EMERGING TRENDS IN
COMMERCE, MANAGEMENT AND ECONOMICS

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Preface

It gives us immense pleasure to present the First Edition of the edited volume titled ***Emerging Trends in Commerce, Management and Economics,*** published by Bharti Publications, New Delhi. This book brings together a rich collection of contemporary research articles that reflect the dynamic shifts and emerging paradigms in the fields of commerce, management and economics, with a particular emphasis on the Indian and North-East Indian context.

In recent years, Indian as well as the global economic has seen a significant transformations in the form of rapid technological advancements, socio-political changes, climate concerns, and evolving consumer behaviours. This edited book documented such multidimensional changes through carefully selected scholarly contributions that examine the key themes such as financial inclusion, entrepreneurship, gig economy, consumer psychology, climate change, sustainable development, and regional economic issues.

The chapters included in this volume explore crucial questions and offer insightful analyses. Topics such as financial inclusion and poverty alleviation, the role of government schemes like the Pradhan Mantri Mudra Yojana, and the challenges and opportunities faced by MSMEs and cottage industries reflect on grassroots-level economic development. Simultaneously, research on behavioural finance, consumer decision-making, and work-life balance among women professionals adds a deep understanding of the challenges and opportunities of in human work life.

Moreover, the book features region-specific studies those focusing on Assam's cottage industry, Chandubi Lake livelihoods, Karbi Anglong's rice production, and climate variability, providing a platform for localized research to contribute to the national and global discourse.

The inclusion of such wide varieties themes broadens the scope, connecting regional realities to global agendas.

The chapters have been contributed by scholars, academicians, and practitioners across various institutions, bringing diverse perspectives and empirical findings. Together, these contributions create a knowledge repository that will be valuable for researchers, policymakers, educators, and students engaged in the disciplines of commerce, economics, management, and development studies.

We extend our heartfelt thanks to all the contributors for their rigorous research and thoughtful insights. We are also grateful to Bharti Publications, New Delhi, for their support in bringing this edition to fruition. We hope that this volume stimulates further academic inquiry and practical innovations in the ever-evolving landscape of commerce, management, and economics.

Dr. Porag Pachoni,
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Financial Inclusion and Sustainable Development Goals in Sub-Saharan Africa

Dumani A. Markjackson*, Theophilus Kogiesi Omie**

ABSTRACT

The chapter analyses the intersection between financial inclusions and sustainable development goals in sub-Saharan Africa. The chapter made four arguments. First, it argues that to accelerate penetrative reach, access and usage of financial products and services, a robust financial system is imperative in designing products that suits the financial standing of the poor through large array of products according risk classes, level of literacy and economic status. Second, that to enhance access and achieve economic sustainability, financial service providers should leverage on innovative technologies that enhance access to low income earners and small holder farmers. It further argues the need to reduce service disruptions to avoid voluntary exclusion. Third, regulators should form sound legal framework that permits the adoption of new business models aided by technology that would integrate the poor and vulnerable in the society. Fourth, the chapter argues the need for top tier banks to collaborate with local merchants in rural areas to integrate local loan associations into the financial system. The role of the agents is to train and leverage on virtual platforms. It concludes that a robust financial system with a sound regulatory environment can spur financial usage and the attainment of SDGs in sub-Saharan Africa.

Keywords: *Financial Inclusion, Sustainable Development Goals; Smallholder Farmers, Local Loan Association; Sub-Saharan Africa.*

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INTRODUCTION

Prior to the advent of an organized payment system, primitive societies engaged in direct exchange without fiat currencies. This impeded trade, specialization/division of labour and economic progress. To support these, money and the financial system has evolved according to the needs of the time to be the wheel of progress to every economic system.

The financial sector comprises of banks and nonbank financial institutions that provides financial products and services for the consumption of households and businesses. In providing financial products and services, the financial sector intermediate and bridge the gap between the owners and users of funds through size, maturity and risk transformation (Casu, Girardon, & Molyneux, 2006). This enables households and businesses to build assets and accumulate other financial products and services in an economy. Intermediaries also provides external fund to vulnerable groups, households, and businesses to take advantage of opportunities that would otherwise be unavailable (Chen & Jin, 2016).

An efficient financial sector encourages availability, access and usage of mainstream financial products and service by all groups in the society (Chikalipah & Makina, 2019). More precisely, a robust financial sector accelerates access and usage of credit, savings, insurance and other financial instruments in an economy. A well-functioning financial system has many service providers. This diverse financial service providers offer different financial instruments and services at varying prices and conditions that meets the financial needs of households, business and the public sector (Shaw, 1973). It is also an embodiment of a stable, quality regulation and not prone to incessant systemic risks. However, financial systems that are underdeveloped are riddled with the costs of financial disintermediation and economic retardation due to failure in mobilizing all available surplus funds or failure to integrate them and make them available as loanable funds or failure to allocate the funds efficiently to the deficit units. Specifically, any kinds of shock that destabilize the financial system impoverish the people, businesses and the economy.

The roles of a developed financial sector are well documented in theory and empirical literatures. For instance, prior to the financial crisis in Mexico that spring boarded into the default of international loans, the average growth rate of Latin America from 1960-1980 was in excess of 6% per year. However, the rate fell to 1.3% yearly for almost 10 years when the crises started in 1982 (Tapen, 2001). The financial deepening hypothesis of 1973 and the financial development theory of 1969 also adduced to the above premise.

Financial intermediaries and the financial sector mobilize resources, facilitate trade, minimize risks and allocate capital resources. These together would kindle and enhance capital formation due to increased access to financial resources (Greenbaum, Thakor, & Boot, 2019). This is accentuated by an adequate regulatory and business climate, rising GDP per capita levels, increasing commerce and a well-functioning macroeconomic environment.

Access to financial Services in a Dynamic World

One of the major contributors to the lethargic growth trajectory of developing countries is lack of adequate funds and funding options that fails to meet the financial needs of households, businesses and other deficit sectors of those countries. This makes users of funds to resort to direct financing from the informal sector that is riddle with acute risks of conflict and shocks (Gebrehiwot and Makina, 2019; Katoroogo, 2016). These are common attributes of developing countries, and it impedes growth and aggravates poverty. The reason for poor access to financial products and services could be due to outright exclusion, and in other instances, involuntary exclusion (that is, people that willingly stopped using mainstream financial products and services due to dissatisfaction from use).

Expanding penetrative reach and the spread of mainstream financial services to the reach of all households, small business and other private sector participants is a reoccurring theme in think tanks, conferences and policy dialogues. This is anchored on thesis that the broadening access to mainstream financial products and services enhances the wellbeing of the people, businesses and the economy (Duvendack & Mader, 2020). More precisely, it is held that access to finance and funding options can enhance the attainment of "United Nations (UN) Sustainable Development Goals (SDGs) in ending poverty, improving health and education, and reducing inequality" (Kara, Zhou, & Zhou, 2021).

Access to financial services create a window for households to build assets and further create the platform for improved quality of life like schooling and health-care (Hudon, 2009). Businesses are also afforded the opportunity to expand their product and service lines. Again, it afford businesses to capitalize on new investment opportunities that would be unavailable in the absence of financial products and services. This invariably gives households and businesses the opportunity to generate returns and further their asset holdings (both fixed and current). Thus, access to financial products and sevices scale up the wellbeing the people, businesses and the economy.

Financial access in countries with high per capita income (PCI) is far higher than low and middle-income countries. And, this informs their growth trajectory as well. The level of acces to financial services (in terms of account ownership) in high income countries is estimated to be 90% (Thorsten & Torre, 2007). Worldwide statistics indicate that 1.7 billion people do not have a basic account at a regulated financial institution in 2017 (Duvendack & Mader, 2020). According to World Bank's World Development Indicators, account ownership in upper middle income countries rose from 71% in 2014 to 73% in 2017. For middle income countries, account ownersip rose from 57% in 2014 to 63% in 2017. Account ownersip in low income countries rose from miserly 22% in 2014 to 34.8% in 2017. This indicates that financial access in low income countries which are usually developing countries is acutely lacking and supply side policies like financial liberalization, trade liberalization and deregulation have not yielded the expected accelerated increase in access to financial products and services to the general population and more specifically, undeprevilleged rural households, smallholder farmers and small businesses.

Consequent on this, international financial institutions are on the forefront in giving informed policy direction and data collation, in order to broaden access and solve identified drawbacks to the agenda.

What is Financial Inclusion?

Financial inclusion typifies banking the unbanked by promoting and expanding outreach and consumption of mainstream services like savings, credit, insurance, pension and payment systems (Chen & Jin, 2016). Policies of financial inclusion are tailored at "creating an enabling environment and developing innovative financial solutions to facilitate access to financial services to the larger population, by lifting the barriers" (Soumare et al., 2016:232).

Descriptions of financial inclusion are subjective and are mostly based on the policy goals of the agency defining it. Table 1 presents several descriptions of financial inclusion.

Table 1: Financial Inclusion Defined

Institution	Definition
Global Partnership for Financial Inclusion (GPFI)	Financial inclusion refers to a state in which all working age adults have effective access to credit, savings, payments, and insurance from formal service providers. "Effective access" involves convenient and responsible service delivery, at a cost affordable to the customer and sustainable for the provider, with the result that financially excluded customers use formal financial services rather than existing informal options.
Central Bank of Nigeria	Financial Inclusion is achieved when adult Nigerians have easy access to a broad range of formal financial services that meet their needs at affordable cost.
Ministry of Finance and Economic Development Planning, Burundi	Permanent access by the adult population to a set of financial products and services (i) offered by formal and sustainable financial institutions, governed by adequate regulations, (ii) that are diversified, affordable and adapted to the needs of the population, and (iii) used by the latter for the purpose of contributing to the improvement of the conditions of their socioeconomic life.
Bank of Mozambique	Process of awareness, access and effective use of financial products and services offered by regulated institutions to the Mozambican population as a whole, contributing to enhance their quality of life and social welfare.
G-20	Financial refers to a state in which all working adults have effective access to credit, savings (defined broadly to include current accounts), payments, and insurance products from formal institutions.

Source: *Extracted from the Alliance for Financial Inclusion (2017)*

The primary objective of strategies of financial inclusion is to expand availability, accessibility and affordability of financial products and services that meets the needs of the entire population. The highlight of these policies is to ensure how best to integrate underprivileged households, smallholder farmers and businesses into the formal financial institutions. These groups of people mostly are unbanked and or underserved either due to poor GDP per capita, place of residence, poor banking presence and illiteracy (Triki & Faye, 2013). Financial inclusion does not mean accessing savings and external funding options alone. It also entails access to insurance, retirement planning options and frequency of use.

There are several dimensions of financial inclusion. However, they are general classified into three broad groups of access, usage and quality of financial products and services.

Financial access simply entails the supply of financial products and services like savings, credit, risk mitigation products, retirement planning options and remittance channels. This is determined by the nearness and affordability of financial service providers to the market. Financial usage, on the other hand, entails participation in formal financial institutions. This implies the regular and frequent use of mainstream financial products and services. The demand and use of financial products and services is predicated on availability, ease of access and the perceived benefits from it. Quality financial services connote the appropriateness of financial products and services to meet the financial needs the entire population, especially underprivileged households, small holder farmers and businesses.

In developed economies, financial inclusion denotes clear and informed information about the products and services offered by the financial system (Zulkhibri, 2016). Access to easy information regarding products and services by intermediaries is a common feature of inclusive financial systems. However, in emerging countries, the policy thrust of financial inclusion is to broaden access and usage of financial instruments and services. It is imperative to posit that financial inclusion efforts should be holistic: It should promote the three dimensions of access, usage and quality all at once. This would help assuage the flawed axiom of increased access creating increased demand and use of financial products and services.

Primarily, someone is said to be financially included when the said person has a basic account in a conventional bank. This premised on the fact that transactions in the formal financial system are based on the platform of an account. For example, remittance, insurance, social security, savings, credit and other financial services offered in the mainstream are facilitated using a bank account. Consequent on this, people that are not banked are said to be financially excluded (Wentzel, Yadavalli & Sarma, 2016). Financial exclusion simply entails lack of access and usage of financial products and services due to cost and non-cost related factors. Thus, people that are unbanked or underserved, people that have no access or limited access, people that have no use, and people that cannot afford formal financial services are all categorized as financially excluded (Sapovadia, 2018). According to the author, 73% of poor people do not own a bank account due to lack of proximity to bank branches, religious beliefs, excessive bank charges, illiteracy and account opening conditionalities. A financial system that is exclusive breeds disparities, poor living conditions, shocks and risks. Financial inclusion efforts are aimed at smoothening these barriers, expand access and integrate the excluded with afford quality financial products into the mainstream financial system. This way, equal opportunities will be served and lives will be transformed (Duvendack & Mader, 2020).

Financial Inclusion and Sustainable Development Goals

It was in the year 2015; the 193 member United Nations (UN) adopted the Sustainable Development Goals (SDGs) to consolidate on the successes of the Millennium Development Goals (MDGs) in order to holistically tackle the problems of poverty and disparities, and further enhance health, education and economic growth (Kara et al., 2021). The highlights of the UN SDGs policy document are 17 goals and 169 targets to be achieved in the year 2030 by its member nations (United Nations, 2015).

The framework for the achievement of the SDGs involves worldwide cooperation of all critical stakeholders, which includes the government, the private sector, multinational financial institutions, etc. However, one of the critical channels of actualizing these policy goals is largely dependent on the development of the financial sector. It is argued that broadened access and usage of bank accounts help households and businesses (especially smallholder farmers and businesses) to access loans and advances to meet emergencies; working capital and expansion needs, and further invest in their health, education and housing. Scholars are of the opinion that this would enhance the living conditions of the people, boost local communities and reduce poverty and inequality (Immurana et al., 2021). The results of a long-term impact study on a mobile money service in Kenya, M-PESA, found mobile money has lifted as many as 194,000 households – 2% of the Kenyan population – out of poverty, and has been effective in improving the economic lives of poor women and of members of female-headed households (Suri & Jack, 2016).

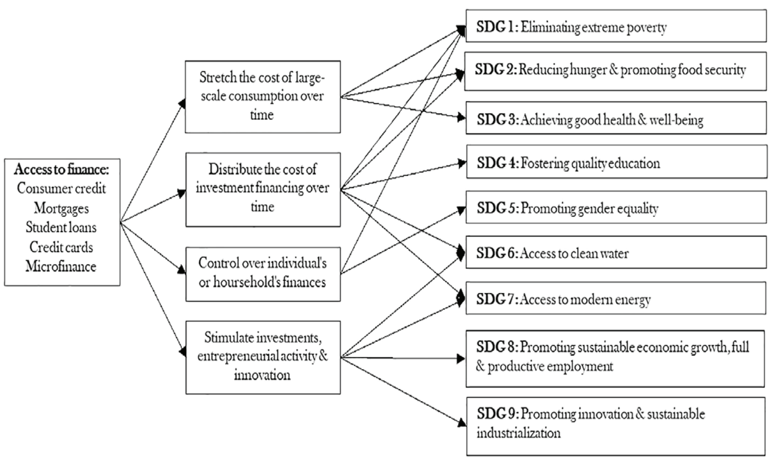

Figure 2: The Nexus between Financial Inclusion and SDGs.

To end poverty and hunger (that is, SDGs 1&2), scholars posits that access to loan accounts for income yielding businesses, education, housing and the acquisition of modern farming implements by households, smallholder farmers and businesses improve their living conditions and wellbeing (Kara et al., 2021; Ma'ruf & Aryani, 2019; Kuada, 2019). Health is wealth is a common saying in social discourse. This is the case because among other factors of production, labour (especially, an healthy one) plays an essential role in the productive process. Thus, credit access to funds would enable households to meet their health emergencies. Again, it helps the people to observe better dieting, sanitation and general wellbeing (Immurana et al., 2021). This contributes in the attainment of SDG 3.

SDG 4&5 is about quality education and gender equality. Increase in household income through funding to income yielding ventures position rural families other disadvantaged households to enahnce the quality of educational materials and training they give to their children and wards. Access to student loans can also empower the people to meet their goals of obtaining higher education and professional certifications. Income is a leveller. When women through funding opportunities from the formal financial system invest in income yielding ventures or acquire modern farming implements to enhance their yields, they earn more and are better placed to be critical stakeholders in decision making thus, reduing the gender gap (Kara et al., 2021). Forty percent of global labour force is made up of women and 34% of small businesses are owned by women in emerging countries (Kara et al., 2021). Women also have limited access to loan accounts than men. Thus, broadening access to credit or credit inclusion for women would scale up their economic power and reduce gender inequality.

Access to clean water and energy are the SDGs 6&7. As the income of households improve through the maximization of business and investment opportunities due to access to funding options, access to clean water, sanitary conditions, solar energy, and living conditions of the people and communities become better. Access to mortgage facilities could also enable households to build standard homes with water, sanitary conditions and solar energy.

It is apparent that sustainable economic growth, having a decent work, innovation and sustainable industrialization (SDGs 8&9) are largely dependent on 'low cost business models', and other small and micro business enterprises. They have the capacity to add 95 million jobs and scale up world gross domestic product by 6% in 2025 (UNSGSA, 2018). Thus, it can be argued that they have the potential to enhance the living conditions of poor people through gainful employment with living wages. These low cost businesses have a global funding gap of $5.2 trillion, thus bridging this funding gap may sustain growth, spur innovation and enhance the development world economies.

Table 2: A Summary of the Link between Financial Inclusion to the Attainment of SDGs

Number	Goals	Expected Contribution by Financial Inclusion
1.	No poverty – end poverty in all its forms everywhere	Access to financial services by all, especially the poor and vulnerable by 2030; this will help them smooth consumption and accumulate assets.
2.	No hunger – end hunger, achieve food security and improved nutrition, and promote sustainable agriculture	Access to financial services should double the agricultural productivity and incomes of small-scale producers by 2030.
3.	Quality education – ensure inclusive and equitable quality education and promote lifelong learning for all	Increases household income that, in turn, encourages investments in education.
4.	Gender equality – achieve gender equality and empower all women and girls	Reforms must be undertaken to give women equal rights to economic resources and access to finance in particular.
5.	Gender equality – achieve gender equality and empower all women and girls	Reforms must be undertaken to give women equal rights to economic resources and access to finance in particular.
6.	Clean water and sanitation – ensure availability and sustainable management of water and sanitation for all	Improvements in household income impact household-level sanitation.
7.	Affordable and clean energy – ensure access to affordable, reliable, sustainable, and clean energy for all	Improvements in income impact the use of cleaner energy at household-levels.
8.	Decent work and economic growth – promote sustained, inclusive and sustainable economic growth, full and productive employment, and decent work for all	Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all.

9.	Industry, innovation and infrastructure – build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation	Microenterprise development may improve innovation within certain industries.
10.	Reduced inequalities e reduce inequality within and among countries	Impacts economic growth in rural and poor communities through enterprise development.
11.	Sustainable cities and communities – make cities and human settlements inclusive, safe, resilient and sustainable	No immediate impact
12	Responsible consumption and production e ensure sustainable consumption and production patterns	Impacts economic growth in rural and poor communities through enterprise development.
13.	Climate action – take urgent action to combat climate change and its impacts	No immediate and direct impact
14.	Life below water e conserve and sustainably use the oceans, seas and marine resources for sustainable development	No immediate and direct impact
15.	Life on land e protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, stop and reverse land degradation and halt biodiversity loss	No immediate and direct impact

16.	Peace and justice – promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels	No immediate and direct impact
17.	Partnerships for the goals – strengthen the means of implementation and revitalize the global partnership for sustainable development	No immediate and direct impact

Source: *Adopted from Kuada (2019)*

The Sub-Saharan Experience

The level of social exclusion in sub-Saharan Africa is chronic. Access to health care, housing, sanitation and food are still basic in terms of the hierarchy of needs of households due to poverty and lack of adequate access to core financial services. The World Bank posited that household consumption per capita in SSA remains unchanged for 22 years. Figure 3 indicates that this same time period (1995 to 2017) has seen high income countries experiencing an upward sloping household consumption per capita.

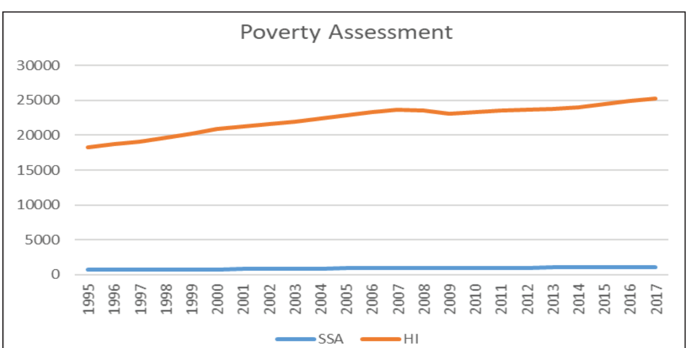

Figure 3: Comparing Poverty Assessment using Household Consumption per Capita between SSA and High-Income Countries.

Source: *World Bank (2019)*

Financial sectors in sub-Saharan African (SSA) countries have generally been described as underdeveloped, risk averse, highly concentrated in urban areas, and skewed against the poor, women and youth (Kauda, 2019). However, financial access in terms of banking outreach in the region has been slow but progressive. Channels of delivery of basic financial services slowly increased from about 1 per 1,000 adults in 2006 to 5 per 1,000 adults in 2018 (World Development Indicators, 2019). Also, records for geographical penetration of banking services showed that there is 1 bank branch per 1,000m^2 in sub-Saharan Africa (Ajide, 2017). However, most of these service outlets are located in urban areas. This implies that the 656 million rural households in the region have limited access to financial services.

Whilst deposit accounts increased by 42% between 2011 and 2014 in the region that of loan accounts was 25% in the same period (European Investment Bank, 2017). This indicates that credit inclusion in the SSA is still an issue of concern to policy makers. For example, figure 4 indicate that there has been a decline in the percentage of credit to GDP in the sub-continent. Records indicated that in 2006 loan account ownership stood at 59.8% of GDP. It picked at 60% of GDP in 2007 and declined to about 46% in 2018. This implies that there has been a 23% decline in the use of loan accounts the sub-continent. However, it is imperative to note that this decline may be as a result of varying levels of inclusive finance in the sub-continent. For example, inclusive finance in Mauritius, Kenya, South Africa and Nigeria stand between 60 and 80 percent, the proportion in Congo, Niger and Mozambique stand between 5 and 13 percent (Yah & Chamberlain, 2018).

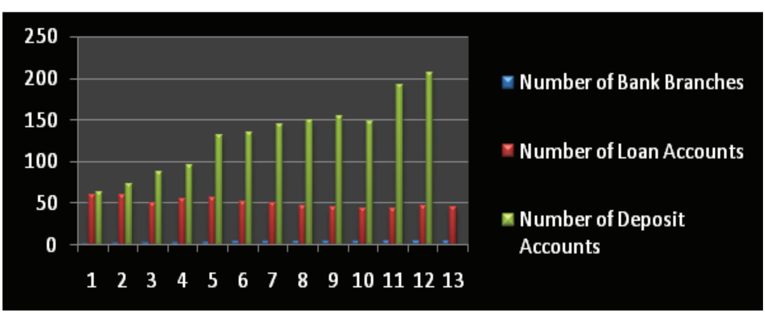

Figure 4: Comparing Indicators of Service Outlets, Loan Accounts and Deposit Accounts in SSA

Direct financing in the sub-continent is prevalent due to lack of breadth and depth in the financial system. This has caused financially excluded households, smallholder farmers and businesses to forcefully rely on informal networks, personal savings and retained earnings to pursue them.

As earlier stated, SSA has made slow but progressive efforts at integrating the adult population into the mainstream of the financial system. There has been gradual progression of account ownership, credit usage, mobile money services and savings in SSA, even as the sub-continent is not faring well in the drive for an inclusive financial system when compared with the progress made by other regions globally. However, in terms of mobile money services, the region is far ahead of all other regions globally. For instance, there was an 80% increase in the delivery of financial services via mobile money platforms in 3 years. That is, mobile money services increase from 11.6% in 2014 to 20.9% in 2017. Sub-Saharan Africa is by far the leading sub-continent in this regard. Two key success models that stood in the SSA region are: First, the M-PESA is regarded as low-cost, harmless platform for mobile payments and remittance of funds to rural areas in Kenyan, second, the Mzansi is a low-cost account for underprivileged households and businesses in South Africa.

Generally, lack of access to bank networks, bank runs, lack of formal education, financial illiteracy, low per capita income, excessive bank charges, and more are constraints to broadening access and usage of financial services in sub-Saharan Africa (Triki and Faye, 2013).

The Nigerian Experience

The level of cash outside the banking system typifies the complexity of financial exclusion in Nigeria. In the 1960s, the ratio fiat money in circulation to narrow money stood 61.1%, in the 70s it declined to 44.3% and later to 40.9% in the 80s (Kama & Adigun, 2013). The 90s saw the eroding of the integration efforts occasioned by banking distresses and the bank runs following it, caused the ratio to increase by 16.6%. Financial and economic reforms of the government drove word the ratio to 38.2% in 2005 (Kama & Adigun, 2013).

Irrespective of few setbacks, financial inclusion efforts in Nigeria have been slow but progressive. This is due to various policy interventions over the years. Some of these interventions are the establishment of the rural banking programme of 1977. The scheme was aimed at bring banking closer to the people via the spreading of banking service outlets to local council headquarters by commercial banks. This was aimed at ensuring that the scheme creates a platform for the savings and micro-finance activities in rural areas and further support households and small businesses (Okorie, 1990). The initiative increased the number of rural households, smallholder farmers and businesses into the access to banking services (Kama & Adigun, 2013). However, the expected impact of the programme on rural households was limited due to branching constraint occasioned by poor patronage.

To further consolidate on inclusion, the People's Bank and Community Bank was established in 1989 and 1990 respectively. The primary goal of the People's Bank was to ensure that financial products and services were fashioned specifically to meet the financial needs of the underprivileged households, smallholder farmers and businesses. The People's Bank was not like the traditional banking service provider, the bank's business model and methods of operations were not constrained by the banking rules (Babalola, 1991). The reason for this was to ensure that the bank would well position to meet financial needs of rural and poor households that are un-banked or underserved by the commercial banks. The bank was created to ensure that proximity to financial service providers were shortened, cost and non-cost related barriers were lessened, and financial products are design backed on their peculiarities. This led to 34.9% and 20.6% increase in penetrative reach in 1992 and 1994 respectively and an 887% increase in credit inclusion in 1990 (Kama & Adigun, 2013). However, the author stated at inefficiency due red-tapism led to the winding up of the bank.

One obvious drawback of the People's Bank was that the loan amount per borrower was limited, thus, the Community Banks bridged this limited funding gap on its inception in 1990 (Okoye & Okpala, 2001). Community banks are banks owned by a community or a group of communities to meet the savings and funding needs of rural households. They were built on the principles of communal ownership and self-sustaining community-based banks (Kama & Adigun, 2013; Okoye & Okpala, 2001). Community banks brought banking closer to the people, scaled up their savings habit and broadened acces to credit facilities in rural areas. Nine years after the licencing of CBs, deposit and loan accounts with the banks stood at N8.9 billion and N2.9 billion respectively. However, CBs failed dues to inadequate capital, inefficiency, credit mismatch and managerial incompetence.

To further enhance financial inclusion, the National Microfinance Policy was instituted in December, 2005. The policy established the legal and governance framework concerning licensing, minimum capital requirement and other operational guidelines for microfinance banking and other micro finance institutions in Nigeria (Central Bank of Nigeria, 2011). The mandate of the policy was to broaden access, mobilize funds from the informal sector, enhance financial service delivery and serve as a conduit to meet the short-term funding needs of households, smallholder farmers, micro and small businesses in Nigeria. The policy created two categories of MFBs. That is, those certified to operate in council areas and the state capital to enhance banking penetration and inclusion (Oladejo, 2011). Access to short-term loan accounts increased from N16 billion in 2006 by 322.5% in 2011 (Kama & Adigun, 2013).

The Microfinance policy guidelines were reviewed in 2011 to reposition and bridge gaps in financial inclusion caused by branch concentration in city centres, the ripple effects of the 2007/2008 global financial meltdown and the restructuring that followed in 2009 spurred the review exercise. This was aimed at strengthening institutional quality and capital requirement, encourage the inflow of funds to the microfinance sector and the speedy adoption and use of digital financial service delivery (Central Bank of Nigeria, 2011).

In order to properly integrate all idle funds informal financial system, in 2011, the Central Bank of Nigeria also instituted the non-interest banking scheme to create an inclusive banking environment for all faiths. Furthermore, in order to enhance penetrative react, the apex bank established cashless policy in 2012 to instill a culture of carrying out transactions without the fiat currency. This was followed by policy advisories to financial service providers to broaden point of service outlets, electronic banking and most recently; the apex regulator launched Central Bank Digital Currency (CBDC) which is code named eNaira.

Again, the Financial System Strategy (FSS 2020) provided another strategic boost to expand access and usage of financial products and service in Nigeria. The policy was a "holistic and strategic road map and framework for developing the Nigerian financial sector into a growth catalyst that will enable Nigeria be one of the largest economies by 2020" (Kama & Adigun, 2013: 20). The nucleus of the FSS 2020 was to enhance regulatory quality and further deepen the financial service industry to design variety of products, enhance remittance systems, inclusive credit and savings propensity that would propel the needed economic growth in the economy.

Consequently, penetrative reach, access and usage of financial services have been appreciative over the years due to the various interventions of regulators and the government.

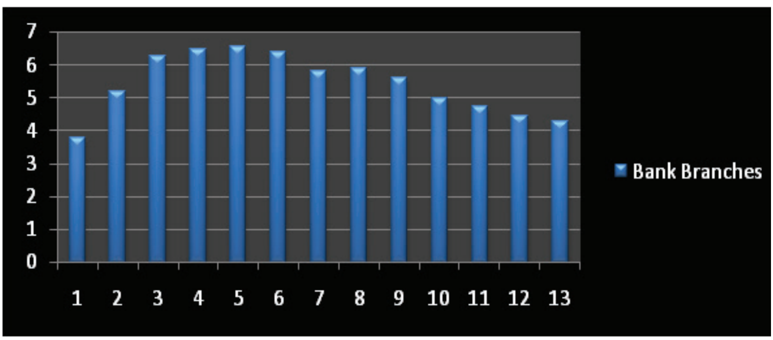

Figure 6: Bank Branch Spread

The spread of banking service outlets indicates that bank branches expansion pick in 2010 with 6.56 per 1,000 adults from a paltry number of 3.78 per 1,000 adults in Nigeria. This led to a remarkable increase in the ownership and usage of deposit accounts in the country (see figure 7). The decline started from 2011 to 6.40 to 5.81 in 2012 and down to 4.3 per 1,000 adults in 2018. These periods coincided with the commencement of electronic and mobile banking services via online real time channels. For instance, in 2011, the apex regulator gave operational charter to 14 mobile payment service banks (PSBs). The decline in penetrative reach may have been caused by the complementary role played by mobile banking and payment channels in the country.

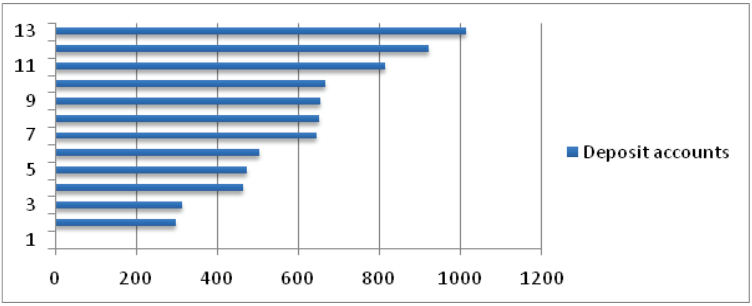

Figure 7: Number of Deposit Accounts

Account usage has been on a continuous rise irrespective of a decline in geographic penetrative reach. In 2007, deposit account usage with conventional banks or with mobile money service providers was 296.1495 (% of adult population). Irrespective of the global financial meltdown, there was a 48.9% increase in account ownership from 2008 to 2009. It further rose to 472.6091 accounts in 2010 and progressively picked to about 1013.28 accounts in 2018. This indicates an impressive increase in the number of people that could have access to navigate the repertoire financial services (like pension, insurance, remittances etc.) via their bank accounts. As earlier noted, account ownership is an integral indicator of the level of financial inclusion in a nation.

Nigeria has made tremendous progress in the area of credit inclusion. However, there has been periods of setbacks caused by possible external shocks on credit instruments in Nigeria.

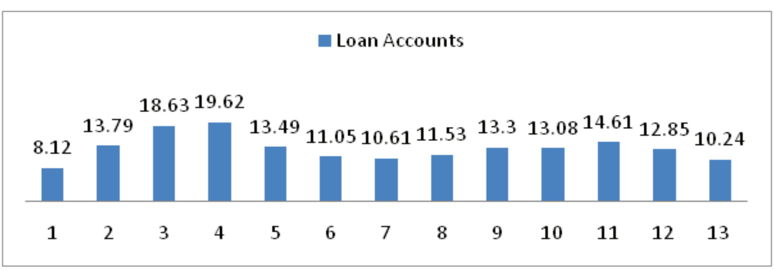

Figure 8: Loans Accounts (% GDP)

The percentage of loan to GDP in 2006 was 8.12%. It gradually rose and picked at 19.2% in 2009 and sharply declined to 13.49% the following year with oscillations from 2012 down to 2015. It picked at 41.61% in 2016 and declined to 10.24% in 2018. This portends the need for stability and re-echoes the need to broaden access to credit to households, smallholder farmers, businesses and other private sector operators to capitalize on available investment opportunities to spur output, breed innovation, sustain well-paying jobs and better the living conditions of the people in the country.

