) as the response variable. This table shows the significant predictor variables and their corresponding degrees of freedom, the sum of squared errors, mean squared errors, and p-values. The present study provides a comprehensive analysis of the collected data, aiming to identify significant patterns and relationships among the variables under investigation. Further, it provides a thorough explanation of the factors that have been selected in the present study. If the p-value exceeds the significance level of 0.05, the corresponding independent variable is deemed not statistically significant based on the observed data. In Table 4.1, the variables that exhibit p-values less than 0.05 depict substantial relationships with the response variable. That means the null hypotheses for these variables are rejected. This model holds considerable importance since it effectively explores the influences of the independent variables on the response variables.

Table 4.1 provides an overview of the statistical significance levels of variables in relation to the dependent variable. The dependent variable in our study is the annual average income (Rs.) reported by the participants. Further, the variables of house type, arable land with an irrigation system, and jobless month do not significantly influence the response variable.

4.5 Findings

Evidence indicates that the severe and prolonged chronic poverty prevalent in this region impoverishes about 90% of families. Table 4.1 illustrates the significance of the following variables: i) children who work to support their families financially, ii) the impact of the monsoon on crop products, and iii) the suitability of the soil for agriculture. In addition, it brings attention to the critical problem of food scarcity. The analysis reveals a spatial concentration of poverty in the state's impoverished rural areas, a phenomenon we attribute to rural vulnerability. We investigated eleven of the seventeen most strongly linked variables to chronic poverty in this context. Economic activity, commercial commodities, educational attainment, land area occupied per capita, migratory patterns, cropping practices, and irrigation potential contribute to these divisions.

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The CDBs of the Purulia district are characterized by marginal dry land economies that are built on migration and rely on forests. Despite occupying a large amount of land, the respondents live in extreme poverty, regardless of any physiological barriers. Commuters to industrial areas like Ranchi-Jamshedpur or Asansol-Raniganj are required. Simultaneously, everyone, with the exception of the Garhbeta-II CDB, finds themselves compelled to relocate due to its abundant farming resources. Half of the respondents worked in manufacturing industries as daily wagers, while the other 11% ran small companies like bike repair shops and retail stores. Of those who participated in the survey, 26% are active farmers from the Garhbeta-II CDB.

Under the present economic situation, each of the six CDBs (mentioned earlier) in Purulia needs less than one acre (<1) of fertile irrigated land per capita to survive. While 81% of Purulia residents reported no irrigation potential during the dry months, the Paschim Medinipur district fared much better. Now we will discuss the performance of schools located in this region. 3% of people who were surveyed have finished high school; a shocking 30% do not attend elementary school, and 46% continue their education after eighth grade. People who have yet to complete high school comprise 88% of those surveyed. Consequently, this pattern holds significant importance and explains the high rate of unemployment in this area. Table 4.2 presents the opportunities in the region through a SWOT analysis methodology. The advantages, disadvantages, opportunities, and risks are presented here.

The continued domination of forest-dependent regions with high rates of hunger makes it more urgent to conduct a thorough analysis of the nature and scope of poverty in these areas and to secure policy support to alleviate their plight. In a region where the respondent's land can be fully utilized, this chapter examined interregional variations in the state's southeast, which is unfortunately the most developed in the nation. We focus on SDGs in the present assignment. In particular, our study focuses on Objectives 8.5 and 8.6 of the SDGs, which guarantee that everyone has access to appropriate education, training, and respectable employment. Further, Objective 8 seeks to promote sustainable and productive economic growth and full and productive employment in order to address the current issues in the selected research area.