How it can be Improved

Financial inclusion strives in a developed financial system. Thus, to accelerate the level of penetrative reach, access and usage of financial products and services, it is imperative to ensure that there are robust banking and nonbanking financial intermediaries designing and providing financial products and services that are affordable and suits the financial standing of the people. The poor and vulnerable groups have financial needs, to integrate them the products and serve offered by the formal financial system should be diverse enough to meet their peculiarities. This can be achieved by fostering a diverse financial system with large array of products and services according risk classes, level of literacy and economic status. Also, regulators need to institute a regulatory framework that would put into effect low-cost retail accounts via collaboration with small scale merchants.

Quality regulatory environment is an imperative. The goal of regulation is to ensure a conducive financial system that imbibes stability, soundness of financial interactions and relationships amongst the critical stakeholders. Regulators must form sound legal framework that permits the adoption of new business models that are aided by technology that would meet the needs of the target group. Regulators should be invested in promoting microfinance banking and institutions and any other policies that directly affects the unbanked and underserved. Policymakers and regulators need to ensure that set rules that promote sound financial interactions are adequately implemented.

It is virtually impossible to open service outlets in the remote areas that form large parts of the informal sectors. Thus, there is the need to leverage on technology to spread the penetrative outreach and enhance access to residents of these areas. The goal is to reduce their running cost, encourage a more effective payment system that supports their means of livelihood and scale up socio-economic inclusion. Leveraging on digital technologically innovative products that allows low income earners, small holder farmers and new business models access to funding options on virtual platforms based on their peculiarities would do a major dent on existing informal channels. There is the need to set up and monitors an effective and swift resolution of service failures and disruptions accompanying new financial technologies. It is on record that many financial service consumers have stopped the use of virtual systems due to dissatisfaction and the cumbersome and untimely resolutions of such issues. Efficient service delivery would improve usage.

Local savings and loan associations (LSLAs) are striving in remotes areas. They design savings and funding products that meets the needs of local households, smallholder farmers, petty traders and other participants in the informal sector. Thus, there is need for a regulatory framework and top tier banks collaborating with local merchants and agents in these areas to integrate them into the formal financial system. The role of the agents is to enlighten, train and leverage on virtual platforms like USSD service to integrate the LSLAs and their users into the financial system.

CONCLUSION

The chapter analyses the intersection between financial inclusions and sustainable development goals (SDGs) in sub-Saharan Africa (SSA). The chapter made four arguments. First, it argues that to accelerate penetrative reach, access and usage of financial products and services, a robust financial system is imperative in designing products that suits the financial standing of the poor through large array of products according risk classes, level of literacy and economic status. Second, that to enhance access and achieve economic sustainability, financial service providers should leverage on innovative technologies that enhance access to low income earners and small holder farmers. It further argues the need to reduce service disruptions to avoid voluntary exclusion. Third, regulators should form sound legal framework that permits the adoption of new business models aided by technology that would integrate the poor and vulnerable in the society. Fourth, the chapter argues the need for top tier banks to collaborate with local merchants in rural areas to integrate local savings and loan associations (LSLAs) into the financial system. The role of the agents is to train and leverage on virtual platforms. In conclusion, the chapter concludes that a robust financial system with an adequate and sound regulatory environment can spur financial usage and the attainment of sustainable development goals in sub-Saharan Africa.

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2

Financial Inclusion among The Urban Poor: Pathways Towards Vikshit Bharat@2047

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ABSTRACT

"Viksit Bharat@2047" envisions India as a developed nation by its centenary of independence, emphasizing inclusive and equitable growth across all sectors. This paper examines financial inclusion as a pivotal mechanism for empowering the urban poor, addressing their economic disparities, and advancing sustainable development. It identifies the barriers impeding access to formal financial services for marginalized urban populations and proposes actionable strategies for fostering their integration into the formal financial system. Key measures include the adoption of digital financial technologies, targeted initiatives to enhance financial literacy, improved access to affordable credit, and the establishment of robust partnerships between government bodies, financial institutions, and technology providers. By addressing these multifaceted challenges, financial inclusion emerges as a transformative catalyst for poverty alleviation, especially for urban poor, improvinglivelihoods, and contributing significantly to an inclusive and developed India by 2047.

Keywords: Developed India; Financial Inclusion; Inclusive Growth; Urban Poor; Vikshit Bharat.

INTRODUCTION

The vision of "Viksit Bharat@2047" delineates an ambitious roadmap for India to emerge as a developed nation by the centenary of its independence, with a projected economy of USD 30 trillion and per capita income of USD 14,000-18,000. This

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framework underscores the importance of inclusive and equitable growth as a cornerstone of national progress, seeking to uplift marginalized populations and bridge socio-economic divides. Among the various pathways, financial inclusion emerges as a key driver for reducing poverty, fostering equitable development, and enhancing the quality of life for marginalized populations.

Financial inclusion, defined as the process of ensuring access to affordable, timely, and adequate financial services to all segments of society, holds transformative potential in reducing income inequalities and fostering economic empowerment. By integrating marginalized populations into the formal financial ecosystem, financial inclusion facilitates access to credit, savings mechanisms, insurance, and investment opportunities. These benefits not only enhance individual and household resilience but also contribute to broader economic growth and stability.

Urban poverty, characterized by limited access to resources, informal employment, and precarious living conditions, presents a significant challenge to India's developmental aspirations. The urban poor, despite residing in areas of economic activity, often face systemic barriers to financial access, such as inadequate documentation, limited financial literacy, and digital exclusion. Addressing these barriers is imperative to ensure that the benefits of economic growth are equitably distributed and to create a more inclusive urban economy.

This study aims to examine the role of financial inclusion in empowering the urban poor and its implications for achieving the "Viksit Bharat@2047" vision. It identifies the key challenges marginalized urban populations face in accessing formal financial services and explores actionable strategies to overcome these hurdles. By analyzing existing policies, interventions, and innovative approaches, this study seeks to contribute to the discourse on financial inclusion as a catalyst for inclusive development, aligning with India's long-term developmental objectives.

Objectives of the Study

- To identify and analyze the barriers to financial inclusion faced by the urban poor.
- To explore opportunities and strategies for enhancing financial access among urban poor households.
- To identify and align financial inclusion initiatives by the Government with the vision of "Viksit Bharat@2047."

REVIEW OF LITERATURE

The concept of financial inclusion has emerged as a critical focus area in addressing economic inequality and fostering inclusive growth. Although considerable attention has been directed toward rural financial inclusion, the urban poor constitute a distinctive demographic with unique challenges and opportunities. This review synthesizes recent scholarly contributions to understand the determinants, barriers, and transformative potential of financial inclusion among urban poor populations in India**.**

Rajeev & Vani (2017) identified key socio-economic determinants of financial inclusion among urban poor populations in India. Their research highlights that income levels, education, and employment status significantly influence access to formal financial services. Lower-income groups and individuals with limited educational attainment face pronounced exclusion, necessitating targeted policy interventions to address these specific vulnerabilities. This underscores the importance of designing inclusive financial policies tailored to the needs of urban marginalized communities.

Empirical evidence indicates that financial inclusion positively impacts the socio-economic well-being of the urban poor. **Serrao, Sequeira, and Varambally (2021)** examined the socio-economic implications of financial inclusion for vulnerable urban households in Karnataka. Their findings suggest that access to formal financial services correlates with improved income levels, reduced poverty, and enhanced economic resilience. These outcomes reinforce the argument that financial inclusion serves as a key driver of socio-economic mobility and sustainable urban development.

The Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households, also known as the **Nachiket Mor Committee (2013),** provided a comprehensive framework for financial inclusion in India. The committee emphasized the importance of specialized financial products and institutional mechanisms tailored to the needs of low-income households and urban poor populations. Key recommendations included the establishment of differentiated banking models, enhanced use of technology, and targeted policy interventions to bridge existing gaps in financial access.

Despite progress in financial inclusion initiatives, significant barriers persist. **Chakrabarty (2013)** identified critical challenges, including inadequate financial literacy, limited availability of context-specific financial products, infrastructural deficiencies, and a lack of trust in formal financial institutions. These barriers highlight the need for coordinated efforts by policymakers, financial institutions, and technology providers to create an enabling ecosystem for financial inclusion.

The existing literature underscores the multidimensional nature of financial inclusion among the urban poor in India. Key determinants, such as income, education, and digital adoption, intersect with systemic barriers, including infrastructural constraints and limited financial literacy. While the adoption of digital financial services represents a promising pathway to inclusion, the realization of equitable access requires robust policy frameworks, public-private collaboration, and sustained efforts to address socio-economic disparities. This body of research highlights financial inclusion not only as an economic imperative but also as a critical enabler of inclusive and sustainable development for India's urban poor.

Methodology

The study employs a conceptual framework based on secondary data, including government reports, academic articles, and policy documents. It critically examines existing financial inclusion initiatives and identifies gaps and opportunities to enhance their impact.

CHALLENGES THAT IMPEDE URBAN POOR IN ACCESSINGFORMAL FINANCE

The urban poor face a multitude of challenges that impede their access to formal credit systems. These challenges are rooted in structural, institutional, and socio-economic barriers, which create significant obstacles to financial inclusion. These include-

Absence of Formal Documentation

A significant proportion of the urban poor lack essential documentation such as identification proof, income statements, and collateral, which are prerequisites for accessing formal credit. This structural limitation excludes them from engaging with formal financial institutions **(Karmakar, 2008).**Consequently, many individuals are forced to rely on informal lending sources that often impose exorbitant interest rates and unfavorable terms, further entrenching their financial vulnerability. This cycle of exclusion perpetuates poverty, as individuals struggle to build credit histories or secure loans that could help them invest in education, healthcare, or small businesses. As a result, breaking this cycle requires targeted interventions that not only facilitate access to formal documentation but also promote financial literacy and inclusion among the urban poor. These interventions must also involve collaboration between government agencies, non-profit organizations, and financial institutions to create a supportive ecosystem that empowers individuals with the tools and resources necessary for economic advancement.

Information Asymmetry

The lack of awareness about available financial products and services contributes to the exclusion of the urban poor from formal credit markets. This information gap exacerbates financial illiteracy, further limiting access to formal financial systems (Banerjee & Duflo, 2011).

Perceived Credit Risk

Formal financial institutions often perceive lending to the urban poor as inherently risky due to their irregular income streams and lack of verifiable credit histories. This perception leads to restrictive lending practices, further marginalizing these communities (**Morduch, 1999)**.

Low Levels of Financial Literacy

Limited understanding of financial products, including credit mechanisms, repayment structures, and interest rates, hinders the ability of the urban poor to navigate formal financial systems effectively.

High Transaction Costs

The urban poor often face significant transaction costs when accessing formal credit. These include lengthy application processes, high travel expenses due to limited proximity to financial institutions, and indirect costs associated with procedural delays **(Beck et al., 2007)**.

Social and Gender Inequalities

Marginalized groups within urban poor communities, such as women and socially disadvantaged classes, face systemic barriers, including gender-based discrimination and social exclusion, which limit their access to formal credit **(Mayoux, 2001).**

Inadequate Financial Infrastructure

The limited presence of formal financial institutions in low-income urban areas reduces the accessibility of formal credit for urban poor populations. This infrastructural inadequacy further exacerbates financial exclusion **(Cull et al., 2009).**

Dependence on Informal Credit Sources

The urban poor often rely on informal credit providers due to their accessibility, flexible repayment terms, and absence of formal requirements. However, this reliance perpetuates financial exclusion by reducing engagement with formal financial systems **(Rutherford, 2001)**.

These challenges collectively underscore the systemic and structural barriers that limit the financial inclusion of urban poor populations. Addressing these barriers requires targeted policy interventions, enhanced financial literacy programs, and the expansion of financial infrastructure in low-income urban areas.

PROSPECTS AND STRATEGIES

- **Digital Financial Services**: Leveraging UPI, mobile banking, and fintech platforms to provide easy and affordable financial access.
- **Enhancing Financial Literacy**: Conduct awareness campaigns and workshops to educate urban poor households on financial products and services.
- **Affordable Credit Mechanisms**: Promoting microfinance institutions, SHGs, and cooperative banks to extend low-cost credit.
- **Policy Support**: Strengthening policies like PMJDY and introducing new schemes focused on urban poverty alleviation.
- **Public-Private Partnerships**: Encouraging collaboration between governments, financial institutions, and technology providers to expand financial outreach.

- **Women-Centric Initiatives**: Tailoring financial products for women and fostering women-led SHGs to boost their economic empowerment.
- **Financial Inclusion Infrastructure**: Establishing banking correspondents and kiosks in underserved urban areas.
- **Incentivizing Savings**: Offering subsidies and incentives to encourage savings among urban poor households.

GOVERNMENT INTERVENTIONS FOR URBAN POOR'S WELFARE

The government of India has undertaken various interventions to ensure the urban poor have access to formal financial systems. These include:

1. **Pradhan Mantri Jan Dhan Yojana (PMJDY)**: This flagship financial inclusion program aims to provide every household with access to a basic bank account, debit card, and affordable credit facilities. Over 500 million accounts have been opened under PMJDY, with a significant proportion belonging to urban poor households.
2. **Direct Benefit Transfers (DBT):** DBT schemes ensure that subsidies and welfare benefits are transferred directly to beneficiaries' bank accounts, reducing leakages and enhancing financial inclusion.
3. **Digital Payments Ecosystem**: Initiatives like Unified Payments Interface (UPI), Aadhaar-enabled Payment Systems (AePS), and mobile wallets have revolutionized access to digital financial services for the urban poor, making transactions easier and more affordable.
4. **National Urban Livelihoods Mission (NULM)**: NULM aims to reduce urban poverty by providing skill training, entrepreneurship opportunities, and access to affordable credit for self-employment ventures.
5. **Microfinance and Self-Help Groups (SHGs)**: The government supports microfinance institutions and SHGs to provide small loans and savings options to urban poor communities, fostering financial independence.
6. **RBI Guidelines on Small Finance Banks (SFBs)**: Small Finance Banks have been established to extend financial services to underserved populations, including the urban poor, by offering savings accounts, credit, and insurance products.

7. **Financial Literacy and Awareness Campaigns**: The government collaborates with financial institutions to conduct workshops and awareness drives, educating the urban poor about the benefits and usage of formal financial services.
8. **Affordable Housing Schemes**: Programs like Pradhan Mantri Awas Yojana (PMAY) include components that link beneficiaries to banking services, ensuring access to credit and financial management tools.
9. **Credit Guarantee Schemes**: These schemes reduce the risk for financial institutions, encouraging them to lend to urban poor households and small businesses.
10. **Urban Cooperative Banks and Banking Correspondents**: These institutions play a crucial role in extending banking services to slum areas and informal settlements.

CONCLUSION

Financial inclusion serves as a cornerstone for achieving the "Viksit Bharat@2047" vision by empowering the urban poor with the tools to break the cycle of poverty and build sustainable livelihoods. Addressing barriers such as financial literacy, documentation challenges, and digital access is imperative. By fostering innovation, reinforcing policies, and strengthening public-private partnerships, India can unlock the potential of its urban poor, paving the way for inclusive and sustainable growth.

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3

Financial Inclusion as a Pathway to Poverty Alleviation: A Case Study of Assam

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ABSTRACT

Poverty is broadly understood as a condition in which individuals or communities lack adequate resources to secure their minimum well-being, often measured through income or consumption. Beyond material deprivation, poverty also embodies insecurity, exclusion, and powerlessness. Recognizing poverty as a persistent social curse, successive governments in India have implemented a range of measures aimed at its alleviation. These initiatives have yielded some success, particularly in reducing poverty measured by the headcount ratio. However, the situation remains concerning in regions like the Barak Valley of Assam, where development has not kept pace. As per the Directorate of Economics and Statistics, Assam (2013), over 88.53% of the population in Barak Valley resides in rural areas, with only 12.83% recorded employment on the last working day—highlighting chronic underemployment and rural distress.

In this context, the present study examines poverty reduction strategies with a specific focus on the role of financial inclusion in the state of Assam. The lack of large-scale industries, persistent infrastructural constraints, and geographical isolation further hinder economic progress in the region. Agriculture remains predominantly traditional and seasonal, limiting productivity and income generation. Given these challenges, the structure of rural poverty in Barak Valley appears distinct from other more developed regions of the state, demanding a more nuanced and targeted approach to poverty alleviation.

This study, based on secondary data analysis, emphasizes the importance of financial assets and inclusive financial services in addressing rural poverty. It seeks to contribute toward crafting effective and region-specific

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policies that align with the demands of a knowledge-driven economy. The findings are expected to serve as a valuable input for policymakers and development practitioners in designing comprehensive strategies to eliminate poverty in Assam and similar backward regions.

***Keywords**: Assam, Poverty, Financial Inclusion, Financial Asset.*

INTRODUCTION

Poverty, a condition marked by a lack of sufficient resources to ensure minimum standards of well-being—typically measured through income or consumption—is a complex and multidimensional phenomenon. Despite numerous attempts to define it, poverty remains elusive due to its diverse manifestations across regions and social groups. Traditionally, it has been understood through the lens of a 'poverty line', a threshold that bifurcates the population into the 'poor' and the 'non-poor' based on income or consumption levels. However, such a static and often reductionist view fails to capture the nuanced experiences of deprivation that include not only economic insufficiency but also social exclusion, powerlessness, and insecurity (Sen, 1999; Alkire& Foster, 2011).

In this context, policy makers have traditionally focused on measurements of absolute and relative poverty. Yet these measures often present a retrospective snapshot, failing to account for the dynamics and fluidity of poverty over time. To address this gap, recent research has introduced more dynamic conceptual frameworks such as chronic and transient poverty, as well as structural and stochastic transitions in poverty status (Hulme& Shepherd, 2003; Baulch&Hoddinott, 2000). Chronic poverty refers to households that remain persistently poor over extended periods, while transient poverty denotes households that fall into poverty intermittently. Structural transitions are driven by long-term shifts in assets or capabilities, whereas stochastic transitions arise from unpredictable events—both positive (e.g., seasonal income booms) and negative (e.g., floods, market shocks).

This dynamic perspective is particularly relevant in the context of Assam, a state marked by unique geographical, socio-economic, and institutional challenges. Characterized by its remoteness, underdeveloped infrastructure, and vulnerability to natural disasters such as floods, Assam's rural economy largely depends on agriculture—an occupation that remains seasonal and predominantly traditional in nature. These features render the structure of rural poverty in Assam distinct from more economically advanced regions of the country (Planning Commission, 2014; NABARD, 2020).In Assam, the absence of large-scale industrialization and limited non-farm employment opportunities further exacerbate poverty. Many households remain asset-poor and highly susceptible to external shocks, placing them at the intersection of both structural and stochastic poverty. Consequently, poverty alleviation strategies in the state cannot adopt a one-size-fits-all approach. Structurally poor households may require long-term asset-building initiatives, while those facing stochastic poverty may benefit more from social protection mechanisms like insurance and emergency credit.

Amid these conditions, financial inclusion—the provision of affordable, accessible, and appropriate financial services—emerges as a crucial instrument for poverty reduction. Access to savings, credit, insurance, and payment systems can enhance household resilience, promote productive investment, and reduce vulnerability to income shocks. However, despite national-level efforts such as the PradhanMantri Jan DhanYojana (PMJDY), the penetration of financial services in Assam, particularly in rural and marginalized communities, remains inadequate (RBI, 2022; World Bank, 2021).

Against this backdrop, the present study seeks to analyze the current poverty reduction strategies in Assam with a particular emphasis on the role of financial inclusion. It aims to evaluate how dynamic concepts of poverty—chronic, transient, structural, and stochastic—can inform more nuanced and effective policy interventions. Understanding the link between financial asset access and rural poverty alleviation is essential for designing region-specific, sustainable, and inclusive development programs tailored to the distinct socio-economic realities of Assam.

OBJECTIVES OF THE STUDY

(i) To critically evaluate the existing strategies for poverty reduction; and

(ii) To assess the status and challenges of financial inclusion and asset-based measures in the context of poverty alleviation.

Data Source and Methodology

The present study is based on secondary data. Relevant information has been gathered from a wide range of sources, including scholarly articles published in both e-journals and print journals, government survey reports, and the Economic Survey Report of Assam (2011). In addition, key texts on the Indian economy have been reviewed to provide contextual insights.

To enrich the analysis, publications such as the NEDFi Data Bank, Yojana, and other reputed journals were examined. These sources have been instrumental in shaping the understanding and direction of the study, particularly in relation to poverty reduction strategies and the role of financial inclusion.

POVERTY REDUCTION STRATEGIES IN ASSAM: AN OVERVIEW

Efforts to alleviate poverty in India—rooted in early post-independence studies by Ojha, Bardhan, Minhas, Ahluwalia, Dandekar & Rath, Tendulkar, and others—have shaped our understanding of poverty estimates and trends. While some noted declines in rural poverty (e.g., Minhas, 1956–68), others observed either stability or increases, highlighting methodological variances among researchers.

(i) National-Level Evolution

Economists generally concern that rising economic growth and poverty-alleviation schemes have steadily reduced the percentage of people below the poverty line. However, the absolute number of poor people rose due to population expansion (Datt & Sundharam, 2015).

(ii) Assam's Trajectory

Recent data from the NITI Aayog's Multidimensional Poverty Index (MPI) paints a remarkably optimistic picture of Assam's progress: MPI headcount declined from 36.97 % (2013–14) to 14.47 % (2022–23), Over 80 lakh people emerged from multidimensional poverty during this span and notably, Assam ranked 7th among Indian states in reducing MPI, falling from 32.65 % (2015–16) to 19.35 % (2019–21)—lifting nearly 47 lakh individuals.

(iii) District-Level Dynamics

Improvements have been widespread, though uneven:

Rural-to-urban MPI fell from 36.14 % to 21.41 %, while urban areas dropped from 9.94 % to 6.88 %

In Barak Valley, traditionally impoverished regions remain vulnerable: Hailakandi (~51 % MPI), Cachar (~42 %), Karimganj (~46 %)

(iv) Poverty Alleviation Initiatives

Building on national schemes since the Fifth Plan, Assam implemented its own interventions:

- Orunodoi financial-aid scheme
- Free foodgrain distribution under NFSA
- Subsidized medical care & medicines
- Housing, water supply, and sanitation improvements

These have directly contributed to reducing poverty in both rural and urban regions.

(v) Continuing Challenges

Despite progress, Assam's MPI rate (14.47 %) still surpasses the national average of 11.28 %, indicating remaining gaps.

High poverty persists in Barak Valley districts and among marginalized groups like tea-garden workers, who continue to face low literacy, poor living conditions, and limited access to basic services.

Assam has made notable progress in reducing poverty over the last decade, with significant reductions in the Multidimensional Poverty Index (MPI). This document provides a summarized overview of Assam's poverty reduction trajectory, highlighting key statistics and ongoing challenges.

Table 1: Multidimensional Poverty Reduction in Assam (2013–14 to 2022–23)

Indicator	Value
MPI (2013–14 → 2022–23)	From 36.97% to 14.47%
People lifted out of poverty	Over 80 lakh
Assam vs. India MPI (2022–23)	14.47% vs. 11.28%
Ranking among Indian states in MPI reduction	7th
Urban MPI reduction	From 9.94% to 6.88%
Rural MPI reduction	From 36.14% to 21.41%
High-poverty districts (e.g. Hailakandi, Karimganj)	Above 40–50% MPI

Source: *NITI Aayog – National Multidimensional Poverty Index (MPI) Reports (2013–14, 2022–23)*

From the above table it is clear thateven though Assam has achieved significant poverty reduction through economic growth and targeted welfare schemes. Yet progress is uneven, with certain regions and vulnerable communities still lagging. Continued efforts in financial inclusion, local capacity building, and tailored programmes are essential to bridge the remaining gaps.

Poverty reduction and inclusive growth measures

To address the persistent issue of poverty, the government has undertaken a series of measures over time, guided by the recommendations of various studies and expert committees. Among the key strategies, two approaches stand out: (i) expanding sectors with high potential for labor absorption, and (ii) empowering the poor through education, skill development, and improved healthcare. These initiatives are essential for enabling individuals to rise above the poverty line.

In particular, since the Eleventh Five Year Plan, greater emphasis has been placed on the concept of inclusive growth—ensuring that development benefits reach all sections of society, regardless of caste, religion, or community. Recognizing that inclusiveness is a multi-dimensional goal, growth strategies must aim not only to reduce the incidence of poverty but also to enhance access to quality education, vocational skills, and health services, thereby fostering sustainable and equitable development.

In light of these considerations, several legislative measures have been implemented to uplift the deprived sections of society. Accordingly, the central government has launched a number of key programmes, some of which are listed below.

Table 2: List of Programmes Launched by Central Government with the Objective of Inclusive Growth

Programme	Ministry/Department
MGNREGA, PradhanMantri Gram SadakYojana (PMGSY) etc.	Rural Development
Indira AwasYojana (IAY)	Rural Development
SGSY, National Social Assistance (NSAP)	Rural Development
NRHM, JananiSurakshaYojana etc.	Health and Family Welfare
AamAdmiBimaYojana, RashtriyaSwasthaBimaYojana, PMSSY, etc.	Social Welfare
ICDS, Rajiv Gandhi Scheme for Empowerment of Adolescent Girls, Integrated Child Protection Scheme, BalBandhu Scheme, Rashtriya Mahila Kosh etc.	Women and Child Development
Mid-Day Meal, SSA, Saakshar Bharat	School Education and literacy
Accelerated Irrigation Benefit Programme, Water Resource Programme etc.	Water Resources
Rajiv Gandhi Gramin Vidyutjyoti Karan Yojana	Power
Rajiv Gandhi Drinking Water Mission, Total Sanitation Programme etc.	Drinking Water and Sanitation
RashtriyaKrishiVikashYojana	Agriculture and Cooperation

Source: *Purkayastha, G., Dynamics of Indian Economy, p-464*

It is evident from the above table that the government has undertaken inclusive measures aimed at eradicating poverty, with notable progress observed by the end of the Eleventh Five Year Plan. For example, the proportion of the population living below the poverty line declined at an average rate of 1.5 percentage points per year between 2004–05 and 2009–10. Supporting this trend, the Asian Development Bank acknowledged the inclusiveness of India's growth, stating: "Growth in India has been inclusive… in 1984, more than half of the population (56%) lived on less than $1.25 a day, but by 2010 the share had declined to 33%" (Purkayastha, 2015).

RECENT INITIATIVES FOR FINANCIAL INCLUSION IN INDIA

Since the Eleventh Five-Year Plan, the Government of India has significantly advanced financial inclusion as a pivotal tool in reducing poverty under its broader inclusive growth agenda. Despite national-level progress—where about 58.7% of households had bank accounts during the Twelfth Plan—Northeastern states continue to lag. Multiple studies highlight that over two-thirds of the region's population lacked access to formal financial services, even decades after bank nationalization. The key financial inclusion initiatives are as under:

Swabhiman (launched February 10, 2011)

Introduced branchless banking through Business Correspondents ("Bank Saathi") to offer essential services like deposits, withdrawals, and remittances in rural location.s

PradhanMantri Jan Dhan Yojana (PMJDY) (launched August 28, 2014)

Designed to eliminate financial exclusion, the program aimed to reach every adult in India and tackled what PM Modi called the "financial untouchability" of the poor. On its inaugural day, approximately 1.5 crore accounts were opened.

As of January 15, 2025, over 54.58 crore bank accounts have been opened, with 55.7% held by women.

More than 13 lakh Banking Correspondents (BCs) and 107 Digital Banking Units (DBUs) support remote access to services.

The scheme offers zero-balance accounts, RuPay debit cards, ₹2 lakh in-built accident insurance, and OD facilities up to ₹10,000.

Table 3: Financial Inclusion Progress under PMJDY (As of February 2025)

Indicator	Value
Total Accounts	54.97 crore
Deposit Balance	₹2,52,750 crore
Women Account Holders	30.60 crore (55.7%)
Rural/Semiurban Accounts	36.59 crore (66.6%)
RuPay Debit Cards Issued	37.60 crore

Source: *Source: NITI Aayog – National Multidimensional Poverty Index (MPI) Reports*

Regional Disparities: Northeast & Assam

As of 2018, only about 18.3% of individuals in the Northeast had access to bank or post office accounts; mere 5.95% had formal credit.

The region struggles with poor delivery, low financial literacy, and limited uptake of products beyond basic savings accounts; surveys report ~32% unaware of any financial services other than savings accounts

A focused study of Assam (2007–08 to 2018–19) confirms that, although account access has improved, usage remains low and operational value (such as timeliness and flexibility of service) still lags behind the national average.

Under its inclusive growth strategy, India has dramatically scaled up financial inclusion—especially through PMJDY—effectively providing basic banking access to hundreds of millions, with robust female participation. Yet, significant gaps persist in the Northeast and Assam. The challenge now lies in transforming mere access into active, meaningful usage—via enhanced literacy, localized services, and flexible financial products—to truly empower the economically disadvantaged.

SIGNIFICANCE OF FINANCIAL ASSETS IN POVERTY REDUCTION ANALYSIS

Defining Asset Poverty

Assets—tangible (e.g., land, livestock, productive units) or intangible (e.g., education, health)—play a crucial role in household welfare. Households that lack sufficient assets to generate income are considered asset-poor. When a household is both asset-poor and income-poor, they are deemed structurally poor. Conversely, if a household has income below the poverty line but their assets suggest welfare above the asset-poverty threshold, they are classified as stochastically poor.

Why Assets Matter

Financial and physical assets stabilize consumption and cushion households during income shocks like job loss or illness. While income provides short-term sustenance, assets secure longer-term resilience, enabling decisions such as waiting for better job opportunities or continuing education for children.

Assets and Economic Freedom

Sen's "assets for development" framework argues that individuals can effectively shape their own destiny only if they have adequate social and economic opportunities . Empirical studies also confirm that asset-building enhances household capabilities, reduces inequality, and strengthens communities.

Stabilizing Effect during Hardship

Assets are especially potent during economic stress. They prevent low-income households from resorting to harmful coping mechanisms and unsustainable debt. For example, savings may allow a parent to keep a child in school during periods of unemployment.

Financial Inclusion as a Strategy

Financial inclusion—providing access to formal banking and financial services—directly supports asset accumulation, reducing both vulnerability and poverty.

A systematic review found that expanded access to finance reduces poverty by enabling consistent saving and investment, particularly benefiting marginalized and low-income households.

Financial assets—particularly access to banking services irrespective of geographical boundaries—play a critical role in alleviating poverty. The assets for development framework, articulated by Sen (1999), asserts that individuals, especially those at the lower end of the socioeconomic spectrum, can only shape their futures effectively when they have access to adequate social and economic opportunities. In this context, asset building becomes a vital strategy for poverty and inequality reduction, as it enhances the capabilities of individuals and households, and extends benefits to the broader community (Attanasio & Székely, 2001; Paxton, 2001; Shapiro & Wolff, 2001; Sherraden, 1991; Weber & Smith, 2003).

Moreover, the value of assets becomes even more apparent during times of economic hardship. While income offers short-term financial security, it is susceptible to sudden loss due to events such as unemployment, illness, or family disruption. In contrast, assets provide a more stable and enduring safety net (Sherraden, 1991). For low-income households, assets can prevent the need to make short-sighted decisions that compromise long-term well-being. For example, a family with savings may afford to wait for a better job opportunity rather than accepting immediate, low-quality employment, or continue to fund a child's education during temporary unemployment (Siegel & Alwang, 1999).

Asset ownership, even at a modest level, significantly expands the choices available to a household in crisis. It mitigates vulnerability, sustains investment in human capital, and offers protection against economic shocks. As such, financial assets—including savings, credit access, and insurance—are foundational to building resilience and enabling sustained upward mobility. This underscores the indispensable role of financial inclusion and asset accumulation in any effective and enduring poverty reduction strategy.

CHALLENGES IN IMPLEMENTING FINANCIAL INCLUSION MEASURES

Despite the government's continuous efforts to alleviate poverty—particularly through initiatives like financial inclusion—a significant portion of the poor population remains outside the formal financial system. As observed at the end of the 11th Five-Year Plan, nearly 10 crore families were still excluded from banking services. Several structural and operational challenges hinder the effective implementation of these schemes:

(i) Low Income and Inability to Save

Many poor households simply do not earn enough to maintain savings or deposits in formal financial institutions. Their immediate economic survival takes precedence over long-term financial planning.

(ii) Perceived Burden of Banking Procedures

Financially vulnerable groups often view banking systems as burdensome. The formalities, documentation, and technicalities involved in transactions are seen as harassing and unnecessary, discouraging participation.

(iii) Barriers to Account Opening

Procedural difficulties, including the requirement of multiple documents and identification proofs, make opening a new bank account a complex and frustrating task for the economically weaker sections.

(iv) Lack of Trust in Bank Officials

There is widespread distrust toward banking personnel among poor communities. Past experiences of mistreatment or misinformation have led to a perception that bank officials are not supportive of their needs.

(v) Bureaucratic Red-Tapism and Low Transparency

Administrative inefficiencies, excessive paperwork, and a lack of transparent processes in financial institutions deter poor individuals from engaging with banks.

(vi) Lack of Awareness

A significant section of the target population remains unaware of the financial schemes or government-supported initiatives due to inadequate outreach, poor communication strategies, and language or literacy barriers.

(vii) Illiteracy and Financial Ignorance

Widespread illiteracy, especially financial illiteracy, makes it difficult for individuals to understand the benefits of banking, savings, credit, or insurance products.

(viii) Present-Oriented Thinking

Individuals from economically weaker sections often prioritize immediate needs over future gains. The lack of a safety net forces them to focus on short-term survival rather than long-term financial planning.

(ix) Insufficient Banking Infrastructure

There is a noticeable gap between the demand for banking services and the availability of bank branches, particularly in rural and remote areas. This limited access continues to exclude large populations from financial services.

CONCLUSION

We cannot sustain islands of prosperity amidst oceans of poverty and deprivation. It is essential to grasp the nuanced objectives, instruments, and complexities of the development process to reduce poverty effectively. As Pranab Mukherjee emphasized, economic prosperity must extend to all, not remain a privilege of a few. He asserted that "the benefits of economic prosperity must reach all sections of society", underscoring that inclusive growth must be more than a slogan. This call to action remains as relevant today as it was in 2011.

Amartya Sen's framework in Development as Freedom further enriches this vision. He argues that true development requires expanding freedoms—political, economic, and protective—and ensuring transparency, human well-being, and participatory rights.

Mukherjee (2011) also highlighted the need to transcend dichotomies—People vs Poverty, Policy vs Politics, Tradition vs Transparency, Executive vs Execution, Goods vs Governance, Future vs Present—as a vital step toward societal progress. The challenge before contemporary society and governments is to foster development that:

- Prioritizes the well-being and empowerment of the poor.
- Strengthens community bonds and democratic governance.
- Elevates economic, social, and political freedom for all.

In sum, the path forward involves replacing conflict and dichotomy with cohesion and collaboration. Only then can we hope to replace the "oceans of poverty" with inclusive prosperity—ensuring that no one is left behind.

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4

Emotional Influences on SIP Investment Decisions: A Behavioural Finance Perspective

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ABSTRACT

This research paper examines how psychological factors, including fear and greed, influence investment decisions in Systematic Investment Plans (SIPs). Using a case study approach supported by quantitative data from structured MCQ responses, the study highlights the interplay of emotional influences and gender differences in shaping investment behaviors. The analysis from 150 responses indicates that fear during market downturns often prompts investors to pause or reduce their SIP contributions. In contrast, greed during market upswings encourages them to overinvest or chase short-term gains. Conversely, a majority of respondents reported that SIPs help in maintaining discipline and mitigating impulsive reactions, thanks to automatic periodic investments. Case studies further illustrate how gender roles can moderate these emotional biases: male investors often exhibit greater risk tolerance and optimism, while female investors show a tendency to prioritize caution and portfolio diversification. These insights suggest that while SIPs themselves act as a stabilizing mechanism against fear and greed cycles, tailored financial management strategies, such as diversified asset allocation, Start Early, Stay invested (Be consistent), Avoid premature withdrawal, and Avoid timing the market, are essential to strengthen long-term investment outcomes. By integrating emotional and gender considerations into investment planning, this study underscores the need for more holistic financial advisory practices that can better serve diverse investor profiles.

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Keywords: *Emotional Influences, Systematic Investment Plans (SIPs), Fear and Greed, Gender Differences, Case Study Approach, Financial Management Strategies.*

Research Question: *How do psychological factors of fear and greed influence investment decisions in Systematic Investment Plans (SIP), and what financial management strategies can mitigate their impact?*

INTRODUCTION

Investment is the art of gaining returns on the hard-earned money of an individual. Every investor wishes to reap the maximum of their funds invested, but the practical scenario is altogether different. In the objective of maximisation of returns, the individuals try exploring different investment portfolios such as investment in equities, investment in bonds, postal schemes, PF, PPF, investment in gold, investment in real estate etc., The risk elements in each of the investment plans vary with so many factors. The recent evolving trend in the investment market is the Systematic Investment Plan, popularly known as SIP, where the investor invests money in smaller amounts regularly for a longer time period. The SIPs are done through the mutual funds, which are highly promoted by the banks and financial institutions.

There are so many external factors that influence the return on investments such as economic conditions, market volatility, interest rates, tax implications, etc. Apart from these, there are internal factors that play a crucial role in the investment decisions.

Scott D. Cook once quoted - "If you cannot control your emotions, you cannot control your money!"

Theoretical Background

Investment decisions are shaped not only by financial data or market trends but also by how individuals emotionally respond to uncertainty. Traditional economic models assume rational behavior, but behavioral finance shows that psychological biases significantly influence investing—especially in long-term instruments like Systematic Investment Plans (SIPs). A key framework is Prospect Theory, developed by Kahneman and Tversky (1979), which proposes that individuals evaluate outcomes relative to a reference point, usually their current status or expectations. Crucially, people experience losses more intensely than equivalent gains—a phenomenon called loss aversion. This often leads investors to hold losing investments too long or avoid risk even when beneficial. In volatile markets, loss aversion can lead to fear-driven behaviors such as panic selling or stopping SIP contributions prematurely. Conversely, in rising markets, greed may cause impulsive increases in SIP amounts, chasing high returns, or abandoning diversification for risky options. These emotional reactions often undermine long-term wealth creation. Human behavior is also influenced by others; herd mentality describes individuals mimicking group behavior, assuming the group knows better. In investing, this can create bubbles or sell-offs disconnected from personal goals or fundamentals, causing collective irrationality.

Overconfidence bias—overestimating one's market understanding or timing ability—is another risk, especially with SIPs where consistency matters. Overconfidence can lead to frequent portfolio changes, impulsive withdrawals, or market timing, diluting rupee-cost averaging benefits. Together, these biases show how fear and greed interfere with rational investing.

Psychological theories explain why these emotions arise. Fear and greed are adaptive mechanisms rooted in the brain's management of uncertainty and threat. According to mood-as-information theory (Schwarz & Clore, 1983), emotions serve as decision-making cues amid ambiguity or information overload, common in financial markets. Fear signals potential loss, leading to risk aversion; greed signals opportunity, driving risk-taking. However, these cues can distort in high-stakes settings, causing irrational decisions.

Neuroeconomics highlights the amygdala's role in emotional processing, explaining panic selling or return chasing. During market crashes, emotional regulation can be overwhelmed, shifting decisions from deliberate reasoning to impulsive reactions. This aligns with dual-process theory, where under emotional pressure, people rely on fast, intuitive thinking (System 1) rather than slow, reflective reasoning (System 2). For SIPs—based on discipline and consistency—such emotional and cognitive disruptions threaten long-term planning.

This study investigates how internal emotions—greed and fear—impact investment decisions in SIPs and explores financial management strategies that may reduce these psychological influences, with the following objectives.

Objectives of the Study

- To identify the internal factors of an investor that impact their investment decisions in SIP.
- To understand the key role played by the psychological factors - Greed and Fear in making investment decisions through SIP.
- To evaluate the extent of the impact of these factors on investors when they are investing their money.
- To explore the financial management strategies that may help the investor to reduce the impact of these psychological factors.
- To understand the role of gender in the psychological factors influence toward the SIP.

REVIEW OF LITERATURE

A secured financial future doesn't happen by accident—it's built through clarity, discipline, and informed decision-making. Whether one is a seasoned investor or just starting out, the journey begins with learning how to save, where to invest, and how to balance risk and reward. One of the first key ideas is aligning investment types with individual risk appetite and financial goals. As outlined in Qian's (2023) work on *Management of Personal Finances and Investment Decisions*, effective financial planning includes not just choosing the right investment avenues, but also understanding behavioral tendencies, setting clear priorities, and revisiting strategies regularly. In other words, good financial decisions are as much about awareness and review as they are about numbers. This brings us to the increasing popularity of Systematic Investment Plans (SIPs), especially in the Indian financial landscape. SIPs help individuals invest small amounts on a regular basis, which not only instills a habit of saving but also reduces the stress of trying to "time the market." As per Investopedia, this method benefits from rupee-cost averaging, meaning investors purchase more units when prices are low and fewer when prices are high—automatically managing volatility without emotional intervention. The *Mutual Fund Sahi Hai* campaign emphasizes this advantage, calling SIPs one of the most accessible and disciplined ways for average Indians to grow wealth over time. Especially for new investors, SIPs offer a structured gateway into the financial markets. Traditional economic models assume that investors behave rationally, but real life tells a different story. Enter behavioral finance, a field that has redefined our understanding of why investors behave the way they do. This shift was significantly influenced by Kahneman and Tversky's (1979) *Prospect Theory*, which proposes that people perceive gains and losses differently—feeling the pain of a loss much more intensely than the joy of a similar gain. This is called loss aversion, and it plays a huge role in SIP-related decisions. During a downturn, even when logic suggests that continued investments could benefit from lower prices, fear may lead investors to stop their SIPs. On the flip side, during bullish markets, greed may tempt individuals to pour in more money, assuming the growth will last forever. This fear–greed pendulum is not just theoretical; it plays out every time markets swing dramatically. In a meta-analysis by Gyawali and Neupane (2024), a significant positive correlation was found between loss aversion ($r = 0.492$), regret aversion ($r = 0.401$), and overconfidence ($r = 0.346$) with poor investment choices. Investors, it turns out, respond not just to financial facts but to emotional triggers. Those who fear making wrong choices often delay necessary actions, leading to missed opportunities, whereas the overconfident chase trends, ignore professional advice, and take unnecessary risks.

Our minds often take shortcuts—known as heuristics—to manage uncertainty and information overload. While heuristics can be useful, they expose us to systematic errors or biases that cloud judgment. When investing, the emotional intensity of potential gains or losses activates deeper psychological responses that often bypass rational thinking. A study on heuristic biases at the Pakistan Stock Exchange (Rasheed et al., 2017) shows investors fall prey to representativeness bias (judging investments based on recent outcomes), anchoring bias (fixating on an initial reference point), and availability bias (overweighting recent or emotionally striking information). For example, after a crash, vivid memories of losses might dominate decisions even if conditions have improved.

Understanding these biases is not just academic—it's essential for protecting long-term wealth. In SIPs, where consistency and discipline are critical, these biases can derail even the best financial plans. An investor might pause contributions out of fear during dips (loss aversion) or dramatically increase contributions during a bull run (greed driven by representativeness bias), disrupting the rupee-cost averaging balance.

Investment decisions are inherently personal, shaped by emotions like fear and greed, and filtered through individual experiences, risk tolerance, and social influences. These emotional responses often amplify in volatile markets or unfamiliar environments, making them especially relevant for SIPs, which require long-term commitment and steady behavior.

A striking insight emerges from Sîrbu et al.'s (2019) multi-agent simulation, where greedy agents—driven by a strong pursuit of profit—contributed to market stability through persistent participation, whereas fearful agents—prone to panic selling—instigated greater volatility. This mirrors real-world behavior: fear during downturns leads to SIP withdrawals or pauses, undermining long-term wealth creation, while greed can lead to aggressive over-investment, abandoning the steady nature of SIPs.

Gender also emerges as a meaningful variable in emotional and financial decision-making. Qian's (2023) systematic review notes that men are more likely to show overconfidence, sometimes overestimating capabilities and chasing higher risks for potentially higher returns. Women, conversely, tend to seek more information, reflect longer, and adopt a more cautious approach, which may protect them from impulsive decisions but delay timely action. This divergence reflects not just biological or psychological differences, but broader social conditioning around money, confidence, and risk-taking.

In combining emotional drivers with demographic dimensions, the literature makes one thing clear: personal finance is not just about money. It's about managing human behavior in the face of uncertainty. The challenge is not merely to pick the "right" investment strategy but to stay grounded when emotion threatens to tip the scale.

METHODOLOGY

To investigate the impact of psychological factors—greed and fear—on investors during their SIP-related decisions, both primary and secondary data methods were employed. Primary data was collected through two channels: a structured Google Form survey and semi-structured personal interviews. The survey gathered quantifiable insights into investor behaviors, emotions during market fluctuations, and decision-making patterns. The interviews allowed for deeper, qualitative exploration of individual experiences, offering richer narratives and emotional contexts often missed in survey data.

For the case study component, four investors (two men and two women) were selected based on their consistent participation in SIPs. These individuals were deliberately chosen to reflect gender balance, enabling exploration of potential differences in how men and women approach risk, respond to volatility, and express financial emotions like fear and greed. Each case was analyzed in depth, considering financial habits, emotional responses to market shifts, and personal reflections on their investment journey.

In parallel, secondary data was sourced from peer-reviewed journals, meta-analyses, and behavioral finance frameworks to support and contrast the primary findings.

ANALYSIS AND FINDINGS

A sample of 150 active investors was identified through random sampling, and a survey was conducted via Google Forms. The primary data collection had two parts: 10 multiple-choice questions (MCQs) and three descriptive questions. The descriptive questions were only for respondents selected for the case study (2 men and 2 women).

The MCQs were designed to analyze investment experiences, other investments used, reactions to market drops and fear of losses, responses to high-performing mutual funds, handling investment losses, comparing returns with others, emotional reactions to others' profits, and continuing SIPs during volatile markets. These aimed to reveal how psychological factors like greed and fear impact investment decisions.

Investor Experience and Profile

A substantial majority of respondents (approximately 70%) reported having 1 to 3 years of experience in financial markets. About 15% indicated 7 to 10 years of experience, while the remaining participants had 3 to 5 years or more than 10 years of experience. This distribution suggests a predominance of novice to mid-level investors, with a relatively smaller proportion of seasoned investors.

Utilization of Investment Instruments

The majority of participants have engaged with stocks or equity mutual funds. Other popular investment alternatives include Fixed Deposits (FDs) and the Public Provident Fund (PPF). A smaller segment has experimented with cryptocurrencies or gold. This indicates that while Systematic Investment Plans (SIPs) are prevalent, there is a notable trend towards diversification in investment portfolios.

Response to Market Declines

Approximately 60% of respondents continue their SIPs as planned during market downturns, demonstrating discipline. Around 30% perceive market drops as opportunities to invest more, while a minor fraction tends to pause or redeem their SIPs due to fear. This behavior underscores the importance of investor education in managing emotional responses to market volatility.

Reaction to High-Performing Mutual Funds

When confronted with high-performing mutual funds, 40% of respondents seek advice before making changes to their investments. Another 30% prefer to adopt a wait-and-watch approach, while about 20% maintain their current SIPs. Approximately 10% may adjust their investments in pursuit of higher returns. This highlights the varying degrees of risk tolerance and decision-making processes among investors.

Impact of Market Loss Fears on SIP Continuation

A significant majority (~80%) have not halted their SIPs due to fears of market losses. Only a small proportion (~20%) admit to pausing their SIPs during periods of market volatility. This suggests that most investors recognize the importance of adhering to long-term investment strategies despite short-term market fluctuations.

Investment Behavior During Market Booms

Approximately 70% of respondents maintain their regular investment patterns regardless of market highs. The remaining 30% feel more confident during market booms and invest more. This indicates that while some investors may be influenced by market optimism, a majority adhere to consistent investment strategies.

Management of Investment Losses

About 50% of respondents hold on to their SIPs during periods of investment losses, demonstrating patience and a long-term outlook. Approximately 30% seek advice before reacting, while a smaller segment invests more to average costs, reflecting a positive approach towards managing losses.

Comparison of Returns with Peers

Half of the respondents focus on personal financial goals without comparing their returns to others. Around 30% do not discuss their investments with peers, while 20% feel influenced by peer comparisons, indicating a potential susceptibility to the fear of missing out (FOMO).

Strategies for Managing Emotional Investment Decisions

Approximately 40% of respondents rely on automated SIPs to maintain discipline in their investment decisions. Another 35% do not employ any specific strategy, highlighting a gap in active emotional management. This suggests a need for enhanced investor education on behavioral finance and the implementation of strategies to mitigate emotional biases.

Emotional Responses to Others' Investment Successes

Around 50% of respondents feel happy for others' investment successes but remain committed to their own plans. Approximately 30% experience anxiety, fearing missed opportunities, while 20% become excited and consider following similar investment paths, reflecting potential greed-driven impulses.

Reactions to Market Downturn News

A significant majority (~70%) review their portfolios but choose to stay invested during market downturns. Around 20% ignore short-term news and focus on long-term goals, indicating a preference for long-term investment strategies over short-term market movements.

Motivation to Continue SIPs During Volatile Markets

Approximately 60% of respondents believe in long-term growth, motivating them to continue their SIPs during volatile markets. About 20% are concerned about missing out on potential gains, while the remaining 20% may pause their investments due to fear of losses. This underscores the influence of emotional factors like greed and fear on investment decisions.

KEY FINDINGS

The study reveals that most investors show strong commitment to long-term strategies, especially Systematic Investment Plans (SIPs), even during market volatility. About 60% continue their SIPs as planned during downturns, and roughly 70% maintain regular investments regardless of market highs. Emotional factors like fear and greed affect some investors, causing them to pause SIPs or adjust investments chasing higher returns. Automated strategies, such as automatic SIP debits, help many reduce emotional biases. However, a significant number of investors lack active methods to manage emotional decisions, underscoring the need for better behavioral finance education. While diversification beyond SIPs is common, peer comparisons and fear of missing out (FOMO) still influence choices for some investors.

CASE STUDIES

This section explores the real-life examples of experienced investors through which the study intends to exemplify the investigation as how their investing experiences have been impacted by the psychological factors' greed and fear. The investors feel they should invest more when the market booms and at the same time they fear for the losses that may cause at the bust of the market. The following are the live examples whose experiences throw light about the influence of the psychological factors in their investment decisions.

Case Study 1

Mohit Sharma, a 25-year-old Portfolio Analyst from Yamuna Nagar, Haryana, works in the private sector and has 1 to 3 years of active investing experience. He primarily invests in SIPs along with direct equity and mutual funds. Despite being relatively new, Mohit stands out for his clear-headed, emotionally balanced approach to investing.

He exhibits a disciplined, goal-driven mindset. During market declines, instead of panicking, he sees opportunity and invests more—reflecting composure where fear is managed and greed is restrained, aligning with long-term thinking. Hype doesn't sway him. On hearing about high-performing funds, he adopts a "wait and watch" approach, avoiding FOMO-driven decisions. His SIPs remain undisturbed even amid volatility, including a period of intense panic during Indo-Pak tensions—when many withdrew, Mohit invested more. His calm response reflects an internal locus of control and belief in fundamentals, guarding him against herd mentality.

Recalling the market drop during geopolitical tension, he cited confidence in long-term resilience as the reason he raised contributions while others sold out. His stability stems from:

- Predefined financial goals acting as his north star
- Reliance on fundamental analysis and trust in well-managed companies
- A clear rejection of short-term speculation in favor of long-term vision

Even when peers make large profits, Mohit doesn't imitate them. He feels happy for them but sticks to his own plan, showing emotional detachment from peer comparison. His case reflects early internalization of financial literacy. Fear doesn't paralyze him, and greed doesn't provoke impulsivity. He learns from market dynamics but maintains his investment logic. This echoes survey findings, where most respondents reported continuing SIPs during volatility, motivated by belief in long-term growth. Mohit's example reinforces how having a sound investment framework—rooted in goals and fundamentals—can reduce emotional reactivity.

He exemplifies how even young investors with moderate experience can display mature financial behavior when supported by structured planning, financial education, and emotional discipline. His responses highlight the protective role of rationality, goal-based investing, and emotional steadiness against fear and greed.

Case Study 2

Divyani Mehta, a 24-year-old actuary from Gurgaon, has 1 to 3 years of investing experience. Her diverse portfolio includes SIPs, FDs, PPF, NPS, equities, and gold. Despite her professional background in risk assessment, her personal investment behavior reflects the ongoing process of managing emotional influences—particularly fear during downturns and confidence-driven optimism in bull markets. Unlike more rigidly disciplined investors, Divyani occasionally reacts emotionally. In market drops, she often feels uncertain and delays action—hesitation rooted in fear. This once led her to pause SIPs, though she later resumed them, indicating a self-correcting learning curve. During bull markets, she invests more due to increased confidence, illustrating how optimism or greed can heighten activity, albeit not always rationally. While not highly competitive, Divyani sometimes compares returns with peers. This comparison occasionally triggers thoughts of adjusting SIPs—revealing mild FOMO. Still, when others profit significantly, she feels indifferent, showing conscious effort to stay grounded in her own goals. In the face of losses, her tendency is to hold and wait, demonstrating patience but also a passive approach possibly influenced by emotional inertia over analytical reassessment. She doesn't rely on formal strategies to regulate emotions. Instead, she practices simple habits—thinking before investing and avoiding daily portfolio checks—which help her stay emotionally balanced. She once stopped her SIPs out of fear but later recognized the error and resumed, reflecting growing awareness and internalization of long-term investing principles. Divyani's experience highlights how even financially literate individuals can fall prey to emotional decision-making under uncertainty. Her case supports the broader finding that fear can disrupt SIP continuity, but belief in long-term growth enables recovery. Her evolving approach shows emerging emotional maturity and underscores the value of self-awareness in financial decisions. Though she doesn't use technical behavioral strategies, her personal rules act as effective psychological buffers against reactive decisions. She represents a transitional investor—cautious, sometimes influenced by emotion, but reflective and open to learning. Her journey reinforces the idea that managing fear and greed doesn't require complexity—it can stem from experience, personal insight, and habits that encourage emotional steadiness.

Case Study 3

Sivakumar S, a 35-year-old IT specialist from Coimbatore, began investing in SIPs three years ago with a clear goal: securing a stable future for his three daughters. Aware of market volatility, he maintained faith in long-term recovery and growth, which helped him avoid panic during downturns. While others reacted to market crashes or exited investments, Sivakumar stayed committed, reminding himself that consistency is key in weathering financial storms. For him, SIPs are now second nature. The auto-debit feature offers peace of mind and reduces emotional decision-making. He's observed peers chasing market highs and withdrawing during lows, but he remains focused on his family's goals, resisting herd mentality. His SIPs are more than investments—they're a steady promise to his family. Sivakumar's journey illustrates the tension between fear and greed that influences investors. Greed often tempts excess investment during rallies, while fear provokes withdrawals during crashes. SIPs have become his emotional anchor, shielding him from reactive impulses and external noise. His consistency reflects how some male investors ride out volatility and prioritize long-term returns. While he occasionally feels the allure of market surges, he balances ambition with caution, seeking advice and trusting fundamentals—indicating a thoughtful approach to risk rather than impulsive bravado.

Over time, he has internalized the idea that market fluctuations are normal and shouldn't derail his long-term strategy. His steady mindset and emotional discipline make him a compelling example of how structured systems like SIPs can regulate psychological triggers. Sivakumar's case highlights that successful investing isn't just about money—it's about managing emotions and staying grounded in your financial purpose.

Case Study 4

Sumathy V, a 45-year-old teacher from Coimbatore, offers a perspective shaped by both her profession and her personal experiences. With around three years of investing in SIPs, National Pension System, equity mutual funds, and real estate, Sumathy's strategy is grounded in caution and careful planning. During times of market volatility, she often pauses or reduces her SIP contributions, driven by a fear of losses that feels very real to her. Unlike some investors who might jump into the market when prices are low, Sumathy prefers to wait and watch, always mindful of her long-term goal: building a secure retirement fund. She diversifies her investments across different asset classes, trusting that this approach will provide her the safety and growth she needs.

Her story highlights the research question of how psychological factors like fear and greed influence SIP investment decisions, and what strategies can help manage them. In Sumathy's case, fear plays a bigger role than greed, guiding her cautious responses when market conditions are unstable. Even so, she counters this fear with practical strategies, such as focusing on her financial goals and ignoring short-term market noise. While she doesn't necessarily chase high returns, she believes in the power of disciplined, long-term investing—especially important for someone who's thinking about retirement and wants to ensure financial stability in her later years.

Sumathy's approach also reflects some gender-based nuances in investing. Studies suggest that women investors, like Sumathy, tend to be more risk-averse compared to men, and often prioritize steady growth and financial security over taking bold risks. Unlike Sivakumar, who, despite fear, chooses to stay invested and believes in market recovery, Sumathy prefers to pause and re-evaluate during market corrections. Her investment mindset leans towards caution and measured decision-making, a pattern often observed among women who place greater emphasis on long-term goals and family security over short-term gains.

Sivakumar's approach reflects a pattern often observed in male investors, who may be more inclined to "stay the course" and keep investing through market cycles. While Sumathy tends to pause during uncertain times, Sivakumar's belief in staying invested underscores a gendered difference in risk-taking attitudes. These differences don't necessarily make one approach better than the other, but they highlight how men and women often weigh fear and greed differently in financial decision-making.

This case study shows how psychological factors of fear and caution influence women's investment decisions in SIPs, compared to men's tendency to ride out the market's ups and downs with more aggressive confidence. Sumathy's experience underscores the value of combining personal financial priorities with a calm, disciplined investing approach—showing that even if fear makes her pause, it doesn't stop her from continuing to work toward her dreams of a secure future.

DISCUSSION

This section synthesises insights from the four detailed case studies and the results of the survey with 150 active investors. This study was designed to examine the psychological underpinnings of investors' decisions in SIPs with particular emphasis on the role of fear and greed. Anchored in behavioural finance, this discussion interprets the qualitative and the quantitative findings to address the central research questions regarding the central psychological factors, their manifestation in real world investor behaviour, gender nuances, and financial management strategies that can mitigate emotional decision making. One of the critical findings from the survey and the case studies is the strong influence of the psychological factors- both fear and greed- that impact the investment decisions subtly. Unlike the traditional financial theories that assume humans to be rational thinkers, this research clearly outlines the influence of the psychological factors. Investors often deviate from rational behaviour under the influence of these emotions, despite the awareness of long term benefits of SIPs.

Fear has manifested as anxiety of market turndowns, concern over potential losses, and overarching need for financial security. In contrast, greed was evident in allure of high returns, the urge to capitalise on the market surges, and the temptation to adjust SIP contributions based on peer performance and trending funds. Notably, even experienced investors occasionally grappled with these emotions, indicating their pervasive nature. Internal psychological factors such as risk tolerance, emotional regulation, self confidence, financial literacy and past experiences emerged as significant determinants of behaviour.

Financial Management Strategies

The findings relate to the role of financial management strategies in moderating emotional decision-making. Some of the strategies that have been already in place without knowing they are incorporated are visibly seen in the behavioural patterns of the investors and also from the responses of the investors. Some of the evident financial management strategies that are derived from the analysis and discussions are as follows.

Diversify your Portfolio

Investors who applied structured practice of diversifying their investment across asset classes and reviewing portfolios on a fixed schedule—were consistently less likely to act on emotional impulses. These strategies effectively externalize discipline, removing the need for emotionally charged decisions in the moment. The respondents also have shown a diversified portfolio of their investment which keeps them on a safe track and also offered a sense of security, diluting the emotional weight carried by any single asset class.

Invest Regularly (Be Consistent)

Regular contribution is a key factor for the long term financial goal. Being consistent in the investment is well ensured by the automation of SIPs, which maximises wealth in general and in particular, acts as a psychological commitment device. This reduces the frequency and intensity of fear-based interruptions. Most of the respondents also have set up automation of SIP which in turn provides them peace of mind to continue with their investment.

Start Early

One of the powerful mantras of SIP is to start the investments at the earliest possible manner. The much more exposure of financial literacy among the masses has created a wave of savings through investments in various portfolios. Among the respondents some have started their investments in their late 30's which would have turned very fruitful if the same had been started a little early. The benefit of starting early in SIP is to leverage the power of compounding. SIPs has turned out to be one of the most popular investment avenues, the early start of it would accumulate wealth exponentially.

Stay Invested (Avoid Premature withdrawal)

To overcome the psychological cycles of greed and fear, an effective financial strategy is to stay invested and avoid impulsive withdrawals based on market conditions. Fear should encourage resilience and commitment to funds, supporting long-term goals—the key advantage of SIPs. Mohit and Sivakumar showed this by staying calm during market falls, ensuring wealth accumulation over time.

Avoid Timing the Market

Another important financial strategy is to avoid predicting market movements—a risky approach involving buying low and selling high. Instead, investors should focus on consistent SIP investments, which help manage fear and anxiety. Divyani and Sumathy illustrate how hesitation from market predictions affects their patterns. Many other strategies also help manage fear and greed in SIP investments.

CONCLUSION

Systematic Investment Plan (SIP) is a method enabling investors to manage funds effectively. The study summarizes that fear and greed do not act in isolation but form a behavioral continuum shaping investment decisions. Survey results showed that during bullish markets, greed prompted some participants to increase contributions or explore high-return funds, while in bearish phases, fear led to withdrawal, pausing SIPs, or reluctance to invest. Case studies support this: Mohit and Sivakumar showed resilience to fear and disciplined greed, maintaining or increasing investments during downturns. In contrast, Divyani and Sumathy were more sensitive to fear, with Divyani occasionally halting SIPs and Sumathy regularly pausing during volatility.

Notably, greed varied from impulsive to strategic—some participants showed cautious optimism by monitoring funds rather than impulsively shifting investments, reflecting self-awareness and long-term focus. Emotional responses are not inherently harmful; their impact depends on management. Investors with greater emotional regulation, like Sivakumar and Mohit, differentiated market noise from real trends, aiding goal alignment despite emotional triggers. This emotional intelligence stabilized long-term SIP consistency. Gender differences emerged: women, represented by Sumathy and Divyani, were more risk-sensitive and cautious, focusing on financial safety and long-term security, reacting strongly to market swings. Men like Mohit and Sivakumar exhibited more confidence in staying invested, trusting market recovery and tolerating volatility, though sometimes showing over-optimism prone to greed during bull runs.

Despite differences, both genders managing emotions through long-term planning and structured systems handled psychological factors better. This suggests gender influences emotional triggers but effective strategies and internal clarity primarily determine behavior. Internal cognitive resources—knowledge, belief in recovery, understanding SIP compounding—buffer fear and greed's impact, especially when paired with behavioral tools like automation and periodic reviews. Limitations include a small, localized sample, self-reported data, and focus only on SIPs, limiting generalizability. Future research could involve larger, diverse samples, explore other investments, long-term behavior changes, gender and cultural differences, and test interventions to manage emotional biases in investing.

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5

The Psychology of Choices: Impacts of Complex Buying Behaviour on Consumer Decisions

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ABSTRACT

In the time of technological advancement, consumer behaviour has become increasingly complex, especially when buyers are faced with high involvement or high-stake purchases. Complex buying behaviour arises when consumers invest considerable time and effort in evaluating brands, comparing features, and weighing the risk of making a wrong choice. This research explores the psychological dynamics behind such decisions and how various determinants shape consumer decision making. By delving into the interplay between consumer psychology and marketing strategies, this study aims to provide deeper insights into how businesses can influence purchase decisions in meaningful ways. Understanding these patterns not only enhances marketing effectiveness but also helps build long term trust and brand loyalty.

Keywords: *Consumer Behaviour, Complex Buying Behaviour, Brands, Psychological Dynamics, Consumer Decision-making.*

INTRODUCTION

In today's dynamic and competitive market environment, complex buying behavior represents a critical decision-making process that arises when consumers are highly involved in a purchase and perceive substantial differences among competing brands. This type of behavior is most commonly observed when individuals are making high-cost, infrequent, or technically sophisticated purchases. Under these circumstances, consumer invest considerable time and effort into researching their options,

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comparing features and evaluating brand reputations. The perceived risk of making the wrong decision further intensifies their involvement, often resulting in a prolonged decision-making process. Understanding the dynamics of complex buying behavior is essential for businesses and marketers seeking to influence purchasing decisions in high-stake markets. This research aims to explore the effects of complex buying behavior on consumer choices and market outcomes.

With the rapid advancement of technology and an ever-growing range of products available, consumers now face an overwhelming number of choices. For businesses, understanding the mindset behind these complex purchasing behaviors is more important than ever. Marketers, brand managers and product designers all need to know what drives a consumer to choose one brand over another when the stakes are high. Adding to this complexity is the rise of digital platforms and social media, which have transformed how people gather and process information. Consumers today are more informed, more skeptical, and more reliant on online reviews, peer opinions, and brand transparency. In such a landscape, how a brand communicates trust, value, and uniqueness can greatly influence the outcome of a purchase.

OBJECTIVES

- To analyze the determinants affecting the complex buying decisions.
- To analyze how psychological factors impact consumer behavior and inform marketing strategies.
- To understand the consumer mindset regarding the buying things; which needs higher involvement.

METHODOLOGY

The study is based on secondary data and is collected from different books, journals and internet. This paper is only descriptive type based on the observation of the buying behaviors of the consumers that tend to happen with near and dear persons. The research methodology is qualitative in nature.