Table 4.2 Findings from the SWOT Analysis

Strengths	Opportunities
<ul style="list-style-type: none"> ● Abundance of land and forest resources ● Availability of cheap human resources ● Well connected road network ● Accessible hydro-electric power 	<ul style="list-style-type: none"> ● Forest resource based small scale set-up with government interventions
Weaknesses	Threats
<ul style="list-style-type: none"> ● No such irrigation potentialities in dry months ● Prevalence of mono cropping based on monsoon ● Natural barriers: Soil is less productive due to the dryness and less amount of rainfall ● Unskilled human resources without such specialization ● Manual laborer, education below the tenth standard 	<ul style="list-style-type: none"> ● Inadequate rainfall hampers the cropping system. ● Informal jobs ● Unemployment, loss of livelihood ● Migration to other cities ● Low wages ● Poor Quality of life, and ● Inaccessible basic needs

Source: Compiled by the Author

4.5.1 Findings from the quantitative and qualitative data analysis

Traditional workforce participation: The majority of rural population still significantly depends on farmland activities.

Poverty trap: Due to a lack of access to social protection, disadvantaged people are frequently compelled to use their already limited assets to cushion catastrophe losses, further driving them into poverty.

Alternative livelihood option: Making self-resilient rural households that ensure economic growth by reducing income inequality is required.

Indebtedness: Informal sources of loan. Their fiscal situation is likewise precarious. According to this study, financial inclusion and sociodemographic variables substantially impact the respondents' fiscal well-being.

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Livelihood diversification: Farm and non-farm economic activities with well-equipped green technologies are urgently required.

Sustainable livelihood: To get an exact solution, we suggested sustainable livelihood. Because it can help socially disadvantaged population gain financial inclusion, vital for inclusive and sustainable growth.

Self-reliant community: In the present work, we want to significantly contribute to the socioeconomic advancement of communities to increase *Jangal Mahal's* self-dependency and self-sufficiency. Therefore, the present chapter elaborates on the role of SDG8, specifically Goals 8.3 and 8.5.

Goal 8.3 supports productive activities, decent job creation, entrepreneurship, creativity, and innovation in SMEs (small and medium sized enterprises) through access to financial services.

Goal 8.5 states that a rural area must "achieve adequate and worthwhile work and decent wages regardless of gender.

Scope for livelihood diversification in the area

- Land resources
- Forest resources
- Human Resources

❖ Findings from Case studies

After careful evaluation of case studies conducted in the research area we have come up with the following findings

- **Lack of alternative livelihoods:** The participants practice farming (mainly paddy) based on monsoonal rainfall. Further, the per capita arable allotted land needs to be improved for their family's sustenance. The available option to cope with this situation is circular mobility. (CS 12)
- **Traditional livelihood patterns:** Historically, the people living in this area have experienced significant deprivation. The unequal distribution of resources negatively impacts the lives and livelihoods of these people. Excessive reliance on

natural resources significantly contributes to poverty. Migration is a way of coping with irregular income. (CS 6)

- **Education and livelihood interrelationship:** The educational standards of the respondents are low. They very much depend on cultivation. During the off-season, people in this area participate in daily wagers in the informal sector. Since 2011, education and the economy have changed a bit. (CS 7, 14)
- **Agency building:** All the participants depend on farming and allied activities. The participants do not have a valid land record. It is creating issues with getting loans from authorized banks. Therefore, they take loans at high interest rates (>14%) from microfinance or local money lenders. (CS 12, 20)

4.6 Mitigation strategies

Following a comprehensive discussion, we consider the appropriate crisis management strategies, which may include various options. Table 4.3 illustrates the two categories of human uses: productive and consumptive. We recommended emphasizing the sustainable utilization of consumptive products in this instance. Appropriate strategies include the following key points

- i. Economic expansion and development
- ii. Ecological and ecosystem services
- iii. Availability of natural resources
- iii. Structures of governance and institutions, and
- v. Transfer and development of technology

Table 4.3: Remittance Use and Contributions to Rural Households

Productive Uses	Consumptive Use
Impacts on rural society: rural infrastructure development	Basic needs-food, clothing, housing
Investments in economic growth	Expenses for treatment
Educational attainment for a better standard of living	Loan repayment
Entrepreneurship in small-scale rural industry	Rural Housing
Investment in the rural healthcare sector	Fulfilling community needs

Source: Compiled by the Author

4.7 Government programmes for rural residents

There are many similarities between adopting new technology and attaining sustainable growth. Efficient use of natural resources is the primary goal of both initiatives. The government programs for rural residents available in the study area are stated as follows–

- The West Bengal Rural Employment and Production Act (WBREPA)
- West Bengal State Employment Bank
- Paschim Banga Society for Skill Development (PBSSD)
- Bangla SwanirbharSahayata Kendra (BSSK)
- Bangla Abas Yojana
- West Bengal State Rural Livelihoods Mission (WBSRLM)

These are particular examples of the job opportunities programmes launched by the West Bengal government after 2011 to give livelihood chances in *Jangal Mahal*.