DETERMINANTS AFFECTING THE COMPLEX BUYING DECISION

1. **Price of the product:** The price of goods and services plays a major role and also influences the complex buying behaviour

of the consumer. People from different income levels tend to approach pricing in different ways. Those in higher or middle-income groups are more likely to make expensive, high-involvement purchases, often without overanalyzing every detail. On the other hand, consumers from lower income groups are generally more cautious. They take their time to weigh the pros and cons carefully before deciding, especially when it comes to costly or important items.

2. **Standard of Living:** A person's lifestyle and standard of living also have a big impact on their buying behavior. People who lead a more luxurious or modern lifestyle often prefer high-end or upgraded products. Their purchasing decisions tend to reflect their desires for quality, convenience, and the latest features.
3. **Marketing Strategies to Attract the Customers:** Drawing in potential customers is crucial for achieving long term growth. By using smart and targeted strategies, businesses can grab the attention of their audience. Whether it's through digital marketing platforms or creating personalized experiences to build strong connections, these thoughtful approaches play a key role in gaining new customers and ensuring lasting success.
4. **Influence of Family and Household:** Consumer purchasing decisions are often shaped by the preferences and needs of family members. For instance, parents may prioritize that benefit their children or suit the entire household. Understanding these dynamics is essential for effective marketing. By aligning marketing strategies with family-centric concerns, businesses can enhance the relevance and appeal of their offerings.
5. **Impact of Peer Groups:** The opinions and behaviors of friends, colleagues, and other peers can significantly influence a consumer's choices. When individuals see their social circle endorsing a product, they are more inclined to consider it as social validation and group belonging are important. Consumers often look to them for opinions, reviews, and recommendations before making a purchase. This is especially true for younger demographics, who tend to be more influenced by the behaviors and preferences of their peer circles.

The Role of Perception, Beliefs and Social Influence in Shaping Consumer Choices

In analyzing how marketing shapes consumer behavior, it's essential to recognize the psychological factors that guide how people perceive and respond to products.

Perception plays a central role-it influences how individuals interpret marketing messages, form impressions of brands, and ultimately make buying decisions. As marketers, tapping into consumer perception allows us to build positive, lasting associations with our offerings.

Beliefs and attitudes also carry significant weight. These are often shaped by a person's background, cultural values, and social environment. When marketing strategies align with or thoughtfully challenge these beliefs, they can create more meaningful connections with consumers, encouraging brand loyalty and engagement.

Another crucial aspect is learning and memory. How consumer absorb, store, and recall information about brands- through advertisements, packaging, or past experiences – can strongly influence their preferences.

Lastly, social and cultural influences- like family opinions, peer feedback, and broader societal expectations- often guide purchasing behavior. Many consumers look to their inner circle or community for advice before making decisions. Acknowledging these influences and embedding them into marketing effort can help brands build trust and authenticity.

The Far- Reaching Effects of Consumer behavior on Marketing Strategies

Understanding the consumer mindset is essential for crafting effective marketing strategies and building lasting brand relationships. This article aims to delve into psychological and social dynamics that influence how individuals make purchasing decisions. The ripple effects of understanding consumer behavior are profound and extend across various dimensions.

- **Tailoring Product Development**: Gaining insight into consumer behavior acts as a vital compass for guiding product development. Today's successful businesses understand that creating value begins with deeply their audience. By analyzing how consumer think, feel and behave, companies can identify gaps in the market, overlooked needs, and emerging preferences that might otherwise go unnoticed.

- **Segmentation and Targeting:** The idea using a universal marketing strategy no longer fits the realities of today's consumer landscape. Modern marketing requires a detailed understanding of different groups. By studying consumer behaviour, businesses can effectively segment their audience based on common preferences, habits, and characteristics.
- **Communication and Branding:** Understanding consumer behaviour is essential for building strong communication and branding strategies. Leading brands recognize that their messaging needs to reflect the values, goals, and emotions of their audience. When businesses uncover what truly matters to their customers, they can create compelling stories that build lasting emotional connections

CONCLUSION

Consumer behaviour is dynamic and adaptable, influenced by various internal and external factors. To analyze it effectively, one must consider the changing trends across different markets and demographics, such as income levels, social status, and class. Consumer preferences and actions differ based on these factors, whether within a local context or across regions. The dynamic interplay between consumer behaviour and marketing strategies is fundamental to long term business success. By exploring the various factors cited, businesses can design strategies that not only respond to customer needs but also actively shape them. Understanding this mutual connection empowers marketers to stay ahead in a rapidly changing market landscape, creating meaningful and lasting engagement with their audience.

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6

Worlk-Life Balance: Maintaining an Equilibrium between Personal and Professional Sphere in the Lives of Married Women Working in Private Colleges with Special Reference to Guwahati City

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ABSTRACT

The most challenging issue faced by women workers in the ever-evolving landscape of the 21st century is to have a seamless alignment between work and personal life. The concept of work-life balance in the present era has transformed to be one of the most vital needs of the hour which strives to navigate the issues in career and personal well-being of workers especially women workers. Indian women being on the verge of maintaining equilibrium in work sphere as well personal life in the modern world is highly desirable. Since coping with the balance between work life and personal life isn't seamless; current study proposes to identify the impacts and factors responsible to have a balanced equilibrium between the two extremes i.e., balance between work life and personal life of women workers in private colleges. The result is based on a survey conducted randomly on a sample size of 100 women workers working in various private institutions in Guwahati city. It is descriptive in nature. The study reveals how in the process of maintaining a work-life balance, women workers face stressful situations and manage personal responsibilities effectively. The study has been concluded with few strategies which suggest measures to effectively have a balance between the two extremes.

Keywords: *Work-life Balance, Personal Life, Professional Life, Women Workers, Private Sector, Work-life Imbalance.*

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INTRODUCTION

The advent of modernization is causing tremendous changes in the work life of workers especially the women section of the society. It has become a topic of discussion in India particularly among the working women. Work-life balance is a process which helps employees of an organization to have a balance between their personal and professional sphere. Maintaining a desired equilibrium between the two encourages employees prioritize between family, health and career advancement.

As stated by Kirchmeyer (2002) Work-life balance is "achieving, satisfying experiences in all domains with personal resources such as energy, time and commitment well distributed across domain."

Initially work-life balance was termed as work family conflict. The entries of women in the workforce have impacted their working lives due to increasing household work simultaneously, thus, giving rise to meet professional goals along with family demands.

It is generally women who take the primary responsibility for family including children and who, in situation of conflicts, adjust their professional life to accommodate family and personal pressure. Indian women across all social classes are pursuing career advancement to supplement their income especially married women workforce. The primary motive of married women workers to join private sector workforce is to fulfill the financial need of the family. Although both the spouse happens to work for fulfilling professional and personal desires and needs individually as well as for family support, yet the married women's happen to do household work such as cleaning, cooking , taking care of child/children, in-law etc. So how does she balance both? When a working woman marries it generally happens where her responsibilities grow, she conceives and becomes mother which in turn increases the work pressure while walking in the professional path.

A good work-life balance means having equilibrium between different aspects of life, where benefits gained from each area can support and strengthen others. In certain instances women are found to perform better with multiple roles whether in terms of physical health or psychological health. In other words, it has led to increase in mental stimulation, motivation, self-esteem etc.

However, it has also created adverse effect on women's mental health as well as physical including stress, loss of appetite, poor sleep etc.

Factors Influencing Work-Life Balance of Married Women Employees Working in Colleges

The ability to maintain equilibrium between work and life is affected by various factors like working conditions which also includes flexibility and quantity of working hours, provisions related to leaves, holidays and other supporting factors beneficial for married women workers such as childcare facilities, breastfeeding facilities, rest rooms etc.

Apart from the mentioned factors, women's individual characteristic also determines their ability to maintain a balance between professional and personal sphere.

In terms of national and international context, many other influencers of work-life balance have been identified such as individual, personal, societal, organizational etc.

Individual factors such as emotional intelligence, personality plays a significant role in the lives of married women employees. Societal factors includes family support, parent care responsibility etc.

Impact of Work-Life Balance in the lives of Married Women Working Professionals

The study shows how maintaining a work-life balance can have a significant impact on the health and well-being of married women workers as well their relationships and working career. It is found that both positive and negative effects have impacted the lives of professional married women employees. Playing multiple roles for personal and professional growth have led to cause a variety of physical and mental effects like loss of appetite, weight gain/loss for some, insomnia, lack of sleep, mental stress, etc.

It is perceived that in the dynamic landscape of today's workplace environment, having a work-life balance is of utmost importance in order to foster growth and productivity. Having challenges for married workers in professional space and maintaining a balance particularly between the two extremes needs strategic interventions. Whether by implementing remote work options, fostering supportive work culture or implementing proper training and development sessions can empower them to manage personal and professional commitments effectively.

Objectives of the Study

- To assess whether the current work-life balance of married women workers in private colleges impact their overall well being and satisfaction for job
- To determine the family support for having an equilibrium between both the extremes

REVIEW OF LITERATURE

- **Kirchmeyer (2000)** revealed that balancing work and life needed time, energy and commitment of employees. Women employees tried hard to balance both family and work pressure at the cost of their well beings; therefore, every married working woman must have a better work life balance.
- **Hudson (2005)** Work-life balance is not mere related to work and life; it is the positive state of mind. Work-life balance, in its broadest sense, is defined as a satisfactory level of involvement or fit 'between the multiple roles in a person's life. Work-life balance is about the interaction between paid work and other activities, including unpaid work in families and community, leisure and personal development.
- **Rachel (2009)** conceptualized career development in a cultural and contextual framework and examined gender differences between role salience and work-family conflict among Jewish and Arab female teachers from Central Israel. The contribution of social support to women's conflict was also examined. Results highlighted various differences in contrast to expectations; Jewish teacher's demonstrated higher work values and commitment. Jewish women reported higher levels of WFC compared to their Arab colleagues. Support systems in Jewish culture were related to lower WFC but not in Arab culture. Theoretical and practical implications emphasize the need for culture-sensitive models of work-family relations and for career counseling interventions.
- **Vartharaj and Vasantha (2012)** conducted an exploratory study among women service sector employees with reference to Chennai City, India to demonstrate their work-

life balance as source of job satisfaction. Their study revealed that greater part of the women employees feels comfortable in their work place irrespective of their personal and work place disturbances and demonstrated ability to balance their duties and responsibilities both in job as well as families.

- **Vijaya Mani (2013)** has revealed the major factors influencing the Work Life Balance of Women professionals in India such as role conflict, lack of recognition, organized politics, gender discrimination, children and elderly care issues, quality of health, problems in management and lack of proper social support.
- **Kumaraswamy M.Ashwini S. (2015)** in paper titled "Challenges in WLB of Married Working Women" stated that it is important for employees to maintain a healthy balance between their work and their private
- **Toyin Ajibade Adisa (2020)** stated that the effect of Covid-19 pandemic had affected women to a great extent. The objective of the study was to find out the role of women, and evaluate the impact of the Covid-19 on work-family balance during lockdown. The study revealed that women experienced enhance in the interactional and structural role. Remote working and work from home had an increase in role congestion and role conflict.

Scope of the Study

The scope of the study is confined to the analysis of "**Work-Life Balance of Married Women Workers Working In Private Colleges in Guwahati.**" In the present context changes happening in people's personal and professional lives and maintaining a healthy work-life balance is the concern. The study is undertaken to find the impact of work-life balance of married women employees and to find factors affecting their extremes.

Research Methodology

- **Research Design:** Research design adopted for the study is descriptive in nature.
- **Sampling Technique and Sampling Size:** For the study to be carried out, the target population is mainly married women employees. The sample is selected using simple random sampling under probability sampling method. A

sample of 100 respondents is considered for conducting the study among private colleges in Guwahati City.

- **Sources of Data Collection:** The study is based on both primary as well as secondary data where self-administered questionnaire has been circulated in the respective study area. Also sources such as textbooks, research papers, journals, dissertation, and websites have been considered for secondary purposes.

DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation are based on the questionnaire which was submitted by the respondents during the research query period. The purpose for the analysis is to interpret the data and provide valuable information which can be further tested. The comprehensive questionnaire was prepared in layman English language for respondents to understand and answer easily.

After the analyses, it is worth mentioning that among 100 respondents, majority of the married working women are of the age group 31-40 which makes it a 44.20% and it has been observed that most of them have dependents which is around 34.2% majority mostly includes elderly persons and kids.

As the study has been conducted on married women working professionals in private colleges in Guwahati, it is found most the working women works as an Assistant Professors i.e., 52.5% whereas 6.9% falls into the category of Grade III and IV workers.

The impact of work-life balance on married women working in private colleges is quite complex and influenced by various factors. The first and foremost factor includes is job satisfaction. It is pertinent from the survey that out of total respondents, 9.6% are very satisfied with the current work-life balance they hold into their lives which majorly includes Head of the Departments and Grade III and IV women workers whereas 20.2% are neutral towards their job satisfaction and 30% of women workers are dissatisfied with the current work-life balance.

The second factor which impacts work-life balance is well-being. It is evident from the study that 97.9% respondents believe that current work-life balance has a positive impact into their lives.

As it is found that most of the respondents fall into the teaching category, it is often demanding and stressful which can create a significant burden. As per the survey it is seen that 25.35 are quite overwhelmed by the demands of work and personal life while 9.4% rarely feel overwhelmed towards personal and professional sphere.

The challenges in achieving a satisfactory work-life balance for married working women stands to be influenced by a number of factors. Among which excessive workload, lack of clear boundaries, insufficient support from colleagues and seniors contribute to stress in working place. Around 4.1% respondents opine excessive workloads creates stress, 12.6% respondents feel insufficient support from seniors and colleagues whereas 11.6% respondents feel there is lack of clearly stated boundaries which contributes and significantly affects mental health as well physical.

In order to cope up with workload stress and challenges, it is important to employ a number of strategies to address the challenges in order to maintain equilibrium between personal and professional space of married women employees. These includes counseling sessions, exercise and physical activities, engaging in leisure activities, seeking support from family and friends, participating in stress management workshop,etc.

The study reveals 33% engages themselves in leisure activities to cope up with work related stress which includes joint lunch, colleagues outing. A 22.3% seek emotional support from family and friends whereas 14.9% respondents engage in stress management workshops.

Yet most of the times even after having such resources and strategies, married women employees often find themselves devoting extra working hours, cancelling or feeling exhausted for leisure activities. 44.3% respondents feel high workload is the challenge especially during examination time, conducting conferences and workshops. Whereas 28.3% respondents feel inflexible working hours is the challenge which leads to stress. These situations impact the personal and professional lives of married women workers which often creates havoc in their lives.

Although even after being employed, to lead a comfortable life and having self-satisfaction towards professional and personal life, they seek family support. The study reveals that 38.4% of women workers have very supportive family whereas 8.4% are neutral while 0% respondents have unsupportive family. Since, the working women have so much on their plate; a well-balanced family life contributes significantly for them to have equilibrium in their professional and personal space.

In spite of the fact that the women professionals to some extent have support from family and friends, yet the data shows 96.8% respondents had to make sacrifices in their personal life due to work commitment whereas 3.2% did not bear such sacrifice or made any. Sacrifices in personal life due to work commitments are common and vary greatly according to the respondents views.

It is observed that 24.2% respondents, 27.4% respondents, 23.2% respondents and 25.3% respondents feel sharing household chores, helping with childcare, supporting leisure time and offering emotional help during work peak period can contribute effectively to their work-life balance respectively.

In the dynamic world, the concept of work-life balance has emerged as a significant factor fostering employee's productivity and satisfaction. Modern day intricacies are many and it is evident from the fact that achieving work-life equilibrium is not only beneficial for women workers but also helps in creating a resilient workforce. Thus, the challenges faced by married-women employees particularly in private colleges in Guwahati warrant a strategic and thoughtful intervention by college authority. The suggestion includes:

- Establishing welfare programs that focuses on mental and physical health of married women employees could cope with work related stress.
- Implementing flexible work hours and encouraging hybrid mode especially for teaching professionals will empower them to manage personal and professional lives in a better manner.
- Colleges can offer family-friendly policies such as parental leave, childcare support, rest rooms.
- Acknowledging the effort of married women employees especially those working in Grade III and IV level can create a positive work culture.
- Colleges should regularly review; assess the effectiveness of implemented policies and programs for its employees. If possible by implementing flexible working hours, mode of work.
- Family should support working women with household chores, giving emotional support which will ease their work related stress.

The mentioned recommendations may create conducive environment for married women employees working in private colleges in Guwahati which is going to create a significant and supportive environment both in and out the professional sphere. Career growth and advancement along with family upliftment shall be a benefit for them.

CONCLUSION

The study on work-life balance of married women employee portrays the commitment between professional and personal life of them. They are exposed to various challenges in order maintain equilibrium between the two extremes. The impact of work-life balance on women employees is complex and influenced by numerous factors. For an inclusive development and upliftment of the women workforce, need based trainings, development programs, flexible and hybrid working hours and environment are essential for them as well as the colleges.

Work-life balance for women workers especially faculty members of private colleges is one of the greatest problems faced by many. In order to be effective and competent, college must give better work-life balance for the working women especially the married ones in order for them to have higher degree of job performance and enhance their satisfaction for both professional and personal life. The support from family is as well as important and crucial for married women workers for balancing the family as well as social structure and by avoiding conflicts. Thus, it is essential to recognize the challenges and support measures to create conducive working environment and maintaining equilibrium in the lives.

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Structural Shifts in Indian Gold Market: Trends and Triggers

Dr. Mili Kar*, Dr. Manik Chakraborty**

ABSTRACT

This study explores the recent growth and structural evolution of the Indian gold market within the context of global developments. Drawing on current data and trends from 2018 to 2023, the paper presents a detailed analysis of gold supply and demand patterns, alongside the average price differentials between the domestic (Mumbai) and international (London) markets. The findings reveal that jewellery and investment demand continue to dominate, reinforcing India's dependence on gold imports. The widening price spread reflects distinct structural and fiscal challenges within the Indian economy. By examining market volatility, investor sentiment, and regulatory dimensions, the study provides valuable insights to support improved policy frameworks and economic forecasting.

Keywords: *Gold Prices, Price Differential, Demand-supply Trends, Market Instability.*

INTRODUCTION

Gold has historically played a vital role in shaping India's cultural and economic identity. In recent years, the Indian gold market has seen significant expansion, driven by evolving consumer preferences, technological integration, and supportive government initiatives. This evolving market environment necessitates close attention from investors, industry stakeholders, and policymakers. It is well recognized that rising gold prices often correlate with increased market

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volatility and uncertainty *(Bhuiyan et al., 2023)*. During periods of economic downturn or geopolitical crises, gold is commonly viewed as a safe-haven asset, leading to a spike in demand and prices *(Garg, 2020)*. The recent surge in gold activity in India has encouraged a deeper investigation into the underlying factors *(D' et al., 2012)*. Furthermore, research has shown that gold serves as a valuable hedge against information technology stock indexes and offers portfolio diversification benefits, being largely uncorrelated with sectoral indices of the Bombay Stock Exchange *(Trabelsi et al., 2020)*. India, being the world's second-largest consumer of gold, also ranks gold as its second most imported commodity after petroleum, an important factor contributing to the country's trade imbalance. To address these concerns, the government launched the Gold Monetization Scheme in 2015–16 to mobilize idle gold held by households, temples, and institutions. However, challenges such as lack of standardization, valuation issues, and an unorganized market in many regions persist. In response, NITI Aayog has initiated reforms aimed at curbing imports, eliminating black market activities, and promoting hallmark gold exports. Since 2020, the BSE and NSE have facilitated physical gold deliveries in line with the Indian Good Delivery Standard (IGDS), endorsed by the Bureau of Indian Standards and previously recognized by the London Bullion Market Association. Additional incentives like tax concessions for gold refineries handling unrefined gold have been introduced to encourage domestic bullion production. Refineries also process gold collected through the monetization initiative. According to the World Gold Council's 2023 report, India now ranks fourth globally in gold recycling, overtaking countries like China and the U.S., with 75 tonnes recycled and a refining capacity of 1,500 tonnes. Most refineries focus on producing standard bars and coins, with only a few equipped to manufacture specialized gold products due to limited access to specific chemicals and alloys.

In a study,*Odhiambo and Chirwa (2020)* used an ARDL-based error correction model with structural breakpoints to analyze short- and long-term factors affecting gold prices, using daily data from December 2018 to May 2020. Their study confirmed strong interlinkages between gold prices and several international stock and bond indices. Likewise, *Choudhury et al. (2015)* explored the nonlinear relationships between gold returns and stock market performance during the global financial crisis. Their analysis of markets in the U.S. (S&P 500), Japan (Nikkei 225), and the U.K. (FTSE 100) found that gold exhibited bidirectional dependencies with stock returns and volatility, challenging its traditional role as a reliable safe-haven asset in periods of financial distress. The global gold market operates within a highly dynamic environment shaped by intricate interplays among geopolitical tensions, macroeconomic variables, and investor sentiment. These factors contribute to notable price volatility and underline the need for in-depth analysis of the market's evolving behavior *(Choudhry et al., 2015)*. Gold has traditionally been viewed as a refuge in times of financial turmoil, but its interactions with emerging asset classes like equities and cryptocurrencies have added complexity to understanding its pricing mechanisms *(Bhuiyan et al., 2023; D' et al., 2012)*. Gaining meaningful insights into these price movements requires not only a historical evaluation of trends but also real-time assessments and robust predictive modelling. The principal challenge lies in quantifying the relative importance of various influences and in developing accurate forecasting tools to support strategic decision-making for investors and regulators alike. In gold-centric economies like India, where the metal holds deep cultural and economic significance, research into how social and economic conditions impact gold prices becomes even more critical.

The motivation behind this study stems from the increasing complexity and volatility of the global and Indian gold markets, driven by shifting investor behavior, economic uncertainty, and policy reforms. With India being one of the largest consumers and importers of gold, understanding the underlying demand-supply dynamics, price trends, and market responses becomes crucial. This research aims to bridge the knowledge gap by analyzing historical and recent data to provide insights into the factors influencing gold prices and consumption. The study also seeks to support informed decision-making for investors, policymakers, and stakeholders navigating the evolving landscape of the gold economy.

The rest of the paper is organised as: Section II narrates the India's growing appetite for gold; Section III discusses regulatory shifts in the gold market; dynamics of gold trading is presented in section IV; Section V throws a light on decadal insights into gold price behavior; and Section VI summarises the conclusion and future scope of research.

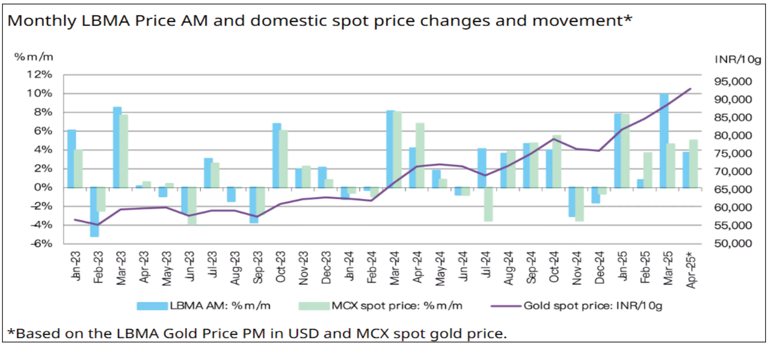
India's Growing Appetite for Gold

A dynamic interplay of forces has influenced the trajectory of the Indian gold market in recent years, despite its diverse nature and deep cultural significance. The market's current and possible future states are complicatedly depicted by its reaction to socioeconomic factors, investing practices, and regulatory frameworks *(D' et al., 2012)*. More than just a commodity, gold has long been a cultural symbol, an essential component of religious rituals, and a store of value that has been passed down through the centuries in India *(Garg, 2020)*. Due to its function as 'streedhan' for brides, which symbolizes a woman's riches and stability as she moves to a new residence, gold has maintained its allure in India *(Chellam, 2018)*.In addition to real estate and the stock market, gold ornaments continue to be a popular investment choice for some individuals and families in India. Investors frequently use their money for their children's schooling, medical expenses, and joyful occasions like weddings *(Lathief et al., 2024)*. In the jewellery industry, the conversion of family-run companies into professionally run firms is a response to changing consumer demands and market dynamics. This change calls for a departure from conventional, relationship-based business models in favour of more organized, open operations that integrate contemporary management techniques and advertising tactics. The Indian government has designated the gem and jewellery industry as a focus area for export promotion, emphasizing the industry's substantial economic contribution to the country.A popular investment option for people of all income levels, gold is also thought of as a store of wealth and a hedge against inflation. Economic factors such as GDP growth and inflation rates have a major impact on gold prices *(Changani, 2024)*. Price elasticity of demand for gold in India is an important consideration since it determines how responsive demand is to price changes. Variables like as changing consumer preferences and the availability of other investment options may have an impact on this flexibility. Gold's industrial applications in industries like electronics and dentistry drive a steady demand for the metal *(Corti & Holliday, 2004)*.

As of April 11, 2025, gold had recently surpassed the US$3,200/oz barrier and was continuing its remarkable run, reaching new record highs across major currencies (World Gold Council).

The following graph depicts the monthly spot price changes and drive:

Graph 2.1: Gold's Relentless Rise



Source: *World Gold Council (April,2025)*

As of April 11, 2025, gold prices have significantly increased in India as well as throughout the world. The LBMA gold price per month in USD has risen US$621/oz, or 24%, so far this year, to US$3,230/oz. Since March, more than half of this gain, or 14%, has taken place. The price of gold has increased by 23% year-to-date in India, reaching INR 93,217 per 10g, in line with this worldwide trend. After deducting taxes and exchange rates, India's local gold prices have mainly traded below international benchmarks despite the price increase. The main reason for this ongoing markdown, which by mid-April averaged over US$30/oz, is that jewellery demand was muted in reaction to high price levels. Even while there was a temporary premium in early April, it was short-lived, suggesting that consumer demand was still weak despite positive global trends.

Gold is also regarded as a hedge against inflation and a store of wealth, which makes it a well-liked investment choice for people of all income levels. Gold prices are significantly influenced by economic variables like GDP growth and inflation rates *(Changani, 2024)*. Since it establishes how sensitive demand is to price fluctuations, the price elasticity of demand for gold in India is a crucial factor to take into account. This flexibility can be affected by variables including shifting customer tastes and the availability of other investment opportunities. A consistent demand for gold is fuelled by its industrial uses in fields such as dentistry and electronics *(Corti & Holliday, 2004)*.

Regulatory Shifts in Gold Market

Gold and silver are now widely exchanged in derivatives markets across the globe, including India, as a way to protect against price risk. In many countries around the world, the prices set by the London Bullion Market Association (LBMA) serve as standard references for gold and silver. Over time, India's laws and practices pertaining to gold have changed significantly, progressively moving toward a more simplified and open structure. The Hon'ble Finance Minister declared in the Union Budget in February 2018 that the Centre will create a comprehensive gold policy to make gold a recognized asset class on par with stocks, bonds, real estate, and commodities. To establish a reliable standard for gold transactions in India, recent measures, including the Indian Gold Coin, planned hallmarking rules, and the establishment of an International Bullion Exchange in GIFT City, have been implemented. For trading derivatives in these precious metals, Comex (CME Group) is a significant global standard.

Prior to 2020, the domestic commodity exchanges would only accept gold bars with a 99.5% purity that were authorized by the London Bullion Market Association (LBMA) for delivery. But in 2020, the Bureau of Indian Standards (BIS) unveiled the India Good Delivery Standards (IGDS) to support the government's Atmanirbhar Bharat (Self-reliant India) strategy. A variety of measurements, including fineness, weight, marks, and dimensions, are specified by the standards. These guidelines assist Indian refineries with BIS accreditation in supplying their bars to stock and commodity markets *(World Gold Council)*. In light of this, eligible refiners who meet the requirements of each market have been recognized by the National Stock Exchange (NSE), Bombay Stock Exchange (BSE), and Multi Commodity Exchange (MCX). By enabling refineries to supply bars made from recycled gold to the market, this program will reduce the reliance of refiners on doré. Additionally, as more refineries are now able to deliver bars on local exchanges, better price discovery will occur.

Additional trading and hedging opportunities are offered by the October 2017 and May 2018 launches of gold and silver futures contracts in India, respectively. The first index futures based on bullion were successfully introduced in India in 2020.

They were based on the MCX iCOMDEX Bullion Index (MCX BULLDEX). SEBI established a framework for a gold exchange's operations in January 2022, allowing for the trading of gold using electronic gold receipts (EGRs). By depositing at certain delivery places, users of this system can turn physical gold into EGRs. These EGRs can then be traded on exchanges that are subject to regulations, giving investors and purchasers a more convenient and regulated way to trade spot gold.According to the Union Budget announced in July 2024, the Hon'ble Finance Minister declared new measures, including a significant cut of 9% import duty on gold and the reduction of customs tariff on gold from 15% to 6%. Gold import taxes have been lowered from 15% to 11% *(World Gold Council).*

From a regulatory standpoint, commerce and consumer behavior have been affected by actions made by successive governments. These consist of a significant rise in import taxes, limitations on cash transactions, mandatory PAN card declarations for high-value transactions, demonetization, the implementation of the Goods and Services Tax (GST), and mandatory hallmarking. Although the unorganized trade was initially aided by the increase in import duties, the expansion of organized trade has been aided by demonetization and the GST. The recent step of hall marking has also changed the mindset of the consumers, instilled a sense of trust in getting a pure form of gold. The restriction on cash usage has also pushed consumers to adopt digital payment infrastructure, and has a positive impact on the growth of gold trading.

Dynamics of Gold Trading: A Demand and Supply Perspective

Gold holds a unique and significant position in India's investment, cultural, and economic domains. As the world's second-largest consumer of gold *(World Gold Council, 2023)*, India's gold market dynamics are shaped by an interplay of domestic and international factors. In rural areas, agricultural income, which heavily depends on the monsoon season, is a key determinant of gold purchases *(Chakrabarti & Chakrabarti, 2018)*. On the domestic front, household demand, driven by cultural practices such as religious ceremonies, weddings, and festivals, forms the backbone of seasonal demand spikes *(Somasundaram, 2020)*. Internationally, macroeconomic variables, including global gold prices, inflation, exchange rates, interest rates, and equity market volatility, further influence the pricing and demand for gold in India.

The Indian gold market has experienced robust growth, fuelled by a blend of traditional consumption patterns and evolving investment behaviors. Jewellery remains the predominant form of gold demand, deeply intertwined with cultural values and social customs, especially in rural and semi-urban regions (Baur & Lucey, 2010). The liberalization of the Indian economy in 1991 marked a turning point for the gold market, with the repeal of the Gold Control Act enabling unrestricted gold imports. This regulatory change facilitated easier sourcing of gold, bolstering the growth of retail jewellery markets and expanding consumer choice. Rising incomes have further diversified jewellery preferences.

Additionally, technological advancements over the past decade, particularly the widespread adoption of smartphones and affordable internet access, have transformed the gold retail landscape. The proliferation of social media platforms offers merchants innovative channels for direct engagement with consumers, enhancing brand visibility and driving sales growth. Together, these factors illustrate the complex, evolving nature of India's gold market, reflecting a convergence of deep-rooted cultural traditions and modern economic forces.The following table exhibits the global supply and demand of gold.

Table 1: Analysis of Global Gold Supply and Demand Patterns

(in tonnes)

Global Supply						
Particular	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Mine production	3,658	3,599	3,484	3,576	3,634	3,645
Net producer hedging	-12	6	-39	-5	-13	70
Recycled gold	1,132	1,276	1,293	1,136	1,140	1,239
Total supply	4,778	4,880	4,738	4,706	4,761	4,953
Global Demand						
Jewellery fabrication	2,290	2,152	1,324	2,231	2,196	2,190
Jewellery consumption	2,250	2,127	1,398	2,148	2,090	2,111
Jewellery inventory	40	25	-74	83	106	78

Technology	342	333	309	337	315	305
Electronics	275	269	256	279	258	249
Other Industrial use	51	50	42	47	47	47
Dentistry	15	14	12	11	10	9
Investment	1,161	1,275	1,795	992	1,113	942
Total bar and coin demand	1,091	871	902	1,180	1,222	1,187
Physical Bar demand	776	584	543	811	802	778
Official Coin	242	221	290	284	321	293
Medals/Imitation Coin	73	67	69	85	99	115
ETFs & similar products	70	404	893	-189	-110	-244
Central banks & other inst.	656	605	255	450	1082	1030
Gold demand	4,449	4,365	3,683	4,010	4,705	4,467

Source: *MCX Commodity Insights Year Book (2024)*

Between 2018 and 2023, the global gold market experienced significant shifts in supply and demand, shaped by market speculation, economic instability, and geopolitical events. Recycled gold surged to 1,239 tonnes, and mine production rebounded after a dip in 2020, contributing to an increase in total gold usage from 4,778 tonnes in 2018 to 4,953 tonnes in 2023. Although net producer hedging remained low, it turned positive in 2023 with 70 tonnes, indicating rising producer confidence.

The COVID-19 pandemic caused a sharp decline in gold demand in 2020, dropping to 3,683 tonnes, but demand recovered strongly to 4,467 tonnes by 2023. Jewellery consumption, a key demand component, mirrored this trend, falling during the pandemic before rebounding by 2023. Investment demand, meanwhile, peaked at 1,795 tonnes in 2020 as investors sought gold's safe-haven qualities, before stabilizing at 942 tonnes in 2023. Central banks have also shown growing strategic interest in gold reserves, with demand exceeding 1,000 tonnes in both 2022 and 2023. Overall, the global gold market remains resilient, supported by steady supply growth and a diversified demand base. Central bank purchases and jewellery consumption continue to be the primary drivers shaping gold demand worldwide.

As economies fluctuate over time, gold continues to be regarded as a safe haven asset and a longstanding symbol of wealth *(Chirwa & Odhiambo)*. Reflecting this, the London Bullion Market Association reported that the value of gold traded on the stock exchange surged to a two-decade high of $46.4 billion in March 2020 *(Sykora, 2020)*. Given gold's importance in financial markets, it is essential for producers and investors alike to closely analyze the price dynamics of this commodity.The following table shows the trend of demand-supply dynamics of gold in India:

Table 2: Supply and Demand Shifts in Indian Gold Market

(in tonnes)

Indian Scenario						
Particular	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
Total Supply	**853**	**777**	**454**	**1007**	**762**	**879**
Net bullion imports	756	647	349	925	653	746
Scrap	87	120	96	75	98	117
Domestic other sources#	11	11	9	7	12	16
Demand	**760**	**690**	**446**	**797**	**774**	**761**
Bar and coins	162	146	130	186	174	185
Jewellery demand	598	545	316	611	601	576
# local mine production, recovery from imported copper concentrates and disinvestment						

Source: *World Gold Council; Data downloaded on 13th Aug 2024*

India's gold market saw notable fluctuations in supply and demand during the period 2018 to 2023, largely shaped by global economic conditions and consumer behavior within the country. The total gold supply in India ranged from a low of 454 tonnes in 2020, at the height of the COVID-19 pandemic, to a strong recovery of 1,007 tonnes in 2021. The bulk of this supply came from net bullion imports, which consistently made up more than 85% of the total, highlighting India's significant dependence on imported gold and its vulnerability to currency exchange rate swings and international market volatility. Scrap gold also became a more important source, increasing to 117 tonnes by 2023, as rising gold prices encouraged more recycling. Domestic sources, such as gold extracted from imported copper concentrates and local mining, contributed modestly but steadily, growing from 11 tonnes in 2018 to 16 tonnes in 2023.

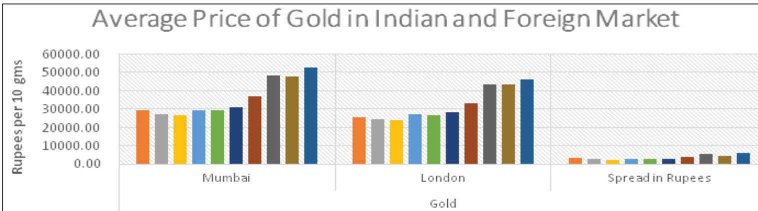
Demand followed a similar pattern to supply, dropping to 446 tonnes in 2020 due to pandemic disruptions but recovering to 797 tonnes by 2021. Jewellery consumption remained the main component of demand, consistently representing over 75% of total usage, reflecting the deep cultural importance of gold jewellery in Indian festivals and weddings. Despite economic challenges, the jewellery sector remained strong, with demand rising back to 611 tonnes in 2021. Investment demand, indicated by purchases of bars and coins, also showed growth, reaching 185 tonnes in 2023, signalling increased investor interest in gold as a protective asset during uncertain times.

In summary, gold demand in India is deeply embedded in cultural practices but is also increasingly affected by external economic influences. The growth in investment demand and scrap supply in recent years suggests that the market is becoming more responsive to price changes and overall economic conditions.

Decadal Insights into Gold Price Behaviour

The complex factors driving gold prices in India and London make this topic especially interesting to investors and economists alike. Gold, widely seen as a safe-haven asset, is affected by a mix of macroeconomic conditions, geopolitical developments, and market psychology. Various financial tools and economic indicators interact in sophisticated ways to influence its price. Consumers, regulators, and investors in both regions need to understand these forces. The Indian gold market, in particular, is very sensitive to price changes and international economic volatility. A significant influence on gold prices in India is the exchange rate between the Indian Rupee and the US Dollar, since gold is mainly valued in dollars. With this context in mind, we will now explore the patterns of gold price movements in India and the UK.

Table 3: Cross-Market Analysis of Gold Prices in Mumbai and London



	Mumbai	London	Spread in Rupees
2013-14	29190.39	25739.35	3451.04
2014-15	27414.55	24520.42	2894.13
2015-16	26534.26	24231.53	2302.73
2016-17	29665.28	27116.42	2548.87
2017-18	29300.08	26618.55	2681.52
2018-19	31193.41	28380.36	2813.05
2019-20	37017.91	33346.53	3670.54
2020-21	48723.22	43541.00	5182.22
2021-22	47999.25	43582.25	4417.00
2022-23	52730.77	46605.74	6125.03

Source: *Prepared from RBI, Handbook of Statistics on Indian Economy, 2022-23*

The data highlights average gold prices from 2013-14 to 2022-23 in both the domestic market (Mumbai) and the international market (London), along with the price difference, or spread, between the two. Over the past decade, gold prices in both markets have shown a consistent upward trend. In Mumbai, prices rose from ₹ 29,190.39 per 10 grams in 2013-14 to ₹ 52,730.77 in 2022-23, while London prices increased from ₹ 25,739.35 to ₹ 46,605.74 during the same period. A notable observation is the growing gap between domestic and international prices. The spread, which was ₹ 3,451.04 in 2013-14, experienced some fluctuations over the years but saw a sharp increase from 2019-20 onwards, reaching ₹ 6,125.03 by 2022-23. This widening difference may be attributed to factors like changes in import duties, exchange rate volatility, taxes, and logistics costs in India. It suggests that domestic issues such as supply chain challenges and regulatory policies might be causing the Indian gold market to trade at a premium compared to global prices.

Looking ahead, factors like increasing urbanization, higher disposable incomes, and growing interest in digital investment platforms are expected to drive further growth in India's gold market. However, challenges including price volatility and uncertainties in the global economy could influence future market trends. Stakeholders need to stay adaptable and well-informed to successfully navigate the evolving Indian gold market landscape.

Concluding Remarks and Future Scope of Research

The gold market in India presents a unique blend of cultural significance and economic complexity, influenced by both domestic factors and global trends. Over the past decade, gold prices in India have steadily risen, outpacing international prices due to various supply chain inefficiencies, regulatory frameworks, and fluctuating import duties. Due to changes in central bank activity and investor interest, demand for gold has varied greatly, while the supply has stayed mostly constant with modest growth on a global scale. Jewellery and investment demand continue to be the main drivers of gold demand in India, although imports and scrap recovery play a major role in supply. Furthermore, the steady increase in the price gap between local and foreign markets highlights the structural influences of taxes, levies, and currency devaluation on domestic pricing. While gold continues to be a preferred asset for jewellery and investment purposes, evolving consumer behaviour, rising incomes, and technological advancements are reshaping demand patterns.

Future research can explore several critical areas to deepen our understanding of India's gold market. One promising direction is the impact of digital platforms and fintech innovations on gold investment behavior, especially among younger demographics. Additionally, investigating the role of policy changes and their effects on import regulations and taxation could provide insights into market efficiency and price formation. Another area worth exploring is the environmental and social implications of gold mining and recycling in India. Finally, comparative studies between India and other major gold-consuming countries could shed light on how cultural and economic factors interact to shape global gold demand. Addressing these topics will help stakeholders navigate the evolving landscape and make informed decisions in an increasingly complex market.Additionally, there are opportunities to investigate the functions of exchange rates, taxes, and arbitrage activities due to the growing price differential between domestic and foreign markets. Making use of econometric modelling and predictive analytics may help improve forecasting precision and aid in the formulation of investment and policy decisions in the gold industry.

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8

Trade Protection and Foreign Direct Investment in India's Manufacturing Sector

Pratiksha Goswami*

ABSTRACT

India's manufacturing sector is appraised as the engine of economic growth as it boosts the process of economic growth by providing employment not only in the manufacturing sector but also in the other sectors via multiplier effect. The antithetical policy of welcoming FDI inflows concomitantly high import tariffs has captivated to study the linkage between FDI and trade protection in India's manufacturing sector. The objective of the study is to examine the relationship between Most favored nation tariff and FDI inflow in the manufacturing sector in India. The second objective is to find out the influence of industry specific factors in the determination of tariff decision. In the long run, trade protection in the manufacturing sector is found to be associated with FDI inflows and the results are statistically significant. The results of the error correction models indicate that in the short run increase in protectionist behavior in the manufacturing sector leads to an appreciation of foreign direct investment inflow into that sector. The panel regression results show that as FDI in a particular industry at one time period lag decreases, tariff rates on goods related to these industries increases to attract more FDI.

Keywords: *Tariff, co-integration, economic growth, linkage, foreign capital.*

INTRODUCTION

The countries which devote higher proportion of output to investment may sustain more rapid growth than countries that invest less (UNCTAD,1999). Albeit investment is regarded

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as one of the drivers of growth, the developing countries like India face the problem of capital inadequacy due largely to inadequate domestic capital formation. Developing countries can overcome this constraint through capital inflows from abroad in the form of foreign direct investment (FDI), foreign portfolio investment (FPI), loans and grants either from various countries or international institutions etc.FPI can be regarded as "hot money" because it causes drastic swings in the stock market (Bhattachary,1996). Whereas FDI is more stable and non-debt creating inflow of overseas capital that can cover up the domestic capital constraint. Prasanna (2010) found that FDI inflow is much more dominant factor than growth in real GDP in directly contributing to domestic investment during 1991-91 to 2006-07 in India. Along with this, it acts as booster dose to enhance productivity through knowledge spillovers, technology transfer and acts as a supplement to growth through its impact on various macroeconomic variables. Chakraborty and Nunnenkamp (Chakraborty & Nunnenkamp,2008) in their studs finds that manufacturing output in case of India have been positively affected not only by FDI in this sector but also by FDI in service sector through spillover across the sectors. Over time may be due India's liberalizing polices in case of FDI caps in various sectors, improving its position in ease of doing business, infrastructure development, high customs duty or other restrictive tariff and non-tariff measures or may be India's stand as pool of both semi-skilled and unskilled worker and the most important "Make in India" initiative make India's manufacturing sector a magnet in attracting foreign companies to invest in India. The cumulative FDI inflow in manufacturing subsectors in India is $100.35 billion during the period of April 2000 to June 2021.

As we have mentioned above, there are a wide range of factors that influence the inflow of foreign direct investment to India's manufacturing sector. Among them trade barriers either in the form of tariff or non-tariff measures may have substantial influence on FDI inflow in India. Trade barriers placed in the foreign countries induce firm's willingness to produce in overseas which is considered as the oldest elucidation of inflow of foreign capital (Paul Azrak& Wynne,1995). Heitger and Stehn (1990) found positive and significant relationship between Europe's effective protection and Japanese foreign direct investment in

Europe. India's bound tariff[1] on manufactured products is 35.3% which is very much higher than its neighbor country China (9.5) and other advanced countries like United States (3.5) and Japan (2.5) in 2020.In case of Most Favored Nation tariff[2]also, India has higher tariff structure (10.8) as compared to its neighbor country China (7%) and advanced economy like United States (3.7%) in 2020. Studying the impact of US antidumping policy by Japan Paul Azrak and Wynne (1995) shows that as the number of antidumping petitions filed against Japanese firm and the probability of taking affirmative decision with respect to antidumping policy increases, the likelihood of Japanese MNCs to produce in US increases rather than serving through exports.

Bhagwati, Dinopoulos and Wong (1992) mentions that "quid pro que FDI" occurs at one period loss with a view to smoothen the threat of protection in the second period. Doupnik and Perera (2015) finds that there is a "sweet spot" for tariff rate which is high enough to fill government treasury without creating any disincentive for foreign firms in bringing their business into overseas country. Melger et al. (2013) in their cross-country study brings into being that workers rather than non-workers in all the three sectors (agriculture, industry & service) are on average more supportive of protectionist measure and increase in unemployment rate along with inflationary pressure also triggers the protectionist attitudes in the country. Chaudhuri et al. (2013) in their study on determinants of manufacturing FDI in India during 2003 to 2009 found a negative and significant relation between applied tariff and FDI inflows.

This study is an addition to the existing literature on the linkage between tariff and FDI inflow. The study takes the case of the

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1 Simple mean bound rate is the unweighted average of all the lines in the tariff schedule in which bound rate have been set. Manufacturing products are commodities classified in SITC revision 3section 5-8 excluding 68(data.worldbank.org).

2 Simple mean most favored nation tariff rate is the unweighted average of most favored nation rates for all products subject to tariffs calculated for all traded goods. Data are classified using the Harmonized System of trade at the six- or eight-digit level. Tariff line data were matched to Standard International Trade Classification (SITC) revision 3 codes to define commodity groups. Manufactured products are commodities classified in SITC revision 3 sections 5-8 excluding division 68(data. worldbank.org)

manufacturing sector of India from the period 2000-2020. The paper firstly tries to examine the relationship between the most favored nation tariff and FDI inflow in the manufacturing sector. The simple average of the most favored nation tariff has been taken as a proxy to measure protection. In addition, the paper makes an effort to find out the influence of industry specific factors in the determination of tariff decision.

METHODOLOGY

Data Sources

Data on FDI inflow to the manufacturing sector of India were collected from FDI newsletters and erstwhile SIA newsletters available in the Department for Promotion of Industry and Internal Trade. The manufacturing sub sectors selected for sector specific analysis encompasses electronic equipments[3], transport industry[4], food processing industry[5], chemical industry[6] and textile industry[7].Before using FDI figures, they are deflated using appropriate price deflators (2011 prices).

The Tariff data on manufacturing items selected for the study are collected from WTO integrated database (IDB). Simple average of MFN applied tariff data on dutiable items (Tariff line averaging method) are used for the analysis.

Since there is no separate industry level data for unemployment in India, unemployment data for the country as a whole is taken for industry level study. Unemployment data were collected from the World Bank database. Import data were obtained from ITC trade map website. As these data are available in US dollar, they are necessarily transformed to INR through the conversion factor available in the UN COMTRADE metadata site. Data on index of industrial production (IIP) are available on EPWRF India time series website. As the data on the index value are available with respect to different base periods, they are converted into 2011 base period. The full-length analysis is for the period 2000-2020.

The regression of a non-stationary time series on other non-stationary time series may produce spurious regression (Gujrati,2003). Here we begin by testing stationarity of the two variables of our interest-Log FDI and Log Tariff. With the confirmation of the same integrated order of the variables of interest, the long-run steady state relation between Log FDI and Log Tariff has been examined. If two series have common trend then regression of one on the other will not always lead to spurious regression. Symbolically,

$$LFDI_t=\beta_1+\beta_2\,LTariff_t+u_t \tag{i}$$

Where, LFD_{It}*=Log FDI in manufacturing at period t*

L $Tariff_t$*=Log of simple average tariff on dutiable manufacturing items at period t.* U_t*=residual*

Regressing Log Tariff on Log FDI we find that residual series is stationary, then we can conclude that there is long run equilibrium relation between these two series. The Engle and Granger test is used to test stationarity of residual series.

Having established the cointegration between the variables, we go for estimating ECM (Error Correction Mechanism). The relation between L FDI and L Tariff with error correction mechanism is expressed as

$$\square L\,FDI_t=\alpha_1+\alpha_2\square\,L\,Tariff_t+\pi\,u_{t-1}+e_t \qquad (ii)$$

Here α_2 measures the immediate impact of a change in L Tariff on L FDI in short run. On the other hand, π is the error correction term estimated coefficient which needs to be within the range of -1 to 0. The absolute value of π determines how quickly the long run disequilibrium is corrected through a series of short run adjustments.

In order to find out the impact of industry specific factors in the determination of tariff decision the following panel regression equation is applied

$$Tariff_{it}=\gamma_{1i}+\gamma_2\,Log\,FDI_{it-1}+\gamma_3\,IIP_{it}+\gamma_4\,Import\,growth+\gamma_5\,UN_{it}+v_{it} \tag{iii}$$

Before estimating equation iii), the stationarity of panel is tested by applying Im, Pesaran and Shin W-stat test (assuming individual root process). In order to decide between FEM (Fixed effect model) and REM (Random effect model), Hausman test is used.

RESULTS AND DISCUSSION

The results of unit root test presented in Table 1 show that both variables L FDI and LTariff are non-stationary at level. But become stationary after first differencing which indicates that both series are integrated of order one, I (1).

To determine whether both variables are cointegrated or not, we estimate equation i) with OLS and obtain the residual series.

The stationarity of residual series is a necessary condition to have long run equilibrium relation between the variables. The stationarity of residual series has been checked through Engle and Granger test and results are presented in table 2. The results reject the null hypothesis of non-stationary residual series at 10% (Engle Granger tau- statistic) and at 5% (Engle –Granger z- statistic) level of significance. Both series move together in the long run implying that both series exhibit a long run equilibrium relation. Thus, we can conclude that there is a long run equilibrium relationship between the most favored nation tariff in manufacturing output and FDI inflow to the manufacturing sector.

Table 1: Stationarity Test

Variable	p Value
Log FDI	0.6742
Log Tariff	0.1552
D (Log FDI)	0
D (Log Tariff)	0.0186

Source: *Author's own calculation*

Table 2: Results of Cointegration

Test	Value	Prob.*
Engle-Granger tau-statistic	-3.45742	0.0716
Engle-Granger z-statistic	-15.7904	0.0465

Source: *Author's own calculation*

The estimated coefficients from the equation i) are as follows-

$$Log\ FDI_t = 7.130988 - 1.441663\ Log\ Tariff_t + ut \qquad \text{(i)}$$

$$t = (14.37201) \quad (-3.437185)$$

Our findings in equation i) resemble those of Chaudhuri et al. (2013), who observe negative and significant relation between reduction in trade barriers and FDI which is efficiency seeking There is no evidence of tariff jumping FDI in case of manufacturing industry in India in the long run. The negative sign in Log Tariff in equation i) may be because FDI in manufacturing sector of India might have been in some manufacturing units such as cars, buses, television sets, mobile phones etc. that assemble imported manufacturing parts to produce the final product in

India. Tariff rate on that imported manufacturing parts reduces the effective tariff and makes processing of imported inputs for final good production costly. Moreover, manufacturing of each and every part by the foreign firms in the host nation (here India) for assembling may not be possible due to factor or resource constraint or there may not be prominent local supplier who can ensure uninterrupted supply of quality parts in a cost-efficient way. All these may discourage FDI inflow to the manufacturing sector.

In order to trace short run disequilibrium and how quickly they adjust towards equilibrium, the coefficient of error correction term has been checked. The estimated of coefficients from ii) are as follows-

$$Log\ FDI_t = —.006249 + 1.733746\ Log\ Tariff_t - 0.877915\ u_{t-1} + e_t \quad \text{(ii)}$$

$$t = (-0.082240)\ 1.397604)\ (-3.951012)$$

$$F\ statistic = 7.916031$$

The coefficient of error correction term in equation ii) is -0.877915 which is within the bound of -1 and 0 and significant at 1% level of significance. It means that 87% of the discrepancy between long run and short run L FDI is corrected within a year.

The positive coefficient of Log tariff in equation ii) captures short run impact of tariff on FDI. This result conforms to the results of studies done in other countries (Heitger and Stehn, 1990; Blonigen and Feenstra,1996; Azrak and Wynne, 1995).

This may be because imposition of import tariff increases the price of the imported product in the importing country by the amount of tariff. High price may reduce the market share in the import tariff imposing nation which foreign firms do not want to lose. Therefore, they may switch to local production via establishing its plant or by acquiring existing production set up in the host country. Sometimes higher import tariff backfires to the economic growth of a country via its adverse impact on export. On one hand, high import tariff generally improves current account balance if demand for imports is more elastic. On the other hand, it leads to appreciation of domestic currency which will adversely impact export income if demand for export is more elastic.

The results of the unit root test for panel data series are presented in Table - 3. We can see that except Log FDI at lag one period and unemployment; all are stationary at level. Log FDI at lag one is stationary after first differencing and unemployment rate is stationary after second order differencing. Results of fixed effect have been found appropriate over the random effects based on Hausman test. The estimated coefficients of equation iii) are presented below in Table 4.

Table 3: Results of Unit Root Test

Variable	Description	Im, Pesaran and Shin W-stat	p value	Conclusion
Tariff	Simple average MFN tate on duitable items	-2.84909	0.0022	Stationary at level
Log FDI_{t-1}	FDI inflows into 'i' th sector at 't-1'period	0.80789	0.7904	Non sta-tionary at level
D (Log FDI_{t-1})	FDI inflows into 'i' th sector at 't-1' period after first order dif-ferencing	-5.19792	0	Stationary
IIP	Index of industrial Production of 'i' th sector at 't' period	-1.75577	0.0396	Stationary at level
Import growth	Growth of import into 'i' th sector at 't' period	-4.78511	0	Stationary at level
UN	Unemployment rate	-0.50007	0.3085	Non-Sta-tionary at level
d(UN,2)	Unemployment rate after 2nd order dif-ferencing	-1.72014	0.0427	Stationary

Source: *Author's own calculation*

Table 4: Estimated Coefficients

Variable	Coefficient	t-Statistic	Prob.
C	28.89879	10.98932	0
LOG FDI (-1)	-0.021540	-0.016028	0.9873
IIP	-0.022908	-0.861237	0.3918
IMPORT_GROWTH	0.054905	1.740682	0.0857

UNEMPLOYMENT	2.087225	2.042650	0.0445
R-squared	0.927376	F-statistic	122.9074
Adjusted R-squared	0.919831	Prob(F-statistic)	0

Source: *Author's own calculation*

All explanatory variables have expected signs, but all are not individually statistically significant except unemployment rate. But with a highly significant F statistics (122.9074), we can reject the null hypothesis that all the coefficients in the regression model are equal to zero. One percent decrease in the value of L FDI one period prior to the tariff decision expected to have increase in average simple MNF tariff rate by.00021[3]units. While one unit decrease in the growth of specific manufacturing industry depicted through IIP will lead to increase in tariff around 2%increase in tariff. High import growth also triggers tariff rate along with unemployment rate. One million increase in import growth leads to approximately 5% increase in manufacturing tariff rate. Among all explanatory variables, unemployment rate has the strongest influence on tariff decisions and only this variable is statistically significant at individual level. One percent increase in unemployment rate leads to more than 200% increase in manufacturing tariff rate.

CONCLUSION

The applied effective tariff (MFN) is a one way to protect native industries and to attract foreign capital. India automobile industry, being the fourth largest in the world, is considered as one of the main drivers of manufacturing sector in India as it contributes 35% of manufacturing GDP in 2021 and also a lucrative sector in terms of GDP contribution(around 6.4% of GDP in 2021), is able to attract cumulative equity FDI inflow of about US$ 32.84 billion between April 2000-March 2022[4].The automobile industry which is closed up to 1982 is still heavily shielded through high import duties and non-tariff measures. The MFN rate for completely build up units (CBUs) is between 60% to 100% in 2020-21 whereas 15% for completely knocked

3 In case if independent variable is log transformed then divide the coefficient by 100, it tells us that a 1% increase in the independent variable increases (or decreases) the dependent variable by (coefficient/100) units(https://data.library.virginia.edu/)

4 https://www.ibef.org/industry/india-automobiles

down (CKD) kits, 30% for engines and transmission mechanisms. On one hand such as high MFN rate and on the other hand liberalizing FDI regulations by allowing 100% FDI, is likely an indication that some percentage of FDI in this sector is basically for tariff avoiding purpose. It is very much true that high tariff rate has not always been used as beneficial tool to increase the domestic manufacturing of items. Along with this, infrastructure facilities, R&D activities, skill enhancement programs, various kinds of production linked incentives, tax concession to start up also necessary to boost up domestic manufacturing and increase in percentage of domestic value addition in a country.

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9

Climate Change Impacts in Livelihoods: An Environmental Accounting Perspective

Ayushi Mishra*, Dr. Rajat Sharmacharjee**

ABSTRACT

Climate change poses significant challenges to livelihoods, disproportionately affecting vulnerable communities dependent on natural resources. This review explores the multifaceted impacts of climate change on socioeconomic conditions through the lens of environmental accounting. By integrating theoretical frameworks and real-time case studies, it highlights how environmental accounting serves as a vital tool for quantifying and mitigating these impacts. Key findings underscore the role of data-driven methodologies in identifying climate vulnerabilities, improving resource management, and shaping adaptive policies. Practical applications and case studies from diverse regions provide insights into resilience-building and sustainable livelihood strategies. The review concludes by advocating for interdisciplinary approaches and enhanced policy integration to address the cascading effects of climate change on global livelihoods.

Keywords: *Climate Change, Livelihoods, Environmental Accounting, Socioeconomic Impacts, Sustainability.*

INTRODUCTION

Climate change represents one of the most pressing global challenges of the 21st century, with widespread implications for ecosystems, economies, and human livelihoods. From rising sea levels and intensified natural disasters to shifting agricultural patterns and resource scarcity, the cascading effects of climate change disrupt socioeconomic structures, particularly

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in vulnerable communities. These disruptions underscore the need for innovative and integrative approaches to understand, measure, and mitigate their impacts.

Environmental accounting emerges as a critical framework in this context, offering tools and methodologies to quantify the economic, social, and ecological dimensions of climate change. By bridging the gap between ecological realities and socioeconomic priorities, environmental accounting facilitates informed decision-making and policy formulation. It enables stakeholders— governments, corporations, and communities— to assess the costs of environmental degradation and the benefits of sustainable interventions.

This review delves into the complex interplay between climate change and livelihoods through the lens of environmental accounting. It synthesizes theoretical insights and empirical evidence, highlighting how environmental accounting frameworks can be applied to measure climate- induced livelihood vulnerabilities. By integrating real-time case studies and practical applications, the review underscores the potential of environmental accounting in fostering resilience, sustainability, and equitable resource management.

The subsequent sections explore the historical evolution of environmental accounting, the impacts of climate change on livelihoods across diverse sectors, and the application of accounting tools to address these challenges. The review concludes with a call for interdisciplinary approaches, emphasizing the need for collaborative efforts in research, policy, and implementation to tackle the multifaceted impacts of climate change.

2. THEORETICAL FRAMEWORK

Environmental accounting provides a systematic approach to evaluating and addressing the economic, social, and ecological dimensions of environmental changes, including those driven by climate change. Rooted in interdisciplinary methodologies, it integrates principles from economics, ecology, and sustainability science to quantify the interactions between human activities and natural systems.

2.1 Defining Environmental Accounting

Environmental accounting and reporting are the most important aspects of corporate sustainability in the last few decades. Industrial activities, especially in resource-intensive sectors have increased the level of environmental concerns such as climate change, pollution, and resource depletion. Environmental accounting is a framework that goes beyond traditional financial accounting by incorporating the costs and benefits of environmental resources and impacts. This framework supports decision-makers in identifying trade-offs, optimizing resource allocation, and formulating strategies for sustainable development. There are two broad categories of environmental accounting:

- Physical Environmental Accounting

  Physical environmental accounting emphasizes the measurement of natural resources used and pollutants released in the course of business activities. It is measured in terms of energy usage, water consumption, waste produced, and GHG emissions.

- Monetary Environmental Accounting

  Monetary environmental accounting involves assigning economic values to environmental costs and benefits. These include:

  (i) **Environmental Protection Costs:** Expenditures incurred for pollution control, waste management, and compliance with environmental regulations.

  (ii) **Environmental Damage Costs:** Financial impacts of environmental degradation, such as fines for non-compliance, cleanup costs, and loss of goodwill.

  (iii) **Environmental Benefits:** Cost savings achieved through energy efficiency, waste reduction, and resource conservation (Bennett et al., 2002).

2.2 Linking Climate Change and Livelihoods

The livelihoods of communities, particularly those reliant on climate-sensitive sectors such as agriculture, fisheries, and forestry, are highly vulnerable to environmental changes. Climate change exacerbates these vulnerabilities through extreme weather events, resource scarcity, and loss of biodiversity. Environmental accounting helps to quantify these impacts, providing a foundation for targeted interventions that enhance adaptive capacity and resilience.

2.3 Theoretical Perspectives in Environmental Accounting

- **Political Ecology**: Examines how power dynamics and socioeconomic inequalities shape access to and control over environmental resources. This perspective highlights the role of corporate entities, governments, and local communities in addressing climate-induced livelihood challenges.
- **Sustainability Science**: Focuses on the integration of economic, social, and environmental dimensions to achieve long-term sustainability. Environmental accounting frameworks align with this perspective by offering tools to assess sustainability metrics and inform policies.
- **Triple Bottom Line (TBL)**: Introduced by John Elkington, TBL accounting emphasizes three interconnected dimensions—economic, social, and environmental. Applying TBL to climate change impacts provides a holistic view of the costs and benefits of mitigation and adaptation strategies.

2.4 Methodologies in Environmental Accounting

- **Natural Resource Valuation**: Assigns economic value to resources such as water, forests, and fisheries to measure their contribution to livelihoods.
- **Carbon Footprint Analysis**: Quantifies greenhouse gas emissions at organizational, sectoral, and national levels to inform mitigation efforts.
- **Cost-Benefit Analysis (CBA)**: Compares the costs of environmental degradation or climate adaptation projects against their benefits to prioritize interventions.
- **Environmental Impact Assessment (EIA)**: Evaluates the potential impacts of projects and policies on ecosystems and communities.

2.5 Relevance to Policy and Practice

Environmental accounting not only provides a set of tools for measuring the interactions between economic activities and environmental changes, but it also plays a critical role as an intermediary between between scientific knowledge and policymaking. By translating complex environmental data into quantifiable metrics, environmental accounting empowers governments, institutions and business to develop evidence-based policies that are both pragmatic and forward looking.

These policies can guide the strategic allocation of resource, ensuring that environmental and social investments are made where they are most needed and will have the greatest impact. In the face of climate change, environmental accounting become espically vital- it helps to identify vulnerabilities, assess risks, and monitor progress towards resilience and adaptation goals. Furthermore, by integrating dimensions of social equity and environmental justice, environmental accounting promotes accountability and t ensuring that the needs and voices of marginalized and vulnerable populations are not overlooked in environmental decision- making. It fosters inclusivity by recognizing that climate change disproportionately affects communities with the least capacity to adapt. As such, environmental accounting is not merely a technical exercise, but a dynamic framework that supports ethical governance and inclusive development. This theoretical foundation is essential for understanding how environmental accounting can inform and shape responses to the complex, interconnected impacts of climate change on human livelihoods. The following sections turns to a review of the existing literature, which situates these theoretical insights within practical, real world applications and case studies, demonstrating how environmental accounting is being utilized across different contexts to address the pressing challenges posed by changing climate. .

Table 1: Policy Implications and Recommendations

Policy Focus Area	Recommended Action	Expected Outcome	Reference
Local Governance	Strengthen climate adaptation policies	Enhanced community resilience	(4, 15)
Corporate Responsibility	Mandate sustainability reporting	Transparent mitigation efforts	(7, 10)
International Collaboration	Increase funding for climate adaptation projects	Global equity in resource use	(3, 14)
Technology and Innovation	Invest in renewable energy and early warning systems	Reduced vulnerability to extremes	(6, 13)

Table 2 Climate Change Impacts on Key Sectors

Sector	Impact Description	Affected Regions	Reference
Agriculture	Decline in crop yields due to erratic rainfall patterns	South Asia, Sub-Saharan Africa	(3, 18, 11)
Fisheries	Coral bleaching and loss of fish stocks	Caribbean, Southeast Asia	(2, 6, 13)
Forestry	Deforestation and habitat loss due to extreme weather	Amazon Basin, Indonesia	(7, 17)
Tourism	Reduced eco-tourism revenue due to ecosystem degradation	East Africa, Oceania	(3, 19)

3. LITERATURE REVIEW

The literature on climate change impacts and the role of environmental accounting in mitigating these effects spans various disciplines, highlighting the interplay between ecological, social, and economic factors. This section reviews key studies to contextualize the theoretical framework and explore how environmental accounting is applied in addressing climate-induced livelihood challenges.

3.1 Historical Perspective on Environmental Accounting

Environmental accounting has evolved significantly since its inception as a response to growing concerns about environmental degradation and unsustainable development. Early works by Gray (1992) emphasized the need to integrate environmental considerations into financial reporting, laying the groundwork for subsequent research that explored its applicability to climate change. Over time, methodologies such as cost-benefit analysis and ecosystem service valuation have emerged as essential tools for assessing environmental impacts.

3.2 Climate Change Impacts on Livelihoods

3.2.1 Vulnerable Sectors

Agriculture, fisheries, and forestry are the most climate-sensitive sectors, directly influencing the livelihoods of billions worldwide. Studies by Badjeck et al. (2010) and Cline (2007) reveal that changing precipitation patterns, rising temperatures, and increased frequency of extreme weather events disrupt food production and availability. For instance: In South Asia, shifting monsoon patterns exacerbate food insecurity among rural communities dependent on rain-fed agriculture. Coral bleaching caused by rising sea temperatures threatens fishery-based livelihoods in the Caribbean (McWilliams et al., 2005).