Climate-smart villages in the study area

Resources that are particularly susceptible to the effects of climate change include populations that are already economically underprivileged, physically weak, and socially excluded. In this context, natural farming, mixed farming, and agroforestry must be practiced. Further, the National Climate Change Action Plan requires campaigns to reduce water use. Combating climate change by expanding access to banking services in remote areas, the International Fund for Agricultural Development (IFAD) provides finance for agriculture on a micro, meso, and macro scale. However, it should acknowledge the unique roles and differences between men and women.

4.8 Suggestion

After careful analysis of different aspects of the study area, we suggest the following points. There is an urgent need to create strong, responsive, and rapidly growing bases. The susceptibility to climate change is closely connected to poverty and

insufficient access to essential services such as healthcare, financial infrastructure, and social protection. In other words, economically deprived places will see more noticeable effects of climate change. Success depends on vulnerable people having the necessary financial, institutional, and technical resources to implement an adaptation strategy and bring about change.

Assist organizations and individuals in performing their responsibilities.

Enhancing the portability of enterprises and households is of utmost importance, given that they already possess compelling motives to do so. Nevertheless, assistance is still required to surmount challenges such as insufficient data and funding, cognitive biases, and ineffective marketplaces. Furthermore, it is imperative that they actively assist the most marginalized people, who are most susceptible to the deadly consequences of livelihood risks. However, the studied population needs help to engage in adaptation initiatives.

Enhance land use plans and protect vital assets to fortify the rural economy.

Financial equality also includes the availability of social security. These foundational practices can assist individuals and organizations in recovering their stability. Further, adaptive social security systems are efficient and can quickly expand their coverage to encompass additional people. They also offer significant assistance in the aftermath of a disaster. Nevertheless, the efficacy of these measures relies on establishing distribution and finance networks before a catastrophic event. The government should formulate a strategy to offer small and marginalized producers specific aid.

Practical approaches to micro-level impact management

They are facing the challenge of unemployment and the need to support them by increasing chances for involvement in various jobs. Its immediate impact on all businesses requires strategic planning at the highest level. Further, the alterations in ecosystems have diverse implications for agricultural productivity. The financial environment and the effects on essential sectors (mainly exporting industries) can affect a country's trade balance and money movements.

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Furthermore, the current levels of debt and commitments that rely on others must be increased with additional spending for adaptation and resilience, which puts even more pressure on public finances. These elements can present new risks to the stability of government finances, the financial industry, and the ability of states to manage their budgets and debt. Moreover, these threats necessitate the involvement of governmental bodies. Strategies to increase the economy's flexibility, primarily by reasonably expanding the range and makeup of exports, explicitly focusing on immediate profitable commodities. It is important to mention that monitoring progress is essential after implementing comprehensive developmental programs in rural regions.

Governments must create a solid administrative and legislative structure and implement a suitable method for monitoring development. In addition, they must prioritize activities that align with their available capacity and resources. The main objective of an adaptation and resilience plan is to ensure that all governmental bodies and civic organizations integrate and incorporate the process into their decision-making. Furthermore, it is imperative that governments consistently oversee and assess the effectiveness of their actions and decisions. This allows governments to adjust their actions in reaction to any concerns.

Expanding the spectrum of options by innovation

Agriculture serves as the cornerstone of the Indian economy. Almost 70% of the rural population of our country depends on farming, either directly or indirectly. They need to have practical alternative methods of obtaining a living. Consequently, a knowledgeable and aware society must arise and lead them properly. Each level of government would demonstrate increased consciousness and responsibility regarding implementing advantageous strategies and programs. In order to enhance agriculture, effective techniques such as advanced technologies, successful methods, and insights gained from previous experiences that contribute to environmental improvement are essential. Further, all policies and programs should be integrated and prioritized at all levels of administration.