3.2.2 Socioeconomic Vulnerabilities

The dynamics of vulnerability are deeply rooted in poverty, inequality, and resource scarcity. Eriksen et al. (2005) underscore the importance of localized coping strategies in mitigating the socioeconomic impacts of climate change. Additionally, Hahn et al. (2009) introduced the Livelihood Vulnerability Index, a pragmatic approach to assessing risks from climate variability, emphasizing the need for targeted interventions to support marginalized communities.

3.3 Intersection of Environmental Accounting and Climate Impacts

Environmental accounting provides actionable insights into the multifaceted impacts of climate change by offering metrics and tools for informed decision-making. Key studies include:

- **Natural Resource Valuation**: Lal (1990) highlighted the role of mangrove ecosystems in shoreline protection and their economic valuation as a tool for sustainable resource management.
- **Carbon Footprint Analysis**: Cline (2007) quantified the contribution of agricultural practices to greenhouse gas emissions, enabling targeted mitigation strategies.
- **Cost-Benefit Analysis**: Seaman et al. (2014) demonstrated how CBA frameworks could prioritize climate adaptation projects, particularly in resource-constrained settings.

2.4 Case Studies and Practical Applications

2.4.1 Regional Impacts

Real-world applications of environmental accounting frameworks provide insights into their effectiveness. For example:

- In Sri Lanka, Amarasinghe et al. (2005) used spatial clustering of rural poverty and food insecurity data to design adaptive measures for climate-resilient agriculture.

- In Colombia, studies on hydropower projects revealed the role of environmental accounting in addressing socio-environmental conflicts, highlighting the importance of participatory approaches.

2.3.2 Corporate Responsibility

Corporate environmental accounting has gained prominence as businesses recognize the economic and reputational risks posed by climate change. UNEP-WCMC (2006) emphasized the role of private sector accountability in conserving biodiversity and reducing emissions.

2.4 Gaps and Opportunities in Research

Despite substantial progress, gaps remain in the integration of environmental accounting into climate change mitigation efforts. Few studies address the intersection of accounting metrics with indigenous knowledge systems and local governance. Additionally, the need for real-time data and interdisciplinary research remains critical to bridging science-policy divides and fostering actionable solutions.

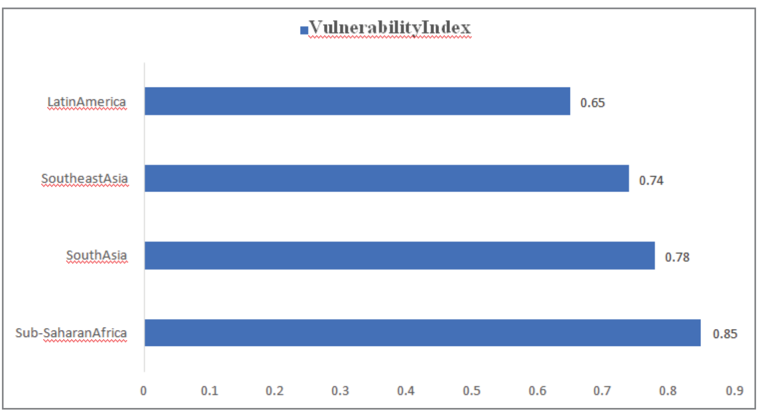

Figure 1: Regional Vulnerability to Climate Change Impacts

The figure titled "*Regional Vulnerability to Climate Change Impacts*" presents a Vulnerability Index for Latin America, Southeast Asia, South Asia, and Sub- Saharan Africa, using a scale from 0 (least vulnerable) to 1 (most vulnerable). Sub Saharan Africa has the highest index at 0.85, indicating it is the most vulnerable region among those listed. Although exact values for Latin America, Southeast Asia, and South Asia are not provided, their relative positions suggest they have lower vulnerability levels, likely ranging between 0.4 and 0.8. Overall, the index underscores the unequal burden of climate change, with developing regions-particularly Sub- Saharan Africa- facing significantly higher risks due to greater exposure and limited adaptive capacity.

4. DISCUSSION

The impacts of climate change on livelihoods underscore a pressing global challenge that demands innovative and interdisciplinary solutions. This review highlights the role of environmental accounting as a transformative framework for addressing the economic, social, and ecological dimensions of these impacts. The discussion integrates key findings from the literature, offering insights into the practical applications and limitations of environmental accounting in mitigating climate-induced vulnerabilities.

4.1 Integrating Environmental Accounting into Climate Adaptation

Environmental accounting has proven its utility in measuring and managing the effects of climate change across diverse sectors. For instance, natural resource valuation has enabled policymakers to assign economic significance to ecosystems, such as mangroves and forests, which are critical for buffering climate impacts. Similarly, carbon footprint analysis has provided actionable data for reducing greenhouse gas emissions. These tools not only guide decision-making but also foster accountability among stakeholders, including governments, corporations, and local communities.

However, the application of these methodologies often faces practical constraints. Limited access to accurate and timely data, especially in resource-constrained settings, hinders the efficacy of accounting frameworks. Furthermore, the socio-political dynamics of environmental governance can impede the equitable distribution of resources and the implementation of adaptation measures.

4.2 Climate-Sensitive Livelihoods and Vulnerability

The disproportionate impact of climate change on sectors such as agriculture, fisheries, and forestry highlights the vulnerability of communities dependent on these resources. Studies reviewed in this paper illustrate how environmental accounting can assess the economic costs of reduced crop yields, depleted fisheries, and deforestation. In regions such as South Asia and Latin America, these insights have informed the design of adaptive measures to mitigate livelihood disruptions. Nonetheless, the intersection of climate vulnerability with socioeconomic factors such as poverty, inequality, and resource access requires further exploration. Current frameworks often fail to incorporate localized knowledge systems and traditional practices, which are vital for crafting culturally sensitive and contextually relevant interventions.

4.3 Resolving Socio-Environmental Conflicts

Environmental accounting also plays a pivotal role in resolving socio-environmental conflicts by quantifying the trade-offs between development projects and community well-being. For example, case studies on hydropower projects in Colombia reveal the potential of participatory accounting frameworks to mediate disputes and promote sustainable development. By integrating counter- accounting practices, environmental accounting empowers marginalized communities to challenge exploitative resource management practices and advocate for equitable solutions.

However, the effectiveness of such interventions depends on the willingness of governments and corporations to engage in inclusive decision-making processes. Resistance to transparency and accountability often undermines the transformative potential of environmental accounting.

4.4 Policy Implications and Opportunities

The findings of this review suggest that environmental accounting must be integrated into climate policies at multiple levels, from local governance to international frameworks. By quantifying climate impacts and identifying cost-effective adaptation strategies, environmental accounting can bridge the gap between science and policy. Additionally, incorporating metrics such as the Livelihood Vulnerability Index can enhance the precision of climate risk assessments and resource allocation.

Future research should focus on addressing the gaps identified in this review. This includes leveraging technological advancements, such as satellite imaging and big data analytics, to improve the accuracy and accessibility of environmental accounting tools. Furthermore, fostering interdisciplinary collaborations and community engagement can enhance the inclusivity and effectiveness of accounting frameworks.

4.5 Challenges and Limitations

While environmental accounting offers valuable insights into the interplay between economic activities and environmental impacts, its applications is fraught with significant challenges that hinder its full potential. One of the primary difficulties lies in the complexity of integrating economic, ecological, and social dimensions into a cohesive framework. These domains operate under different principles and metrics—economic systems prioritize monetary values and market efficiency, ecological systems are governed by biophysical limits and interdependencies, and social systems emphasize equity, cultural values, and human well-being. Attempting to merge these perspective often leads to oversimplifications, such as reducing biodiversity loss to a single monetary value or ignoring the long term social implications of environmental degradation. Moreover the absence of standardized methodologies and universally accepted metrics further exacerbates these issue. Without common benchmark, environmental accounting can produce inconsistent or even biased results that vary across institutions, regions, or sectors, undermining its credibility and comparability. These discrepancies can also open the door to greenwashing or misrepresentation of environmental performance. Addressing these limitations demands demand a concerted efforts by policymakers, scientists, economist, and other stakeholders to develop unified, transparent and scientifically grounded frameworks. Such framework must not only capture the multifaceted nature of sustainability but also remain adaptable to diverse socio-economic and ecological contexts. Achieving this balance is essential to ensure that environmental accounting become a truly effective tool for guiding sustainable development and informing sound environmental governance.

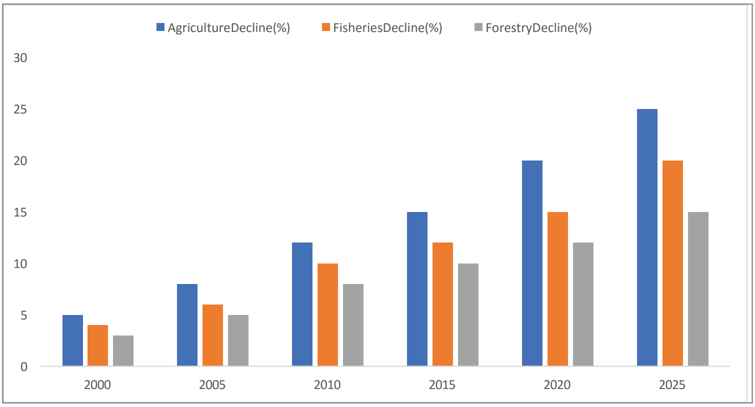

Figure 2: Impacts of Climate Change on Key Sectors

The bar graph titled " *Figure 2 : Impacts of Climate Change on Key Sectors* " illustrate a concerning trend in the percentage decline of agriculture, fisheries and forestry between 2000 and 2025, underscoring the escalating impact of Climate change on vital economic and ecological sectors. Over the 25-year period, all three sectors exhibit a steady and significant increase in decline, with agriculture emerging as the most adversely affected, experiencing an approximate 25% decrease by 2025. Fisheries follow closely behind with a 20% decline, while forestry, though comparatively less affected, still shows a substantial 12% reduction. This pattern of increasing vulnerability highlights the far-reaching consequence of global warming, including shifting weather patterns, rising temperatures, sea level rise, and increased frequency of extreme weather events, all of which directly disrupt food production, aquatic ecosystems and forest health. The data reinforces the urgent need for coordinated efforts to mitigate the effects of climate change by adopting sustainable practices, enhancing resource management, and implementing climate- resilient strategies tailored to the unique challenges faced by each sector.

CONCLUSION

Climate change continues to profoundly disrupt livelihoods, particularly among vulnerable communities reliant on natural resources. This review underscores the critical role of environmental accounting in addressing these challenges by providing comprehensive metrics and tools to quantify and mitigate climate impacts. By integrating economic, social, and ecological dimensions, environmental accounting bridges the gap between scientific understanding and practical policy interventions.

Theoretical perspectives such as political ecology and sustainability science emphasize the interconnectedness of power dynamics, resource management, and social equity. These frameworks enhance the utility of environmental accounting by incorporating diverse stakeholder perspectives and addressing systemic vulnerabilities. Empirical studies further validate the application of accounting methodologies, such as cost-benefit analysis and natural resource valuation, in crafting adaptive strategies and fostering resilience.

Key findings reveal that sectors such as agriculture, fisheries, and forestry are disproportionately affected by climate variability, highlighting the urgent need for targeted interventions. Real-world applications demonstrate the efficacy of environmental accounting in designing sustainable resource management practices, resolving socio-environmental conflicts, and promoting corporate accountability.

However, significant gaps remain in the integration of environmental accounting with local governance systems, indigenous knowledge, and real-time data analytics. Bridging these gaps requires an interdisciplinary approach that combines robust research, participatory frameworks, and innovative technologies.

This review advocates for the expansion of environmental accounting frameworks to encompass a broader range of socio-environmental contexts and stakeholder needs. By leveraging its potential, policymakers, researchers, and practitioners can collectively work toward sustainable and equitable solutions to the multifaceted challenges posed by climate change.

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Non-Performing Assets in IDBI Bank Ltd: A Case Study on Micro, Small, and Medium Enterprises Lendings in Arunachal Pradesh

Karbar Riba*

ABSTRACT

India's micro, small, and medium enterprises are among the most important sectorsundertaking different activities such as service, manufacturing, exports, etc. This sector borrows loans and advances from Banks and other financial institutions to carry out their activities efficiently and effectively. However, the MSME sector is exposed to various business risks, which may result in non-repayment of the principal and interest amount under the stipulated period to banks, and the account may slip into the NPA category.Consequently, it affects the profitability and liquidity of the lending banks. As a result, the bank has to make a provision for the NPA accounts with a certain percentage of the outstanding amount as per RBI guidelines.The present study examines the level of NPA and the guidelines of NPA, and the measures to reduce NPA of the micro, small, and medium enterprise sector concerning IDBI Bank Ltd. Itanagar branch, Arunachal Pradesh. The study is based on secondary data sources from 2010 to 2022. The study is descriptive and analytical.

Keywords: *MSME, NPA, Gross NPA and Net NPA, IDBI Bank Ltd.*

INTRODUCTION

Today, IDBI Bank Ltd is a universal bank providing services to various segments. On 1st July of 1964, the Industrial Development Bank of India (IDBI) was established as an apex Development Financial Institution (DFI) under the Industrial Development Bank of India Act, 1964, vide GOI notification

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dated June 22, 1964. On 1st October 2004, the former IDBI was converted into a banking company, i.e. IDBI Ltd, to undertake all banking activities. IDBI Ltd merged with its subsidiaries –the former IDBI Bank, IDBI Home Finance Ltd, IDBI Gilts, and the erstwhile United Western Bank Ltd over time. IDBI Ltd changed its name to IDBI Bank Ltd to widen its business.It was regarded as a Public Sector Bank and categorized under "Other public sector bank", which was undertaken by the Government of India. However, on 21st January 2019, the Reserve Bank of India re-categorized IDBI Bank Ltd as a "Private Sector Bank" for regulatory purposes. Consequently, Life Insurance Corporation of India acquired 51% of the bank's total paid-up equity share capital.Thecommercial operations of IDBI Bank are divided into Retail banking and corporate banking. Like other banks, IDBI banks are instructed and directed by the government to provide financial assistance to the MSME sector, as the Micro, Small, and Medium enterprises have a prominent contribution in the growth and development of the Indian economy in different aspects in the service and manufacturing sectors.

The government of India plays the role of administrator to encourage and direct banks to provide credit facilities to the MSME sectorwith a certain level of interest subvention. In other words, there is an aggressive policy of Government to provide loans and advances to MSMEs sectors which may lead to stressed loan account as to fulfill the targets given by authority in a stipulated period, the lending banks is not in a position to complete the process of credit appraisal properly, as they have to focus on quantity rather than quality of assets. As such, the number of NPA accounts increased. Banks have two aspects to carry out their banking business; firstly, they have social responsibilities where they have to carry out services towards the benefit of society, and secondly, their primary purpose is to earn profit,which is the blood of the banking sector, without which the banks will turn into bankruptcy. Apart from lending to MSMEs, banks have to take care of their financial health, which can be measured in terms of banks' profitability, capital adequacy, liquidity, quality of assets and provisioning of the NPA accounts.The increasing level of NPA has become a serious concern for the banking sector in India because it reflects the financial health status of banks in terms of overall performance.A rising NPA level indicates unhealthy banking activities, which reflects a weak economy as a whole.

NPA Management

Restructuring and rescheduling strategies for NPA accounts are considered one of the most effective and efficient tools to reduce the number of NPAs as the existing loan tenure is stretched, which enables borrowers to pay instalments in an amount manageable for borrowers. This strategy can be considered an opportunity for borrowers to fulfil the obligations owed to the bank. Besides, the terms and conditions of a loan account can also be reset, where nonrevolving credit facilities can be converted into revolving facilities (i.e., a term loan into Cash credit or overdraft).The restructuring of loan accounts enables banks to be safe in getting back the loan amount, which is already categorised as NPA, though the amount ismeagre. However, the most appropriate strategy to recover the loan amount is to visit the debtor's premises by the recovery officers of the bank. Furthermore, if these strategies fail to fulfil the purpose, the lending banks will approach Asset Management Companies, which is time-consuming and involves high costs.

NPA's practical and efficient management is the key to keeping the lousy loans within the tolerance level. In a view to prevent NPAs, Reserve Bank of India has introduced the system called "Early Warning Signal" where the lending banks identify credit deterioration signal at early stage and monitor their performing assetsto keep away from being slipped into NPA by initiating immediate remedial action if found any problem in loan accounts at initial stage. The level of NPA is one of the parameters that measure the banks' financial health and overall performance.

Scenario of the MSME sector during the COVID-19 Pandemic

The MSME sector plays a vital role in developing the economy. During the COVID-19 pandemic, the MSME sector wasseverely affected.It was challenging for them to survive in the market as the business could not run normallydue to countrywide lockdowns due by theCOVID-19 pandemic. Toresiliency the MSME sector, the Reserve Bank of India and the government of India have introduced policies and guidelines to give external liquidity support to debtors in the MSME sector. In this regard, one of the most popular credit facilities for the MSME sector was introduced in the year 2020, which is known as the Emergency Credit Line Guarantee Scheme (ECLGS) to help banks in credit growth and to keep the pace of business continuity. Moreover, itboosts the entrepreneurs' abilityto stand firm even during a pandemic.Here, most of the disbursed funds were utilised to repay the overdue amount of existing credit facilities of existing MSME borrowers and prevent loan accounts from falling into NPA. The main purpose of ECLGS was to support sick MSMEsin copingwith prevailing market conditions during the pandemic. These facilities help MSMEs to revive their business activities amidst the worst scenario.

REVIEW OF LITERATURE

Tiwari, J. K., & Swarup, G. (2013), in their journal "Micro, Small, and Medium Enterprises: An Overview," have focused on the number of working MSMEs in India and their impact on employment opportunities, potential production, and export. The study reveals that an increase in the number of working MSMEs leads to the generation of employment opportunities, an increase in productivity in MSMEs, and an increase in exports.

Venkatesh, J., & Kumari, R. L. (2016). NPA Management by Commercial banks-Problems &prospects of Indian MSME Sector" has focused on the Banks and MSMEs affected by NPA, measures to identify efficient and effective management of NPA, analyses of NPA of Indian banks, and problems and prospects in lending to MSMEs. The study is descriptive and analytical of secondary data collected for the period of five years (2008-2013), and the data has been analysed with the help of statistical tools like percentage, average, ratio analysis and comparative statement analysis. The study concluded that NPA can be reduced by implementing proper credit assessment, proper NPA management mechanisms and adoption of prudential norms by the banks.

Alamelumangai, R., Sudha, B., & Nagamuthu, T. (2017) in their article entitle "NPA Crisis in IDBI Bank – An analysis" has examine the level of NPA, fresh NPA slippage for 14 years from the year 2005 to 2018, analyse NPA in sectorwise for the period of 10 years i.e, from 2009 to 2018 and status of NPA in both priority and non-priority sector. The study was conducted with the help of secondary data and analysed using statistical tools, i.e., ratio, percentage, and average. The study concluded that the Gross NPA of IDBI Bank started rising from the year 2015 and was at its peak in 2018. The Bank should adopt various recovery measures to recover from the NPA crisis.

Mund, C. S. (2020), in their journal entitle "Problems of MSME Finance in India and Role of Credit Guarantee Fund Trust for Micro and Small Enterprises(CGTMSE)" has discussed on the source of finance to MSMEs, problen arise in financing MSMEs, and financial assistanceto MSMEs by availing the facility of CGTMSE (Credit Guarantee Fund Trust in Micro andSmall enterprise).Based on secondary data, the study analyses credit flow to the MSME sector for 5 years from 2019 to 2019.The study concludes that the MSME sector's finance problem persists with banks and entrepreneurs.It is also found that the rate of NPA for MSME is less than that of large enterprises. It is also revealed that the rejection of credit for the projects is due to prospective debtors' lack of collateral security.It is safe for banks to grant credit under CGTMSE.

Problem of the Study

The mounting of NPA in Banks is a significant concern as it has an impact on the profitability and operational activity of the lenders. NPA not only affect banks but also the economy as a whole. The Reserve Bank of India imposed restrictions on IDBI Bank Ltd on the further expansion of new branches. It restricted credit lending to risk-bearing units, which were known as PCA (Prompt Corrective Action), because of the deterioration in their financial health due to the mounting of NPA and losses to the bank. The bank was put under the PCA framework in May 2017. The PCA framework is removed only when a bank fulfils all the criteria given by the RBI. Due to PCArestrictions, the Bank could not source fresh assets business, further preventing the bank from earning income.However, during the quarter ending December 2020; it was found that IDBI Bank Ltd fulfilled PCA parameters set by the RBI on regulatory capital, Net NPA, and leverage ratio. Consequently, the IDBI Bank Ltd was freed from the PCA framework.

Objective of the Study

The level of NPA has become an indicator of the economy's health globally, which means that the higher the level of NPA, the lower the growth and development of lending banks in particular and the economy as a whole, and vice versa. The need of the hour is to maintain the quality of assets to make an economy healthy and wealthy. The following are the objectives of the study.

1. To study the levelof NPAunder MSME sectors in IDBI Bank in the Itanagar Branch, Arunachal Pradesh.
2. To highlight the guidelines of NPA as issued by the RBI.
3. To examine the corrective measures initiated by the bank to reduce NPA.

Research Methodology

The present study is based on secondary data. The information has been collected from the various annual reports of IDBI Bank Ltd. from 2010 to 2022. The study is concentrated on the NPA in the MSME sectors under the bank's non-priority sector lending. The period of the study is spread over thirteen years, from 2010 to 2022.Furthermore, simple statistical tools like percentage, growth rate, etc., have been used to analyze the data.

Micro, Small and Medium Enterprises: An Overview

In 1999, the Government of India introduced the Ministry of Small-Scale Industries. Later, it was bifurcated into the Ministry of Small-Scale Industries and the Ministry of Agro and Rural Industries in 2001.With the enactment of the Micro, Small and Medium Enterprises Development Act, 2006 (MSMED), the Government of India formed the Ministry of Micro, Small and Medium Enterprises by merging the two ministries, i.e., the Ministry of Small-Scale Industries and the Ministry of Agro and Rural Industries. The Ministry of Micro, Small and Medium Enterprises in India is the apex body that formulates and administers laws, rules, and regulations related to MSME entities engaged in manufacturing, processing, or preserving goods and commodities. This sector is considered the backbone of the Indian economy as it helps generate significant employment opportunities with low capital costs compared to large industries. MSMEs also facilitate the reduction of regional imbalances with the process of industrialization in backwards and rural areas, which ultimately leads to equal distribution of wealth and income of the nation, resulting in socio-economic development of the economy.

Loans and advances to MSMEs are carried out without collateral security where the loan amount is less than 10 lakhs. However, if the loan amount is more than 10 lakhs, the borrowers have to provide collateral security. The revised criteria for identifying business enterprises as micro, small, and medium, as issued by the Ministry of MSME on 1 July 2020, are as follows.

Revised Classification Applicable w.e.f 1st July 2020			
Composite Criteria: Investment in Plant & Machinery/Equipment and Annual Turnover			
Classification	**Micro**	**Small**	**Medium**
Manufacturing Enterprises and Enterprises rendering Services	Investment in Plant and Machinery or Equipment: Not more than Rs 1 crore and Annual Turnover, not more than Rs 5 crore	Investment in Plant and Machinery or Equipment: Not more than Rs. 10 crore and Annual Turnover; not more than Rs. 50 crore	Investment in Plant and Machinery or Equipment: Not more than Rs.50 crore and an Annual Turnover, not more than Rs. 250 crore

Source: *Ministry of Micro, Small and Medium Enterprises*

Non-performing Assets

a. If the interest or installments of principal remain overdue for 90 days or above in respect of a term loan.

b. The account is considered "Out of Order "when the overdue or interest servicing remains more than 90 days in the case of Cash Credit or Overdraft.

c. In the case of a short-duration crop, if the installments of principal or interest payment remain overdue for two crop seasons, whereas in the case of a long-duration crop, if the installments of principal or interest remain overdue for one crop season, then the account will fall under the NPA category.

d. If the overdue amount remains unpaid for 90 days in the case of a bill purchased or discounted, then the account is classified as NPA.

TYPES OF NPA

There are two types of NPA:

a. Gross NPA

It is the summation of all the loans and advances classified as NPA, which includes provisions as of the Balance Sheet date as per RBI guidelines. It comprises Substandard, Doubtful, and Loss assets.

b. Net NPA

It isan NPA in which the amount is obtained by deducting from the Gross NPA, such as provisions and interest instalments that remain due. It is considered the actual burden of the banks.

Types of Assets

There are four types of Assets,which comprise performing and non-performing assets:

a. Standard Assets

Standard assets are loan accounts in which the borrowers pay interest and principal regularly, which helps the bank generate income. Such accounts recover principal and interest arrears within 90 days of the due date.

b. Sub-standard Assets

Substandard assets are NPA accounts for which the interest or principal amount is due for a period of more than 90 days and less than or equal to 12 months.

c. Doubtful Assets

Doubtful assets are NPA accounts in which interest or principal remains unpaid for more than 12 Months or one year.

d. Loss Assets:

A Loss asset is one where loss has been identified by the bank, internal or external auditors, concurrent auditors, or the RBI inspection, but the amount has not been written off wholly from the book of accounts.

CORRECTIVE MEASURES INITIATED BY THE BANK TO REDUCE NPA

a. Credit Information Bureau

It is a credit information company that provides credit reports and credit scores for individuals and a credit rank for companies, which are considered the decisive factors in getting loans and advances approved. TransUnion CIBIL Limited, which is commonly known as CIBIL, is India's leading Credit Information Company. The score ranges from 300 to 900. It is considered that the higher the CIBIL score, the higher the chances of getting a loan approved. The report shows the credit history of prospective borrowers.

b. Compromise Settlement Scheme

Compromise settlement is a negotiation between banks and borrowers to settle the unrecovered NPA amount, where borrowers are offered to pay their overdue amount in a small amount at a time. A one-time settlement is also a compromise settlement scheme, where debtors are given the opportunity or offered to close their NPA account by repaying an agreed-upon portion of their outstanding amount to lenders at one time.

c. Lok Adalats

As per the Legal Services Act 1987, Lok Adalat was established and is being organised by the District Authority, State Authority, Taluka or High Court or Supreme Court Legal Services Committee. The cases which involve civil liability of up to Rs 20 lacs will be eligible under the Lok Adalat. To recover bank loans,a special Lok Adalat is organised at the request of banks. As per RBI guidelines, doubtful or lost assets are eligible for Lok Adalat, and repayment of the amount should preferably be a one-time upfront payment. Herein, banks and borrowers should agree to compromise to settle the disputes; if the compromise is not possible, then the cases will be referred back to the appropriate court. No court fees are charged. Lok Adalat's award is deemed a decree of a civil court.It is final, and no appeal is allowed against the Lok Adalat's decision.

d. Debt Recovery Tribunals (DRTs) and Debt Recovery Appellate Tribunals (DRATs)

DRTs were formed in 1993 under the Recovery and Debt Due to Banks/Financial Institutions Act, a special type of civil court that exclusively deals with cases related to the recovery of loans. DRTs are applicable across India except in the states of Jammu and Kashmir. The main objective of DRTs is to expedite the recovery of high-value loan accounts that have amounts above 20 lacs. Herein, the eligible cases in DRTs can only be filed in DRTs and not in other courts. There are two levels of DRT set up, i.e., DRT for filing suit and DRAT for appealing against the decision given by DRT. However, there is no provision for appeal against decisions taken by DRAT, as they are final and binding regarding loan recovery cases. Banks or borrowers can place an appeal to DRAT against the DRT decision within 30 days from the date of receipt of the order. The Head of DRT is called Presiding Officer wherein he/she should be qualified to be District Judge which is appointed for 5 years and the maximum age limit is 65 years whereas, in case of DRAT the Head is called Chairperson who is qualified to be Judge of High Court appointed for 5 years and the maximum age limit is 67 years. A summons is issued to borrowers and guarantors by the DRT to submit their reply within 30 days.

d. SARFAESI Act 2002

The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act 2002 have three types of provisions: Creation of Asset Reconstruction Companies, Setting up of Central Registry of Charges (CERSAI), and Enforcement of Security Interest. SARFAESI Act 2002, vested authority to Lenders or creditors to take possession or symbolic possession of the security and sell it without filing suit in Court. In the Consortium account, the consent of member institutions holding at least 60% share in the loan account in terms of value is required. Consent of DRT is required to sell security if the case is pending with DRT. Banks issue Notices of 60 days under Section 13 (2) to the borrower or guarantors before taking possession. Thereafter, if there is no response from the debtor, the bank can initiate the Possession process. If the borrower places an objection, the bank must justify the possession by replying within 15 days under Sec 13 (13a). Debtors can approach DRT within 45 days of receipt of the bank's reply under Section 17 (1). Moreover, if not satisfied with the award of DRT, then the borrower can go to DRAT within 30 days from the date of receipt of the order u/s 18 (1)

Loan accounts that are not eligible:

- The outstanding balance is up to 10 lakhs.
- Loan against the Lien of deposits or pledge.
- The due amount is less than 20% of the principal /Interest.
- Security is not charged to the bank, or where there is no registration of CERSAI charges.
- Hire-purchase or lease assets.

e. Asset Reconstruction Company (ARCs)

ARC is registered under the RBI and is regulated by the SARFAESI Act 2002.When banks offer financial assistance to debtors, the borrowers must provide security for such financial aid. When an account becomes NPA and banks cannot recover the same from debtors, the lenders transfer such bad debts to ARCs to realise the same. ARC is also a financial institution that buys the secured debt of the banks at a mutually agreed value and focuses on recovering the debts or securities by itself. It takes over a portion of the lenders' debts, which are considered non-performing assets. The rights that were held by the lenders concerning debts arising from financial assistance are transferred to ARC.

RBI GUIDELINES FOR REGULATING NPA: AN OVERVIEW

According to the guidelines issued by the RBI on Prudential Norms on Income Recognition, Asset Classification and Provisioning about Advances, the following points need to be considered:

a. Banks need to recognise incipient stress in borrowers' loan accounts, and if necessary, they should be classified as Special Mentioned Accounts. Subsequently, they can be classified as non-performing accounts.

b. Borrowers should ensure timely repayment of interest and principal to avoid classifying accounts as SMA or NPA. Regarding non-revolving credit facilities, there are three types of SMA: SMA 0, SMA 1, and SMA 2. However, in the case of revolving credit facilities such as Cash credit or working capital credit facilities, there are only SMA 1 and SMA 2.

c. NPA is classified borrower-wise, not account-wise. If one loan account becomes NPA, all other borrower accounts will be categorised as NPA.

d. Credit received in the account before the day-end process will be considered for delinquency calculation at the time of asset classification. Any credit received afterwards will be treated as receipts for the subsequent day.

e. RBI has directed banks to report Stress, defaults, or NPAS to the Central Repository Information of Large Credit (CRILC) and other Credit Information Companies, etc., from time to time, which will impact debtors' credit histories.

MSME NPA OF IDBI BANK LTD, ARUNACHAL PRADESH: AN ANALYSIS

Table 1 shows the total number and value of loans and advances disbursed, Net profit, return on assets and share of MSME advances in total advances for 8 (Eight years from 2010 to 2022. The NPA data was collected based on the date of NPA, irrespective of the date and year of disbursement, while skipping the year where no NPA occurred. The loan account may not fall into NPA in the same year of disbursement. However, it may be slipped into the NPA category in the subsequent year.

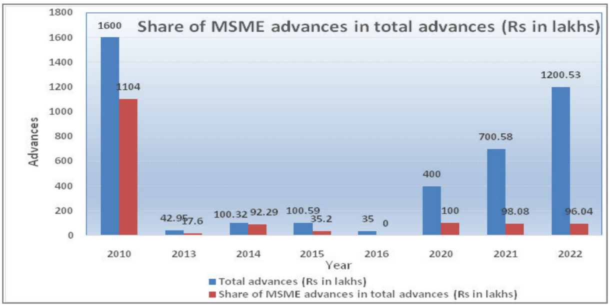
Table 1: Position of NPA in IDBI Bank, Itanagar Branch

Year	Total advances (Rs in Lakhs)	No of a/c	Net Profit (Rs in Lakhs)	Return on assets (Net profit / Total advances* 100)	Share of MSME advances in total advances (Rs in Lakhs)	Share of MSME advances in total advances (in %)
2010	1600	16	0.041	0.0037	1104	69%
2013	42.95	60	0.21	0.4889	17.6	41%
2014	100.32	48	0.25	0.2492	92.29	92%
2015	100.59	9	0.32	0.3181	35.2	35%
2016	35	6	0.16	0.4571	0	0%
2020	400	44	0.54	0.135	100	25%
2021	700.58	47	0.4	0.0571	98.08	14%
2022	1200.53	72	0.21	0.0175	96.04	8%

Source: *Priority Sector Lending Dashboard, IDBI Bank Ltd Annual Report and SAJAG Portal of IDBI Bank Ltd.*

From Table-1, it can be seen that the highest disbursement of MSME credit was seen during the year 2010, at Rs 1600 lakhs, followed by the year 2020 at Rs 1200.53 lakhs. While, the lowest disbursement of loans was carried out during the year 2016 at Rs 35 lakhs.

Diagram 1: Share of MSME Advances in Total Advances (Rs in lakhs)



Source: *Priority Sector Lending Dashboard, IDBI Bank Ltd Annual Report and SAJAG Portal of IDBI Bank Ltd.*

It is inferred from Diagram1that the highest value on share of MSME advances out of total loans and advances can be seen during the year 2010 with Rs 1104 lakhs, which is followed by the year 2021 at Rs 98.08 lakhs and so on.

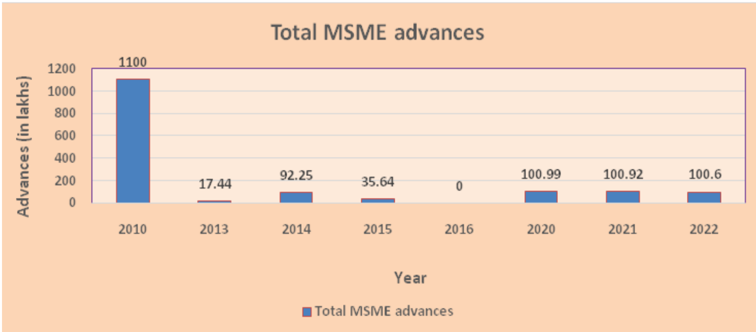
Table 2: Position of NPA under MSME Sectors in IDBI Bank, Itanagar Branch

Year	Share of MSME advances (Rs in Lakhs)	No of NPA a/c	Gross NPA (Rs in Lakhs)	Gross NPA (%)	Net NPA (Rs in Lakhs)	Net NPA (%)
2010	1100	1	1.13	0%	0.84	0%
2013	17.44	2	11.16	64%	9.48	54%
2014	92.25	22	42.84	46%	33.2	36%
2015	35.64	6	19.67	55%	11.44	32%
2016	0	7	67.7	0%	50.23	0%
2020	100.99	1	0.11	0%	0.11	0%
2021	100.92	1	0.85	1%	0.85	1%
2022	100.6	2	6.84	7%	6.84	7%

Source: *Priority Sector Lending Dashboard, IDBI Bank Ltd Annual Report and SAJAG Portal of IDBI Bank Ltd.*

Table 2 shows that the highest rate of Gross NPA occurred in 2013, at 64%, followed by 2015, at 55%, and so on. The highest rate of Net NPA occurred in 2013, at 54%, which was followed by the year 2014, at 36%, and so on.

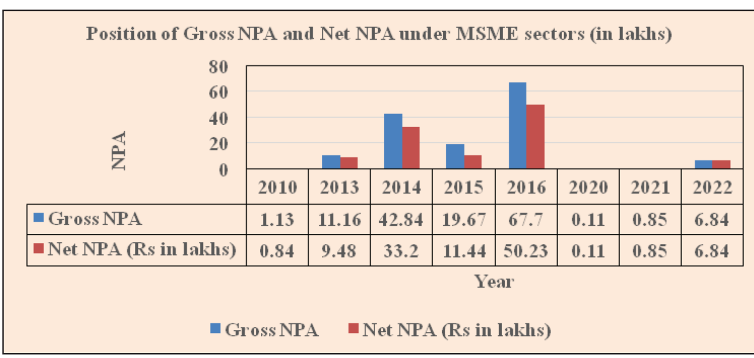
Diagram 2: Total MSME loans and advances in IDBI Bank



Source: *Priority Sector Lending Dashboard, IDBI Bank Ltd Annual Report and SAJAG Portal of IDBI Bank Ltd.*

From Diagram 2, it can be seen that the highest disbursement of MSME loans and advances in IDBI bank, Itanagar Branch was carried out during the year 2010 at Rs 1100 lakhs , which is followed by 100.99 lakhs during the year 2020 and so on. While the lowestwas seen during the year 2016 at zero which is followed by the year 2013 at Rs 17.44Lakhs.

Diagram 3: Position of Gross NPA and Net NPA under MSME sectors (in lakhs



From the diagram-3, we can see that, in terms of value, the highest Gross NPA can be seen during the year 2016 at Rs 67.70 lakhs, followed by 2014 at Rs 42.84 lakhs and soon thereafter. Whereas, the highest net NPA can be seen during the year 2016 at 50.23 lakhs, followed by 2014 at 33.20 lakhs and soon thereafter.

CONCLUSION

From the study, discussion and data analysis, we know that the MSME sector is one of the most critical sectors that generates employment opportunities, enhances production and encourages exports. As such, it helps develop the economy as a whole. To carry out the activities efficiently and effectively, these sectors need financial assistance from financial institutions. The present study concludes that there were vast numbers of NPA from 2010 to 2016 in IDBI Bank, Arunachal Pradesh. However, a decrease in the level of NPA can be seen from 2017 to 2022, which means the bank's health is improving.

The highest number of NPAs was found in 2014, i.e., 22 loan accounts slipped into NPAs. Furthermore, during 2016, the Gross NPA and Net NPA were at their peak with Rs 67.70 lakhs and 50.23 Lakhs, respectively, over the years. As we can see from the table that in the year 2016 and 2017 there were no any disbursement of loans and advances has been taken place as consequent of huge NPA in former for which branch was engaged in the process of recovery of NPA, and in subsequent year i.e., 2017 RBI put PCA framework as a result of which Bank was not able to lend tremendous amount of fund to potential debtors. In 2018, the bank started providing small credit facilities with small amounts, having less risky units by keeping their recovery activities as the primary. Upon removal of the PCA framework in the year 2020, the Bank started sourcing quality assets with the value of 100.99 lakhs, 100.92 lakhs and 100.60 lakhs in the years 2020, 2021 and 2022, respectively, with a decreasing rate of NPA. In 2021 and 2022, the gross NPA and net NPA figures were the same because of the non-maintenance of provisions.

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Economic Impact and Challenges of MSME with Special Reference to the Bell Metal Industry of Sarthebari, Assam

Guru Ranjan Nath*, Nityananda Rajkhowa**

ABSTRACT

The Micro, Small, and Medium Enterprises (MSME) sector plays a crucial role in driving inclusive growth and employment generation in India, especially in rural and semi-urban areas. The bell metal industry of Sarthebari, Assam, a traditional handicraft sector renowned for its unique craftsmanship, falls under the ambit of MSMEs and holds significant cultural and economic importance in the region. This study aims to assess the economic impact of the MSME framework on this industry, while also identifying the key challenges that threaten its sustainability. The paper explores the contribution of Sarthebari's bell metal enterprises to local employment, income generation, and artisanal heritage preservation. It evaluates how access to credit, skill development initiatives, technological support, and government policies have influenced the sector's growth trajectory. Despite its economic potential, the industry faces numerous obstacles including inadequate modernization, irregular raw material supply, weak marketing linkages, and declining interest among younger generations.

The paper concludes with policy recommendations to enhance the productivity, visibility, and sustainability of the bell metal industry, suggesting that a revitalized MSME strategy tailored to traditional industries like Sarthebari's can serve as a model for heritage-based economic development in India.

Keyword: *MSME, Bell-metal, Handicraft, Craftsmanship, Heritage.*

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INTRODUCTION

The MSME sector is an essential pillar of India's economy, playing a crucial role in job creation and industrial output. In Assam, the bell metal industry of Sarthebari stands out for its cultural heritage and economic significance. The products made from bell metal—a blend of copper and tin—are used across the state for religious, domestic, and decorative purposes. While this sector benefits from various government programs aimed at MSMEs, many artisans still work in unregulated environments, grappling with challenges like limited access to financing, technology, and markets. This study explores how the MSME framework can enhance the economic potential of the Sarthebari bell metal industry while also pinpointing the barriers that impede its growth and long-term sustainability.

History of the Bell Metal Industry of Sarthebari

The bell metal industry in Sarthebari, Assam, stands as one of the region's oldest and most esteemed traditional crafts, boasting a rich history spanning several centuries. The origins of bell metal work in Assam are believed to trace back to the Ahom dynasty (1228–1826), a period that saw the flourishing of various indigenous crafts. The Ahoms actively supported local artisans and invited skilled craftsmen from other areas, fostering a vibrant local industry. Under the patronage of the royal court and temples, the production of bell metal items became prominent, particularly for creating religious utensils and ceremonial objects. Locally referred to as the "Kahar" or the "Kahar artisan community," the artisans have diligently passed down their expertise through generations. Over the years, Sarthebari has developed into the central hub of this craft due to its rich pool of talented artisans, easy access to raw materials, and advantageous position along key trading routes. The products traditionally made include items such as:

- **Sarai** (offering plates),
- **Banbati** (bowls),
- **Kalah** (pitchers),
- **Bota** (small containers),
- Religious idols and ritual objects used in Bihu, marriages, and temple ceremonies.

In modern times, the industry has been classified under the **MSME sector**, and efforts have been made by the government and cooperative societies to revive and sustain it. The **Geographical Indication (GI) tag** has also been considered as a means to protect and promote the uniqueness of Sarthebari's bell metal products.

OBJECTIVES

1. To examine the economic contribution of the bell metal industry of Sarthebari under the MSME sector in terms of employment generation, income, and local development.
2. To identify the major challenges and constraints faced by the artisans and entrepreneurs in sustaining the bell metal industry, including production, marketing, and raw material supply.

LITERATURE REVIEW

1. **Goswami, M. (2018).** *"Traditional Craft Industries and Rural Economy: A Study on Bell Metal Industry in Assam."International Journal of Rural Studies, 25*(1), 45–52. This study examines the role of traditional craft industries in rural Assam with a focus on Sarthebari's bell metal sector. The author highlights the historical evolution of the industry and its contribution to local employment. Challenges such as lack of modernization, low pricing, and limited market access are also discussed.
2. **Das, J. C., & Hazarika, B. (2020).** *"The Role of MSMEs in Economic Development of North-East India: A Case Study of Assam."Journal of Management and Entrepreneurship, 12*(3), 25–34. This paper explores how MSMEs serve as a backbone for the economic development of Assam. It discusses the policy frameworks affecting local industries and underlines issues like financial exclusion and poor infrastructure that affect traditional MSMEs, including the bell metal sector.
3. **Nath, D. (2016).** *"Crafting Livelihoods: An Analysis of the Bell Metal Workers of Sarthebari."Assam Economic Review, 10*(2), 67–75. Nath's fieldwork-based study provides insights into the socio-economic condition of bell metal artisans. The paper focuses on skill inheritance, artisan identity, and generational shifts away from the craft. It also critiques the limited impact of government schemes.

4. **Ministry of Micro, Small & Medium Enterprises (MSME). (2021).** *"Annual Report 2020–21."* Government of India. This report outlines national-level MSME schemes, credit support programs, and artisan-specific interventions. It serves as a benchmark to analyze the gap between policy and practice when applied to traditional industries like bell metal crafting.

5. **Baruah, R., & Sharma, D. (2019).** *"Sustainable Handicrafts and Rural Development: A Case of Traditional Metal Crafts in Assam."Indian Journal of Sustainable Development, 7*(1), 59–66. This paper discusses sustainability in rural handicrafts and proposes models for integrating traditional crafts with modern enterprise systems. It specifically mentions the bell metal industry's need for branding, e-commerce inclusion, and youth engagement.

RESEARCH METHODOLOGY

This study adopts a mixed-method approach, combining both **qualitative and quantitative** techniques to explore the economic impact and challenges of the bell metal industry of Sarthebari under the MSME framework.

1. Primary Data Collection:

- Structured interviews and questionnaires were conducted with artisans, cooperative members, and MSME officials in Sarthebari.
- A purposive sampling method was used to select 30 respondents directly engaged in the industry.

2. Secondary Data Collection:

- Data were collected from government reports, MSME publications, academic journals, and records from the District Industries and Commerce Centre (DICC), Barpeta.

3. Data Analysis:

- Quantitative data were analyzed using descriptive statistics (percentages and tables).
- Qualitative data from interviews were examined through thematic analysis to identify key issues and perceptions.

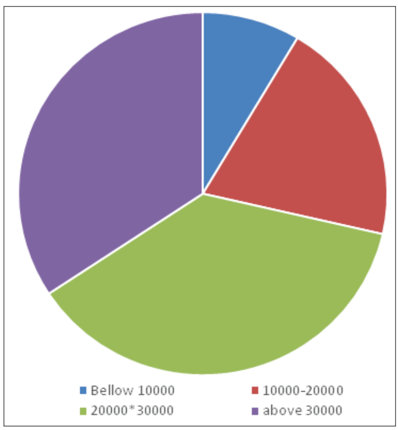
This methodology ensures a comprehensive understanding of both the economic significance and real-life challenges faced by the Sarthebari bell metal sector.

DATA ANALYSIS

Table: Table showing monthly income of the artisans

Age	Responses (in numbers)	Responses (in %)	Degree
Bellow 10000	3	8.6 %	30.86
10000-20000	7	20%	72
20000-30000	13	37.15%	133.71
30000 and above	12	34.25%	123.43
Total	35	100%	360

Source: *Primary*



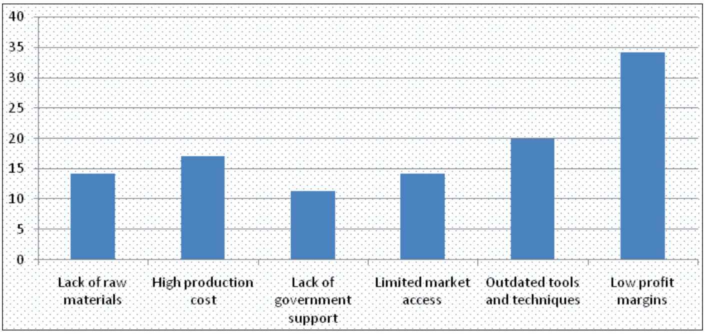
Interpretation

The above table includes that 8.6% of the respondents are below 10000, 20%between 10000-20000, 37.15% between 20000-30000 and 34.25% are above 30000.

Table: Table Showing Major Challenges they have Faced

Major challenges	Responses (in no)	Response(%)
Lack of raw materials	5	14.3%
High production cost	6	17.1%
Limited market access	5	14.3%
Outdated tools and techniques	7	20%
Low profit margins	12	34.3%
Total	35	100%

Source: *Primary*



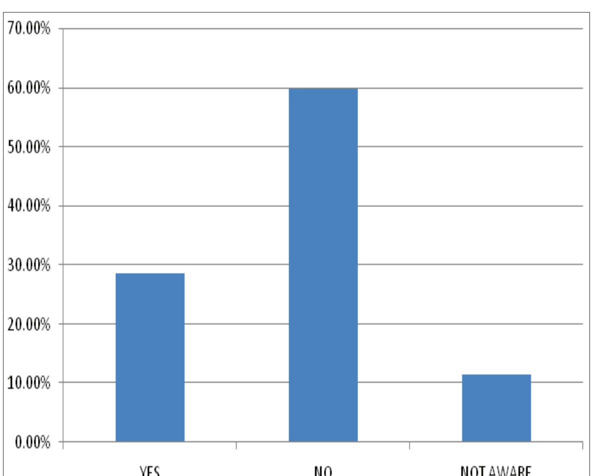
Interpretation

The above table includes that 14.3% of the respondents are face lack of raw materials, 17.1%arefcae high cost of production, 11.4% are face lack of govt support and 14.3% are of the respondents face limited market access 20% are face outdated tools and techniques and 34.3% respondents are face low profit margin.

Table: Table Showing any Support Received from Government Schemes or MSME Initiatives

Responses	Responses (in no)	Response(%)
YES	10	28.6%
NO	21	60%
NOT AWARE	4	11.4%
TOTAL	35	100%

Source: *Primary Data*



Interpretation

The above table includes that 28.6% of the respondents are getting government schemes and MSME initiative and 60% of the respondent are not getting any kind of support from the government and 11.4% of the respondent are not aware of any schemes and initiative.

FINDING

In relation to total monthly income from the respondent

- 8.6 % of respondent's monthly income are below Rs 10000, 20% of respondent's income are between Rs 10000-20000, and 37.15% of respondent's income are between Rs 20000-30000, 34.25% of respondent's income are above Rs 30000 thus it is found that majority of monthly income are between Rs 20000-30000.

In relation to government schemes available in this location

- 60% of respondents answer were "NO" in regard of any government schemes specially for the MSME initiative. It is found that most of the artisans in the area of the study do not enjoy any government scheme.

In relation to the availability of respondents' health facility

- 70% of respondents were getting health facility like public health centre and free periodical mobile health checkup facility.

In relation to any difficulties face by respondents

- 14.3% of respondents have faced Lack of raw materials problems and 17.1% of the respondents faced High production cost problem and 14.3% of the respondents faced Limited market access problem.20% of the respondent face Outdated tools and techniques problems and 34.3% of the respondents faced Low profit margins problems thus majority of the respondents faced profit related problem.

In relation to organized market and proper branding facilities problem face by respondents

- Most of the respondents are not getting proper organized market and branding facilities which may cause of limited profit margin and create duplicate product market which is ultimately destroyed the local market.

Socio Economic Condition

The conditions of the respondents are not well as they don't have proper infrastructure and basic facilities. Although their financial condition is not well enough, in this regard necessary support is required for the individual.

- Local people are skilled enough but they need proper training for development which may help them for future growth.
- The technology used in making bell metal and handicraft process must be replaced and upgrade with new technology because traditional methods are time consuming for the maximum profit earnings.

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Empowering Women Entrepreneurs: The Role of Pradhan Mantri Mudra Yojana in Promoting Gender Equality in Business with Special Reference to North-East India

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ABSTRACT

Introduced in 2015, the "Pradhan Mantri Mudra Yojana (PMMY)" is an initiative by the Indian government that seeks to empower women and other marginalized groups by increasing their access to micro and small business financing. This study assesses the effectiveness of PMMY in empowering women entrepreneurs and promoting gender equality in the Indian business environment. The study utilizes a mixed-methods approach, integrating quantitative analysis of PMMY loan disbursements to women entrepreneurs with qualitative interviews and case studies of selected recipients from the Northeastern region. Secondary data sources incorporate government reports, financial records, and pertinent studies to furnish a thorough comprehension of PMMY's implementation and achievements.

Keywords: *Pradhan Mantri Mudra Yojana, Women Entrepreneurs, Gender Equality, Financial Inclusion, Micro-Enterprise, India.*

INTRODUCTION

PMMY was launched in the year 2015 announced in the parliament by Finance Minister Dr. Nirmala Sitharaman. The Scheme is a Flagship scheme of the N.D.A Government to promote self-reliance and augment employment opportunities

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for start-ups and Small and micro enterprises. Finance acts as a major constraint in the setting up and expansion of new businesses. P.M.M.Y Loans of different categories act as catalysts in bringing sustainable development and inclusive growth to the economy. MSMEs are becoming India's main source of economic growth. The MSME sector is highly known not just in India but also around the world. The contribution of MSMEs to the Indian economy, which accounts for 6% of GDP, 33% of all manufacturing, and 45% of all exports, determines their significance (Agarwala, 2019) Additionally, it has empowered women by reducing their reliance on family members and fostering self-reliance (Antony, J.,2021). The MUDRA scheme, a widely embraced poverty reduction program, holds the potential to enhance the status of women in our predominantly male-dominated society (Seema Rathee & Deepanshi Aggarwal, 2023). PMMY remains a significant government initiative in India, extending credit to countless underserved micro enterprises across the nation. This program has particularly benefitted women, and entrepreneurs from the SC/ST and OBC categories, contributing to a notable improvement in financial inclusion since its inception (Dr. Yogesh & D. Mahajan, 2019). Women empowerment is a movement focused on strengthening the role of women in society by giving them the tools, opportunities, and confidence to make their own choices and achieve their goals without facing discrimination or oppression. It covers key areas like education, financial independence, healthcare, and equal involvement in political and social activities.

According to the Periodic Labour Force Survey (PLFS) for 2022-2023, only 27.2% of Indian women aged 15-29 were part of the workforce, compared to 80% of men in the same age group. Women contribute around 18% to India's GDP, much lower than the global average of 38%, as reported by the World Bank. India ranks 120th out of 131 countries in female workforce participation, making it one of the lowest in the world, according to the World Economic Forum's Global Gender Report 2022. This means that India has one of the lowest female labor participation rates in the world (Srinivas R., 2021).

The emergence of women's entrepreneurship is acting as a stimulus in the growth of the economy and employment. The presence of ample natural resources in the form of flora and fauna and the prospect of industrialization is proving to be an ideal environment for women and the growth of business ventures. The Rate of unemployment is higher than men the more women are employed in the unorganized sector. The presence of women in the formalized sector is a handful or meagre despite having knowledge, skills, and education.

Several factors contribute to this phenomenon, such as socio-cultural and traditional patriarchal norms, which discourage women from pursuing employment outside the home. The prevalent perception that women primarily have domestic managerial roles to fulfil results in a lower level of female participation in formal employment (Kumari, 2024). Despite the possibility of being the primary breadwinners, women are often viewed as supplementary or secondary earners, leading to discrepancies in their wages compared to men, even when performing the same tasks (Jain, S., 2021).

LITERATURE REVIEW

Numerous research and impact studies have been conducted and the studies that align with the title of the study have been reviewed.

Soni. A (2016) Presented a descriptive view of the PMMY scheme and highlighted the positive outcomes and benefits of the present scheme to the MSME and women entrepreneurs.

Mohammad. S and et.al (2016) highlighted how the scheme would help in benefiting the small manufacturing units and self-employed individuals in rural and urban areas and benefit the well-being of the individuals in the rural and urban areas.

Agarwal. M (2017) and et.al presented a critical review of PMMY and concluded that the scheme is a remarkable step in attaining financial inclusion by funding the unfunded and providing refinance facilities to small businesses which would ultimately resolve the unemployment crisis.

Mahajan. A (2018) In his study highlighted the importance of PMMY in Filling up the credit gap for the Marginalized groups who fail to access formalized credit sources due non the availability of proper accounting records and failing to provide collateral security required for availing the loans from banks. The study further highlighted the previous attempts of the government to cater to the credit gap in this MSME sector. He concluded that this scheme would help in boosting self-employment in the rural sector and help in empowering women.

Kaur. S., et.al (2019) In their study highlighted the previous attempts of the government to cater to the credit gap in this MSME sector and the importance of MSME in the Indian economy and how the scheme will lead to sustainable inclusive economic development. He concluded that the PMMY will only be successful if proper credit risk management is made, importance is given to developing skills and supportive infrastructure is developed in the economy.

Pawan. B., et.al (2019) in their study pointed out the advantages of the scheme. The study further attempted to do a correlation and Paired t-test among the different categories of loans and concluded that there is a high correlation between the No. of Accounts opened and loans disbursed. The Paired t-test results revealed that there is a significant difference in the disbursement amount in the different categories of Loans.

Vevek S. (2019) and et.al in their study on how the PMMY scheme helps eradicate poverty and resolve the unemployment crisis by overcoming constraints.

Gangadhar. M (2022) his study presented a descriptive view of the scheme and analysed the performance of different categories of loans in the MUDRA scheme the performance of different categories of loans under the MUDRA scheme and the performance of the top 10 states. He concluded that Karnataka is the first state in terms of the highest loans disbursed and most of the loans are provided to women.

Kumari N., et.al (2023) the study pointed to the descriptive view of the scheme and concluded that the scheme will help low-income groups and unfunded populations. And concluded that there is a continuous growth of PMMY loans.

Kalaiarasan C., et.al (2023) highlighted the positive outcomes of PMMY as how collateral-free loans and easy access benefit the MSME and how different financial institutions have been providing a supportive role in lending under PMMY.

Pandey R.P., et.al (2023) Highlighted the impact of NPAs on the PMMY scheme. The study further pointed out the root reasons for the rise of NPAs in the Banks that disbursed loans under the Mudra scheme. The study concluded that the maximum NPAs are in the Sishu category because of low levels of business and managerial skills and knowledge and the COVID-19 pandemic and unprecedented step of demonetization by the government have made an impact on MSME

Jhoshi V.K (2023) Highlighted how startups are necessary for the generation of employment for youths and further highlighted the necessity of awareness campaigns so that no prospective entrepreneur will be deprived of better penetration which is a boon in financial inclusion.

Bharati. U., et.al (2023) the study pointed out how the loans of different categories of PMMY have helped bring the marginalized groups under the mainstream by funding the unfunded which indirectly helps in financial inclusion and further pointed out how the scheme is helping the tiny enterprises by providing collateral-free loans.

Kumari. M (2024) in a study highlighted how PMMY has succeeded in promoting women's empowerment and concluded that the scheme has done a remarkable job in the reduction of poverty. She presented a critical view of why women entrepreneurs are behind and pointed out some factors that are leading to the reluctance of women to take up women entrepreneurship.

RESEARCH GAP

The research made so far Presents a descriptive view of the PMMY Scheme and outlines positive outcomes of the PMMY Scheme, PMMY will lead to Inclusive Growth and sustainable development, few studies have highlighted the critical aspect of how collateral-free loans lead to Rising NPA of Banks which in turn leads to poor profitability due to creation of Provision for Bad debts. No studies have been found regarding whether PMMY caters to Gender equality and women's entrepreneurship in the N.E region. NE Due to its geographical positioning and structure, Northeast India has always become a place of flabbergast, anonymity, and clandestineness for everybody the present study tried to bridge this research, gap and find answers to these pertinent questions raised during the research endeavor.

Research Questions: The Present Study seeks answers to the following Research questions.

(i) What is the Status of PMMY in the Northeastern Region?

(ii) How has the PMMY Scheme addressed gender equity in the region?

Objectives of the Study: The Present Study aims to fulfill the following objectives

(i) To assess the present status of the PMMY in the Northeastern Region.

(ii) To Assess how the PMMY scheme addresses gender equity in the region.

(iii) To analyze the significant difference between the Number of Accounts opened (Sishu, Kishore, Tarun and the Total Amount disbursed between different periods 2015-16 and 2023-24.

HYPOTHESIS

(i) There is no Correlation between the number of accounts opened and the Amount disbursed in the North-Eastern Region in 2015-16 and 2023-24.

(ii) There is no significant difference between the number of accounts opened and the Amount disbursed in the North-Eastern Region in 2015-16 and 2023-24.

(iii) There is no significant difference in the Number of Accounts opened and the amount disbursed to all customers and women entrepreneurs.

RESEARCH METHODOLOGY

The present study is both Descriptive and Analytical. The Study tries to address and seeks an answer to whether PMMY has been able to reduce gender inequality among marginalized groups.

Sources of Data: Data has been mainly procured through secondary sources, such as the Annual Reports of Public Sector Banks in the Northeast Region and MUDRA.

Tools and Techniques Used: For Analysis of Data Percentage, Descriptive Statistics (Mean, Standard Deviation, Standard Error of Mean), and Inferential Statistics (One Sample t-test and Paired sample t-test have been used.) The Dependence on M.S. Excel Office 365 and PSPP 2.0.1 is necessary for data analysis.

Period of Study: The period between 2015 to 2024 i.e. 7 Financial Years has been used for the present study data.

ANALYSIS AND DISCUSSION

Table 1: Region Wise Number of Accounts Opened and Amount Disbursement (In Crore)

F. Y	2019-2020		2020-2021		2021-22		2022-23	
Region	**No. of Accounts**	**Disbursement Amount**	**No. of Accounts**	**Disbursement Amount**	**No. of Accounts**	**Disbursement Amount**	**No. of Accounts**	**Disbursement Amount**
North	1,04,05,478	78,555	1,24,56,705	82,045	1,15,45,805	80,808	1,35,57,609	1,11,573.17
Share in (%)	(21%)	(24%)	(20%)	(25%)	21.46%	24.38%	21.76%	24.77%
East	1,70,88,159	85,472	1,95,89,404	84,574	1,87,24,571	95,645	2,10,09,744	1,24,667.22
Share in (%)	(34%)	(27%)	(31%)	(25%)	34.81%	28.86%	33.72%	27.68%
North-East	16,81,086	11,511	22,78,699	10,824	11,74,574	8,251	10,84,117	10,486.13
Share in (%)	(3%)	(4%)	(4%)	(3%)	2.18%	2.49%	1.74%	2.33%
South	1,30,83,599	90,325	1,74,54,720	98,767	1,33,29,413	90,532	1,58,71,449	1,24,650.13
Share in (%)	(26%)	(28%)	(28%)	(29%)	24.78%	27.32%	25.47%	27.67%
West	84,76,724	55,897	1,04,68,078	61,285	90,21,163	56,166	1,07,87,679	79,047.00
Share in (%)	(17%)	(17%)	(17%)	(18%)	16.77%	16.95%	17.31%	17.55%
Total	5,07,35,046	3,21,722	6,22,47,606	3,37,495	5,37,95,526	3,31,402.19	6,23,10,598	4,50,423.65

Source: Self Compilation of data from Annual Reports of MUDRA

Table 2: Number. of Accounts Opened and Amount Disbursed in the North-Eastern Region in 2015-16 and 2023-24 (In Crore)

F. Y	2015-16		2023-24			2015-16		2023-24			2015-16		2023-24		
PMMY Loans	Sishu					Kishore					Tarun				
States	No. of A/c	Disburse-ment Amount	No. of A/c	Disburse-ment A/c	Growth Disburse-ment A/c (%)	No. of A/c	Disburse-ment A/c	No. of A/c	Disburse-ment A/c	Growth Disburse-ment A/c (%)	No. of A/c	Disburse-ment A/c	No. of A/c	Disburse-ment A/c	Growth Disburse-ment A/c (%)
Assam	390320	759.22	419740	1314.16	57.77	32121	614.57	276998	3682.39	16.69	4,831	354.67	25487	1946.01	18.23
Arunachal Pradesh	3194	8.18	15611	50.19	16.30	977	27.44	9100	163.6	16.77	454	36	1720	138.29	26.03
Nagaland	3247	10.32	9216	28.64	36.03	1418	36.75	9688	204.51	17.97	469	29.47	2110	167.69	17.57
Mizoram	5473	19.44	15148	62.63	31.04	1993	35.24	10217	238.21	14.79	306	23.1	3364	280.1	8.25
Manipur	20943	35.41	5301	15.33	230.98	2679	58.66	4024	102.89	57.01	399	25.96	1341	106.82	24.30
Meghalaya	15451	40.24	18367	61.8	65.11	3051	74.2	11118	190.46	38.96	649	47.97	2148	172.73	27.77
Sikkim	5491	12.1	8586	32.37	37.38	1145	24.82	9498	142.22	17.45	253	17.69	1206	91.79	19.27

Source: *Self Compilation of data from Annual Reports of MUDRA*

In the above table, 1 Depicts the Regional distribution of the Number of Accounts Opened and the Amount disbursed The Country is divided into Four regions Viz. North, North-East, West, East, and South. From the Table, it is evident that the Northeast performing in an abysmally pathetic way in terms of the Number of Accounts Opened and the Amount disbursed this may be due to a lack of entrepreneurial endeavor's innovation, and zeal for starting its venture. But the western and southern regions are doing exceptionally well we see an increasing trend in terms of the Number of Accounts Opened and the Amount disbursed which shows that motivation, inclination and positive attitude towards starting his or her business is strong and pervasive in these regions.

Table No. 02 depicts the present scenario of PMMY in the seven States of the Northeastern region the Data is Considered for two financial Years i.e. 2015-16 and 2023 -24. From the table, it is evident that There is an increasing trend in the Sishu loans in all 7 states and Kishore and Tarun Scheme loans. Assam and Meghalaya are the two states that are the leaders under the Sishu Scheme it can be inferred that Small Loans are being disbursed to Petty Traders, Small Businesses, and Artisans in the two states. In the Kishore Scheme Manipur and Meghalaya are the leaders in the growth rate in terms of the Number of Accounts opened and Amounts Disbursed and in the Tarun Scheme Meghalaya and Arunachal Pradesh are the leaders in this category it can be concluded a greater number of medium-term loans ranging between 5l to 10 l are disbursed to Marginal Businessmen and entrepreneurs.

Table 3: Correlation between Number of Accounts Opened and Amounts Disbursed in the North-Eastern Region in 2015-16 and 2023-24

$H_{0:}$ *There is no Correlation between the number of accounts opened and the Amount disbursed in the North-Eastern Region in 2015-16 and 2023-24*

Particulars		N	Correlation	Sig.
Pair 1	Number of Accounts opened Under Sishu in 2015-16 & Number of Amounts Disbursed Under Sishu in 2015-16	7	1.000	.000
Pair 2	Number of Accounts opened Under Sishu in 2023-24 & Number of Amounts Disbursed Under Sishu in 2023-24	7	1.000	.000

Pair 3	Number of Accounts opened Under Kishore in 2015-16 & Number of Amounts Disbursed Under Kishore in 2015-16	7	1.000	.000
Pair 4	Number of Accounts opened Under Kishore in 2023-24 & Number of Amounts Disbursed Under Kishore in 2023-24	7	1.000	.000
Pair 5	Number of Accounts opened Under Tarun in 2015-16 & Number of Amounts Disbursed Under Tarun in 2015-16	7	1.000	.000
Pair 6	Number of Accounts opened Under Tarun in 2023-24 & Number of Amounts Disbursed Under Tarun in 2023-24	7	1.000	.000

Source: *Self Compilation of data from Annual Reports of MUDRA and Analysis After that*

The Table above shows the Correlation between the Number of Accounts opened and the Number of Amounts Disbursed under different categories of loans under PMMY (Sishu, Kishore, Tarun) The Data is drawn from two periods F.Y -2015-16 at the inception of the PMMY and F.Y -2023-24 at the present state to test whether there is a positive correlation between the two financial years in terms of two variables Number of Amounts Disbursed and Number of Accounts opened. The Analysis here Shows there is a positive correlation between the two variables. The Test is significant at a 5% Level of significance since the Table value of p>.000 calculated value hence we reject the null hypothesis H_0: There is no Correlation between the number of accounts opened and the Amount disbursed in the North-Eastern Region in 2015-16 and 2023-24 and conclude that there is a positive correlation between the two variables.