The present research indicates that catastrophes lead to damage, resulting in a circle of losses, traps of poverty, and a slowdown in efforts to alleviate poverty. However, not all disasters have such significant and lasting effects, and the recovery process might differ significantly from one country to another, with noticeable differences among various socioeconomic groups. Disaster risk is determined by social and economic factors that define abilities and entitlements. Further disaster risk and resilience are directly influenced by access to services, social and financial position, and legislative impact. In impoverished locations, substandard and precarious housing conditions significantly hinder the provision of crucial services such as public transit, communications, water, sanitation, drainage, and roads, exacerbating the overall poverty situation. The factors mentioned above that contribute to poverty are highly connected with elevated rates of morbidity and mortality among neonates, older people, and women that can be sustainably managed through the ways shown in Table 4.4.

Table 4.4: Enhancing the Range of Options through Innovation

Response types	Independent	Policy Orientation
Short term	Crop selection, cultivated area, Protection from risk	i) Improved forecasting ii) Research for better comprehension risks
Long term	Private investment (on-farm irrigation) Crop Research	wide-ranging public investment (water, storage, roads)
Challenges	a) costly to poor b) social safety nets c) trade-offs with integration	a) Uncertainty about yield on investment b) High expenses

Source: Compiled by the Author

Prospects for fostering resilience

Poverty and inequality worsen susceptibility, but even the most vulnerable persons have some level of resilience when dealing with tragedies. Improving these abilities can assist communities in recovering from disasters as long as they address long-term

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requirements and disaster concerns instead of merely concentrating on the immediate future. By enhancing the ability to heal and adapt, individual households and society can thrive in the face of disasters, thus breaking the cycle of repeated and ongoing catastrophes caused and perpetuated by poverty.

Therefore, it is crucial to improve resilience and livelihoods to reduce the probability of tragedy and poverty. Rural lives are particularly vulnerable to climate changes and extremes. The informal urban economy sustains many people, which worsens environmental limitations as it expands. Therefore, it is essential to promote the growth of the informal economy in metropolitan areas in order to improve the functioning of government institutions and the informal sector.

4.9 Conclusion

In contrast, the development processes of voluntary organizations and government-initiated initiatives have created conditions that have led to the "restructuring" of indigenous society and the emergence of "structural" challenges. The unwavering impact of implementing focused strategies to promote social and economic advancement in indigenous communities is evident in the enhancements to their standard of living. However, these changes only lead to minor inconveniences. In order to achieve a society devoid of destitution, rural regions would require well-maintained extension and construction facilities that are readily accessible to the public. As illustrated in Tables 4.1, 4.2, 4.3, and 4.4, the accessibility of alternative means of subsistence is decreasing. Further, people must exhibit authentic apprehension regarding their liberties. They should direct their focus toward specialized government initiatives and programs designed to improve the conditions of underdeveloped and primitive societies, such as the *Jangal Mahal*. They must acclimate themselves to state-of-the-art methodologies utilized in semi-arid land agriculture enhancement procedures. Residents can enhance their ability to surmount the recent challenges by diligently following the approach delineated in Tables 4.3 and 4.4.

This should prioritize demographic shifts and income diversification to enhance the standard of living for rural women. By highlighting the interconnection

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of sustainability and the humanities, one can utilize research and innovation to reduce the potential hazards of rural upliftment by providing subsistence means and skill enhancement. Provide the public with historical accounts of ecological practices. They can advocate for revolutionary advancements in the quest for a more equitable future. Managing human responses to socioecological issues is possible by comprehensively comprehending the natural and human regions and increasing the difficulty level. However, it remains crucial to provide guidance on appropriate methodologies that take into account local regulations as well as the cultural, legal, and ecological context of their creation and application. To ensure the well-being of both people and the environment, economic actors demand "win-win" solutions.