Table 4: Computation of Paired- t Test of Accounts opened, and Amount Disbursed during 2015-16 and 2023-24 in the North-Eastern Region

$H_{0:}$ *There is No Significant Difference in the Number of Accounts Opened and Disbursed during 2015-16 and 2023-24* **in the North-Eastern Region**

Number of Accounts Opened and Amount Disbursed Mean		Paired Differences					t	df	Sig. (2-tailed)
		Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
				Lower	Upper				
Pair 1	NOS1 - DBS1	63319.156	144018.168	54433.751	-69875.435	196513.746	1.163	6	.289
Pair 2	NOS2 - DBS2	70057.697	153684.696	58087.355	-72076.941	212192.335	1.206	6	.273
Pair 3	N O K 1 -DBK1	6073.18857	11240.51051	4248.51363	-4322.54978	16468.92692	1.429	6	.203
Pair 4	N O K 2 -DBK2	46559.81714	100015.32849	37802.24092	-45938.93417	139058.56846	1.232	6	.264
Pair 5	NOT1 - DBT1	975.16286	1548.36698	585.22771	-456.83776	2407.16347	1.666	6	.147
Pair 6	NOT2 - DBT2	4924.65286	8234.72262	3112.43259	-2691.19534	12540.50106	1.582	6	.165

Source: *Self Compilation of data from Annual Reports of MUDRA and Analysis After That*

Table 5: Number of Accounts Opened and Amount Disbursed to Women Entrepreneurs (In Crore)

F. Y	Shishu (Loans up to Rs. 50,000)		Kishore (Loans from Rs. (50,001 to Rs. 5.00 Lakh)		Tarun (Loans from Rs. 5.00 to Total Rs. 10.00 Lakh)		Total	
	No. of Accounts	Disbursement Amount	No. of Accounts	Disbursement Amount	No. of Accounts	Disbursement Amount	No. of Accounts	Disbursement Amount
2016-17	284.72	66,997.91	6.25	9,541.63	0.5	3,750.13	291.47	80,289.68
2017-18	3,21,44,132	8,03,71.59	13,35,192	16,586.84	78,914	6,295.7	3,35,58,238	1,03,254.12
2018-19	3,34,03,579	96,253.15	28,75,392	26,741.23	7,83,591	10,039.23	3,70,62,562	1,33,033.62
2019-20	3,57,17,217	1,09,660	29,88,307	26,477	3,97,825	9,045	3,91,03,349	1,45,182
2020-21	2,77,53,288	74,490	54,68,211	50,731	82,105	6,082	3,33,03,604	1,31,303
2021-22	3,04,41,921	89,621.66	78,92,778	70,027.90	94,560	6,772.91	3,84,29,259	1,66,422.47
2022-23	32817496	112228.35	11285672	91691.19	153645	11115.01	44256813	215034.55

Source: *Self Compilation of data from Annual Reports of MUDRA and Analysis thereafter that*

The Table above shows the Analysis of the Paired Sample t-test between the Number of Accounts opened and the Number of Amounts Disbursed under different categories of loans under PMMY (Sishu, Kishore, Tarun) during the two periods F.Y 2015-16 and F.Y -2023-24. Accordingly, six pairs have been formed NOS1- DBS1, NOS2-DBS2, NOK1-DBK1, NOK2-DBK2, NOT1-DBT1, NOT2-DBT2. The Data is drawn from two periods F.Y -2015-16 at the inception of the PMMY and F.Y -2023-24 at the present state. The test reveals that the Calculated value of($p<.000$) suggests that there is no Significant Difference in the Number of Accounts Opened and Loan Disbursed during 2015-16 and 2023-24 in the North-Eastern Region. Hence, we accept the null hypothesis.

The above table depicts the total number of accounts opened and the amount disbursed since the inception of PMMY To date it is evident there is an increasing trend in account opening and the disbursement amount in the entire India. We can conclude that PMMY is trying to reduce the gap in Gender inequality and the disparity of loans disbursed. But when we compare it with the total loan disbursed to other customers it is quite meagre the scheme will have to start training programs for the women to develop managerial and entrepreneurial skills and develop the entrepreneurial mindset to reduce the disparity.

Table No. 6: Descriptive statistics of total No. of Accounts Opened and the Total Amount of Loan Disbursed to Other Customers and Women Entrepreneurs

H_o: *There is no significant difference in the Number of Accounts opened and the amount disbursed to all Customers and Women Entrepreneurs*

Particulars	N	Mean	Std. Deviation	Std. Error Mean
Total Accounts Opened under (Sishu, Kishore, and Tarun) by All Customers	**7**	40936514.10	28259957.084	10681259.787
Total Accounts Opened by Women under (Sishu, Kishore and Tarun)	**7**	27103486.50	18753047.881	7087985.859

Total Amount under (Sishu, Kishore, and Tarun) by All Customers	**7**	392552.02	224836.379	84980.164
Total Amount Disbursed to Women (Sishu, Kishore and Tarun)	**7**	170144.17	97951.037	37022.012

Source: *Self Compilation of data from Annual Reports of MUDRA and Analysis After that*

The above table depicts the large mean suggests substantial values in whatever is being measured (e.g., Amount of Loan, No. of Accounts Opened, etc.). However, the high standard deviation indicates significant variability among the observations. Size Consideration: With N=7, the SEM is relatively large, implying less precision in the estimate of the population mean. The mean is lower than Data Set 1 but still substantial. The SD is also high, indicating considerable dispersion. Precision of Mean Estimate: The SEM is lower than Data Set 1 but still sizable due to the small sample size. The mean is significantly lower compared to Data Sets 1 and 2. The SD indicates moderate variability. SEM Implications: The SEM is proportionally large relative to the mean, suggesting less confidence in the precision of the mean estimate. this data set has the lowest mean and a comparatively lower standard deviation, indicating less variability. SEM Insights: The SEM is the smallest among the four data sets but still significant relative to the mean, due to the small sample size.

Table No. 7: Computation of One Sample T-test Between Total Number of Accounts opened and the amount disbursed to all Customers and Women Entrepreneurs

H_0: *There is no significant difference in the Number of Accounts opened and the amount disbursed to all Customers and Women Entrepreneurs*

Particulars	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Total Accounts Opened under (Sishu, Kishore, and Tarun) By all Customers	3.833	6	.009	40936514.101	14800412.94	67072615.26

Total Accounts Opened by Women Entrepreneurs under (Sishu, Kishore and Tarun)	3.824	6	.009	27103486.496	9759809.90	44447163.10
Total Amount Disbursed under (Sishu, Kishore and Tarun) By all Customers	4.619	6	.004	392552.020	184613.05	600490.99
Total Amount Disbursed to Women Entrepreneurs (Sishu, Kishore and Tarun)	4.596	6	.004	170144.174	79554.57	260733.77

Source: *Self Compilation of data from Annual Reports of MUDRA and Analysis After that*

The above table depicts the computation result of One sample t-test the variables chosen for the Test are Total Accounts opened by Other Customers and Women Entrepreneurs Total Accounts disbursed to Other Customers and Total Amount Disbursed to Women Entrepreneurs. The p-value at a 95% Confidence Interval is 0.05 and the calculated value of p for the four variables is 0.009, 0.009,0.004,0.004 respectively which is less than the table value of p which suggests that the null hypothesis is rejected H_o*: There is no significant difference in the Number of Accounts opened and the amount disbursed to all Customers and Women Entrepreneurs* and conclude that there is a significant difference between in the Number of Accounts opened and the amount disbursed to all Customers and Women Entrepreneurs. There is a disparity in the Number of loans disbursed to other customers and women this may be due to women's Lack of access to specialized training programs that equip women with necessary business management and technical skills. Prevailing societal expectations often prioritize domestic responsibilities for women over professional or entrepreneurial pursuits. In some communities, women may face restrictions on mobility, limiting their ability to engage in business activities outside the home.

Limitations of the Study

The Present study is based on secondary data and has certain limitations. First and foremost, the data compiled from the Annual Reports doesn't align with the objectives of the Present study. Key variables needed for the estimation of the impact of PMMY in attaining Gender equity among women entrepreneurs could not be found. Since The Data is Collected from secondary sources effect of personal biases and prejudices cannot be overlooked. Time and Resources are major constraints in fulfilling the objectives of the present research

Scope of Future Research

1. The study may be extended to finding out the factors that act as constraints to attaining gender equity among entrepreneurs in the N.E region.
2. The study may be extended to find out which factors act as impediments to the financial inclusion of women entrepreneurs in the N.E region.
3. The Study may be further extended to find out the Loan approval rate, utilization, Repayment cycle default rates, etc.

CONCLUSION

The study revealed that the small number of loans (Sishu) disbursed to Tiny Business units have shown phenomenal growth in all Seven States of North- East. Meghalaya is doing exceptionally well in all three categories of loans (Sishu, Kishore, Tarun) under P.M.M.Y. Through the study it is found that there is a positive correlation between the two periods i.e. 2015-16 and 2023-24 in terms of No. of Accounts Opened and Amount of Loan disbursed.

The test result of the Paired t-test reveals that there is no significant difference between Difference in the Number of Accounts Opened and Loan Disbursed during 2015-16 and 2023-24 in the North-Eastern Region. The test result of the one-sample t-test discloses that there is a significant difference in the no. of accounts opened and loans disbursed by other customers and no. of accounts opened and loans disbursed by women customers this may be due to women's Lack of access to specialized training programs that equip women with necessary business management and technical skills. Prevailing societal expectations often prioritize domestic responsibilities for women over professional or entrepreneurial pursuits. In some communities, women may face restrictions on mobility, limiting their ability to engage in business activities outside the home.

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13

Rise of Women-led Startups through Social Media: A Case Study of Millennials of Guwahati City

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ABSTRACT

Women in the 21st century have become pioneers of social change. They have ventured into diverse sectors breaking the glass ceiling and recognizing them as a synergist and increasing their economic status in the society. Post Covid-19 has witnessed the influx of businesses owned by millennial women on social media exhibiting their entrepreneurial zeal and ambitiousness. Millennial women are those individuals who are born between early 1980's and the mid 1990's.These millennial women basically for the purpose of financial independence and for showcasing their creativity have embraced social media. Due to an extensive contribution of women in economic development, the present study proposes to investigate the factors which contribute millennial women entrepreneur to adopt social media apps. The study also attempts to assess the impact of social media on the startups run by millennial women. This participation into the workfolk by women entrepreneur is important for sustained economic development. For the study a sample of 200 millennial women entrepreneurs has been taken. The nature of the study is exploratory and purposive sampling method is adopted to carry out the work. The data so collected from different respondents has been analysed through mean, standard deviation and rank method.

Keywords: *Women Entrepreneur, Millennial, Startups, Social Media.*

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INTRODUCTION

Breaking the patriarchal structure of the societal norms, millennial women entrepreneur are reshaping the business arena and changing the traits of business. Covid-19 have witnessed millennial women entrepreneur embracing digital fluency and leveraging the business network through internet-based business. During Covid 19 financial crisis and the effect on the source of earning of the people by losing jobs and employment have led millennial women to enter a new paradigm of social media where they gained insight about the changing pattern of buying behavior and experienced how individuals are shifting to online marketing. The entrepreneur women found avenues to make their source of income by using this digital platform and thus creating their own identity by introducing their marketing skills (Boro 2021). Millennial or Generation Y is the demographic comrade who is born between early 80's and late 90's. Millennial are the first generation who have witnessed the usage of internet and social media and are able to espouse new changes in the digital technologies. In the words of Joseph A. Schumpeter, "The entrepreneur in an advanced economy is an individual who introduces something new in the economy; a method of production not yet tested by branch of manufacture concerned, a product with which the consumers are not yet familiar, a new source of raw material or of new market and the like." According to Government of India (1984) women entrepreneur is defined as "an enterprise owned and controlled by a women having a minimum financial interest of 51 percent of the capital and giving at least 51 percent of employment generated in the enterprise to women." History has evidences of women confining themselves to the four walls with their daily chores and carrying on their duties of motherhood. Last decade has experienced a minority of women entrepreneur in the entrepreneurial ecosystem but in the present context, there has been an upsurge in women entrepreneur as they constitute 37% of the world's total entrepreneur. But with the advent of gig economy an opportunity has been provided to women entrepreneur who possesses skills and talents to break free the gender biasness and venture into the business domain where they can work remotely under flexible working conditions and become financially independent and maintain a smooth work-life balance.

REVIEW OF LITERATURE

Chaker H. &Zouaoui S. (2023) intends to bring to light the linkage between digital technology and women entrepreneur and how the usage of social media channels like Facebook and Instagram has brought about a change in the scenario of business environment for the women folks as they encountered with flexible working arrangements, financial independence and became more productive. Through digital technologies, women entrepreneurs are able to initiate links with new customers, suppliers and distributors. Bellaaj M. (2023) examines how young entrepreneurs use digital platforms like Instagram, Snapchat, and You Tube to penetrate into the market. The digital marketing platform is easy to use, cost-effective and used by a wide range of local customers. The study also found that entrepreneurs conjointly used offline and online mode to boost up their customers. Olsson A.K. & Bernhard I.(2021) highlights the behaviour of women entrepreneur and how they undertake digital skills in small businesses to remain competitive. In order to generate growth in online business, women entrepreneurs have to keep on learning new skills regarding the use of social media. But they can also face challenges in the context of limited resources, learning new digital skills, demand on online presence and maintenance of social media platforms. Rahaya N.S.et.al. (2021) emphasizes on the fact that since due to lockdown people were confined to their own residences and physical contact was prohibited, people had more time to access social media. This social media provided ample of business opportunities for women and turned them into women successful entrepreneurs so that they can become role models and reach out to new audiences in the world of entrepreneurship which is often described as a masculine area. Dewi A.S. (2020) studies how Indonesian women use social media as an important tool for their empowerment. Through this social media they can interact, participate, co-operate and enter into the business world with limited resources and capabilities and thereby become financially independent. The study took into consideration the social media platforms- Instagram and Facebook and found that these two platforms can be used as a media to empower women and become independent both financially and economically. Zafar M.Z.et.al. (2019) pointed out that the technological era has transformed the way of doing business, enhancing efficiencies and opportunities for entrepreneurs. In Pakistan, the young women entrepreneurs were engrossed in using this social media platform, uploading photos of new arrivals, answering of queries, sharing of information and balancing their home and family obligation. On the contrary, they have encountered imitation and trust issues while running business through social media. Merza Z. (2019) in his study highlights that women were considered to be homemaker and the entrepreneur was only suitable for the men folks. But with rapid advancement in industrialization, technology and knowledge there was paradigm shift in the mindset of women. Women with their changed thought process came out to face the external world leaving aside their household bindings and ready to face the challenges and go hand in hand with their male counterparts. Melissa E.et.al. (2015) depicts that unemployment is a major issue encountering women the most despite of having potential and capability. But there are also cases where women have resilient entrepreneurs. This enables them to become financially independent and reach out a helping hand towards their families and contribute to the country's economy. Women also face challenges regarding funding, networking, education and their traditional role as homemaker. Ukpere C.L. (2014) portrays the common features of entrepreneurial ventures driven by women and also the potentialities that social media provides to the women entrepreneur globally. The study also lays emphasis on the gender based ventures carried out by women entrepreneurs with the use of digital technology. This in turn brings about a change in the female society as they become technologically savvy from technologically challenged women. Using the tactics of social media, women entrepreneur can attract clients and market their products and become financially independent.

Research Gap

The available literature helps us to understand that women entrepreneurs play a significant role in economic development and they are also factors of social change. But the study reveals that no work been done on the millennial women entrepreneur in Guwahati city. By focusing in this area, the study brings to light the factors which promote women entrepreneurs and the experiences and challenges which they confront in the digital arena.

Objectives of the Study

1. To assess the factors which influences women entrepreneur to adopt social media.
2. To study the impact of social media on the startups run by women.

Research Queries

1. Which factors motivate women entrepreneur to go for startups through social media platforms?
2. Whether the tech startups are women-led products or not?
3. Are women entrepreneur confined to only one platform for showcasing their products?
4. Are women entrepreneur about facing problems in relation to technicalities of social media?

RESEARCH METHODOLOGY

Nature of Research

The research work is based on some observation of variables that motivate millennial women entrepreneur to adopt social media. The research is based on empirical data that are being collected from the millennial who have started their journey of entrepreneurship through social media targeting the local customers.

Reason for Selecting the Area

Covid-19 period have made people confine to their homes. This period left an impression to the millennial womenfolk of Guwahati to witness the digital entrepreneurial capabilities of various women across the nation by using social media. Inspired by the digital entrepreneurial women across the nation, millennial women of Guwahati, who were offline entrepreneurs made a shift in their entrepreneurial process. So this concept has inspired the researcher to contribute a little effort to do some exercise on the parameters that influence millennial women entrepreneur of Guwahati to adopt social media.

Manner of Selecting the Sample Unit

Based on geographical proximity, sample selected for the present study is convenience sampling. A sample of 200 respondents has been selected on the basis of subjective judgement.

Ethical Considerations

While collecting data, privacy of the respondents (millennial women entrprenuer) has been safeguarded ensuring that data of the participants is kept confidential.

Population of the study

Population of the study comprises of the entire millennial women of Guwahati city who have been in online business for more than 3years.

Sample size

For the purpose of the study, data has been collected from 200 respondents.

DATA COLLECTION

To obtain primary data, an appropriate self-structured questionnaire has been framed to meet the requirements from the target group of respondents. The questionnaire was drafted based on the research objectives and consisted of closed ended question. Information has been collected from the beneficiaries with the help of Google Form and personal interview. Regarding secondary data, information has been pooled from various journals, periodicals and other internet based sites over a period of time.

Analysis of Data

Data so collected have been analyzed with the help of various tools like frequency, percentage method, and rank method. SPSS statistical tool have been used to find mean and standard deviation.

Table 1: Demographic Profile of Respondents (N=200)

Categories	Sub Categories	Frequency	Percentage (%)
Age	Younger Millennial (28-33 years)	82	41.00
	Mid Millennial (34-38 years)	71	35.50
	Older Millennial (39-43 years)	47	23.50
Education	HSLC	7	3.50
	HS	42	21.00
	Graduate	118	59.00

	Masters	33	16.50
Marital Status	Married	138	69.00
	Unmarried	57	28.00
	Divorced	4	2.00
	Widow	2	1.00
Tenure of Online Business	Less than 1 year	35	17.00
	1-2 years	49	25.00
	2-3 years	91	46.00
	More than 3 years	24	12.00
Monthly Sales	Less than Rs 5000	40	20.00
	5000-10000	106	53.00
	10000-20000	37	18.50
	More than 20000	17	8.50

Source: *Survey Data*

From Table 1, it is evident that, as regards age (41%) are young millennial who belong to the age group of 28-33 years. This group of entrepreneur is enthusiastic and applies new skills to remain updated in the market. Regarding education (59%) respondents are graduates and (69%) are married. Most importantly Covid 19 has given an opportunity to these millennial to work from the remote place maintaining their personal and professional life and so from the study it is observed that (46%) respondents have started their business from 2-3 years. As regards their monthly sales, (53%) respondents under the study earn monthly sales of Rs (5,000-10,000).

Table 2: Type of Online Business Engaged by Millennial Women (N=200)

Type of Business	Frequency	Percentage (%)
Home Bakery (Cakes, Bread, Cookies, Biscuits)	44	22.0
Footwear (Flats, Heels, Sport Shoes)	09	4.5
Clothing (Sarees, Mekhala Chaddar, Salwar Suits, Dresses, Blouses)	60	30.0
Jewellery (Terracotta, Handmade, Gold Platted, American Diamond)	20	10.0

Bags (Trendy Handbags, Purses, Clutch bags)	11	5.5
Home Utility Products (Jars, Containers, Bottles)	06	6.5
Tiffin home delivery services (Home style meal, Dabba Service)	18	9.0
Home decor (Candle stands, Artificial flowers, Planters, Wall Decor)	06	3.0
Tarot card reading (Relationship, Career, Job)	04	2.0
Plants Nursery (Indoor plants, Tabletop plants, Pots, Seeds)	04	2.0
Online Coaching (Yoga, Baking, Teaching)	18	9.0
Total	200	100.00

Source: *Survey Data*

From the survey data, it is evident that the startups led by millennial women entrepreneur are related to women led-products and 22% millennial women entrepreneur is engaged in baking cakes and biscuits. 4.5% are engaged in footwear dealing with fashionable ladies footwear. All women have a craze for clothing and so from the study it is observed that 30% millennial women intend to start their online with clothing which includes selling sarees, mekhalachaddars, salwar suits, dresses and blouses. Women also have an inclination for jewellery and so from the study 10% millennial women entrepreneur through social media showcase a variety of handmade, gold platted, terracotta and American diamond jewellery. Regarding bags, beautiful purses, trendy handbags and clutch bags 5.5% are displayed by millennial women entrepreneurs. There is 6.5% millennial women entrepreneur who deal with home utility products like jars, containers, bottles as today's women due to various engagements in personal and professional life prefers to go online for purchase of these products. COVID-19 brought about a halt to the busy schedule of work life particularly in 2020. Working women were seen staying at home and spending time with their family. This gave them time to spend in the kitchen and prepare stuffs for their family. On the contrary, homemakers were also seen joining food groups to portray their interest finally starting their food delivery services. This initiated 9% millennial women entrepreneurs to start tiffin home delivery services. 3% women who had offline business regarding home decor items have also started selling items like candle stands, artificial flowers, planters and wall decor. Post COVID has seen an upsurge in tarot card reading as people became concerned about their career, jobs. The study shows that 2% of women have started their business on online mode regarding tarot card reading. Around 2% women have also started plants nursery business selling various kinds of indoor plants, table top plant, seeds and beautiful pots. As regards online coaching a growth of 9% has been witnessed among female entrepreneur.

Table 3: Mode of Platform used by Millennial Women (N=200)

Mode of platform	Frequency	%	Rank
Facebook (live streaming & reels)	175	42.8%	1st
Instagram (reels and photos)	70	17.2%	3rd
Whatsapp group	108	26.5%	2nd
Snapchat	15	3.7%	5th
Youtube(shorts)	40	9.8%	4th

Source: *Field Survey*

From the field survey, it is observed that millennial women entrepreneur have used Facebook, Instagram, Whatsapp, Youtube and Snapchat platform for displaying their various products. The study reveals that millennial women use Facebook for live streaming and reels (Rank 1) and Whatsapp group (Rank 2) as their preferred mode of platform for displaying their variety of products. Despite these two frequently used modes of platform,it can be concluded from the field study Instagram, Youtube and Snapchat are also opted by millennial women but it is not highly preferred as compared to Facebook and Whatsapp group.

Table 4: Factors Motivating usage of Social-media

Statements	SDA	DA	N	A	SA
Maintaining work life balance and flexibility	0	0	22	67	111
Express creativity	16	4	22	78	80
Remote work operation	0	5	11	100	84
Promote personal branding	0	0	0	60	140

Breaking Stereotypes	13	22	38	60	67
Less investment for marketing tools	29	16	20	79	56
Affordable and easy set up cost	18	20	27	60	75
Financial Independence	0	0	31	51	118
Contribution towards the family	60	24	11	94	71

Source: *Field Survey*

Table 5: Ranking of Responses from the Table 4

Statements	SA+A	%	Rank
Maintaining work life balance and flexibility	178	89%	3rd
Express creativity	158	79%	5th
Remote work operation	184	92%	2nd
Promote personal branding	200	100%	1st
Breaking Stereotypes	127	63.5%	7th
Less investment for marketing tools	135	67.5%	6th
Affordable and easy set up cost	135	67.5%	6th
Financial Independence	169	84.5%	4th
Contribution towards the family	105	52.5%	8th

Source: *Field Survey*

Considering the combined responses of millennial women from Table 4 in regard to 'Strongly agree' and 'Agree', it is evident that 100% (Rank 1) millennial women promote their personal brand through the usage of social media. The study also reveals that 92% (Rank 2) millennial women do not always require a retail outlet to promote their brand instead they use digital tools such as social media (Facebook, Whatsapp, Twitter) to promote their brand and accomplish their work remotely through flexible working arrangements. It is also evident from the study that, 89% (Rank 3) millennial women are able to maintain a flexible work life balance by portraying their products from the cozy corner of their homes. COVID-19 has paved a way for the millennial women to break the stereotype and with less investment and affordable and easy set up to showcase their creativity and become financial independent and contribute towards the growth of their family.

Table 6: Technical and External Challenges faced by millennial women entrepreneur

	Mean	Std. Deviation
Imitation of authentic products	**3.72**	**1.393**
Create unjust price	**3.79**	**1.325**
Cancelling order for customized product	**3.65**	**1.395**
Changing policies App	**3.57**	**1.373**
Fake alert	**3.61**	**1.510**
Cyber bullying	**3.79**	**1.489**
Funding disparities	**3.29**	**1.651**
Limited Flexibility hours	**3.68**	**1.469**
Competition	**4.45**	**.700**
Low- Risk bearing capacity	**3.14**	**1.700**
Lack of leadership quality	**3.14**	**1.649**

From the study, it is evident that millennial women entrepreneur identified competition as one of the external challenges with a mean rank of 4.45. Competition faced by these millennial women entrepreneur were in the form of pricing, aggressive discounting, replicates product ideas and the like. Creating unjust price and cyber bullying accounted for a mean rank of 3.79. Since the online mode of business is on a local basis there is a tendency among the women entrepreneur to either create a hike in prices in case of monopoly business or cut-off prices to target the specific group of customers. Cyber bullying also stands as a technical challenge. It takes the form of unwelcome messages in group chats, posting derogatory comments, deliberately excluding someone from online groups, sharing manipulated messages. It is also followed by imitation of authentic products, limited flexibility hours, fake alert, changing policies app, funding disparities, low risk bearing capacity and lack of leadership quality.

CONCLUSION

Now-a-days, social media marketing is considered one of the most important digital marketing channels. It is a computer-based tool that allows people to create, exchange ideas, information and pictures about the own product or services.

Social media marketing networks include Facebook,whatsapp, snapchat, instagram Twitter and youtube. Through social media millennial women entrepreneurs can promote their product and services, by comply with the guidelines of social media network.The study concludes that women entrepreneur prefer the social media platform due to low cost of marketing, affordable and easy set up to showcase their creativity and become financial independent and contribute to economic and social development.On the other hand, women struggle with license restrictions, lack of investment funds, and the flexibility accompanying formal e-commerce platforms. In this context, empowerment comes from the easy accessibility of social media platforms. Furthermore, such platforms also provide flexibility to women entrepreneurs, most of whom remain the primary caretakers of their respective households. Social media allows them to manage their time according to their obligations, making their entrepreneurial endeavours possible and perfectly balanced with the management of their households.Utilizing the potential that they have fostered sustainable development for the country, thus creating new jobs as well as social and financial capital, they contribute to economic and social development.

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Comprehending Gig Economy from Indian Perspective: The Emerging Area of Research

Anindita Chakravarty*

ABSTRACT

The gig economy has become more prominent and relevant in today's digital era because of mass adoption of the internet that connects online users across different countries over the digital platforms which helps organizations to share their talent needs. The emergence of the gig economy has encouraged a comprehensive analysis of its various aspects, ranging from economic implications to ethical and social considerations. The gig economy contributes to job expansion by offering benefits both for the employers as well as the staffs in the form of autonomy, flexibility, adaptability, suitability, and provides opportunities for income generation by leveraging the expertise of freelancers in specific areas, especially in economic downturn. In India, it is estimated that approaximately 77 lakh workers were occupied in the gig economy in 2020-21 (NITI Aayog report) which constituted 2.6% of the non-agricultural labor force in the country. Though the gig economy offers ample of opportunities, it is important to concede that not all gig workers experience the equivalent level of benefits or success. Challenges such as lack of benefits, income instability, and inadequate worker protections need to be addressed to ensure a sustainable gig economy for all individuals. This research article aims to explore the gig economy comprehensively, analyzing the economic forces that have driven its growth, examining its impact on traditional work arrangements, the opportunities it provides to the workers, and the challenges it encounters. Further the paper also addresses policy considerations to manage and promote this changing landscape of labor market to support both traditional employees and gig workers. Methodologically, the paper is descriptive and analytical in nature and

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draws empirical inferences and evidences from the available literature on gig economy from secondary sources of data such as Journals, Government reports and online websites.

Keywords: *Gig Economy, Gig Workers, Freelancers, Skilled Workforce.*

INTRODUCTION

The term "gig economy" refers to a form of modern labor market attributed by short-term contracts or freelance work instead of traditional long-term employment (Negi & Dang, 2023). The rise of digital technologies has facilitated workers to discover work arrangements that are flexible to go well with their lifestyles and skillsets. The gig economy has become more prominent and relevant in today's digital era because of mass adoption of the internet that connects online users across different countries over the digital platforms which helps organizations to share their talent needs. The gig economy consists of a wide range of work arrangements, offering workforce flexibility and autonomy in how they prefer to engage in paid work. The distinctive characteristics of the work provisions prevalent in the gig economy are,

1. **Independent Contracting**, where the individuals are self-employed and have control over when, where, and how they work and provide services to clients, managing their own insurances, taxes and other aspects of business,
2. **Freelancing,** where the folks are specialized in particular skills and offer services on a contract basis to customers,
3. **On-Demand Work,** which refers to gig prospects where personnel provide services on short time notice based on customer demand through digital platforms,
4. **Platform-Based Gig Work,** which facilitates the exchange of services by connecting customers through digital platforms,
5. **Professional Services,** where workers can be engaged in employment by offering their expertise, advisory services, specialized consulting to businesses and managing projects.

These work arrangements offer employees opportunity and flexibility to pursue multiple rates of income flows typically not found in traditional working structures (Jaiswal & Chaudhari 2023). Hence, the Gig workers are those employers who undertake temporary jobs, usually in the service sector, working as freelancers or independent contractors (Seshadri, 2024).

In India, the gig economy has witnessed remarkable growth, with an estimated 77 lakh (7.7 million) employees engaged in gig work in 2020-21, composing 2.6% of the non-agricultural workforce. By 2029-30, this economy is expected to produce 23.5 million jobs and generate over $250 billion annual transaction volumes (Report of Niti Aayog, 2022). The emergence of the gig economy has encouraged a comprehensive analysis of its various aspects, ranging from economic implications to ethical and social considerations. The gig economy contributes to job expansion by offering benefits both for the employers as well as the staffs in the form of autonomy, flexibility, adaptability, suitability, and provides opportunities for income generation by leveraging the expertise of freelancers in specific areas, especially in economic downturn. However, the gig economy also raises concerns about security of jobs, instability of income and workers benefits due to its reliance on short-term contractual labour. Simultaneously, it might also appear disadvantageous for the owners when it comes to safety and protection of workforce, standardized basic pay and consumer rights (Samad *et al*., 2022). Paybacks in the form of retirement savings and health insurance are often not provided to gig workers. Additionally, labor market outcomes vary widely for gig workers in most of the countries. While some gig employees could earn a decent income level and enjoy a remarkable sense of job satisfaction, but many have to struggle to earn a living (Negi & Dang, 2023). Hence, many countries throughout the globe have projected parliamentary and government policies for treating “gig workers” as regular employees by focusing their needs, providing civil protection and safeguards to maintain uniformity with other work systems. Striking a balance between flexibility of work, technological innovation, and ethical considerations is necessary to ensure sustainable and equitable functioning of the gig economy. The paper will deal in providing insights into the economics of gig economy trend and its associated impact and challenges with special reference to India.

AIMS AND METHODOLOGY

This research article aims to explore the gig economy comprehensively, analyzing the economic forces that have driven its growth, examining its impact on traditional work arrangements, the opportunities it provides to the workers, and the challenges it encounters. By analyzing the gig economy from different perspectives, the paper seeks to assess the labor market outcomes for gig workers including their rights and protections, discriminations, access to benefits and career prospects. Further the paper also addresses policy considerations to manage and promote this changing landscape of labor market to support both traditional employees and gig workers. Methodologically, the paper is descriptive and analytical in nature and draws empirical inferences and evidences from the available literature on gig economy from secondary sources of data such as Journals and online websites.

DISCUSSION

Gig Economy: The Trend

The demand and supply of gig work has dispersed globally along with the gig work outsourcing platforms such as Guru, Upwork, TaskRabbit, freelancers.com, etc., These platforms performs as intermediaries, facilitating connections between specialized workers and businesses to work on a freelance basis. The demand for such gig works mostly comes from developed nations like Australia, USA, UK, Canada, etc whereas the supply originates from low and middle-income countries like Philippines, Bangladesh, Yemen, Nigeria etc (Graham *et al.*, 2017). Freelancers in the USA get 75% of their gig work from local clients, whereas in developing nations including India , freelancers get about 90% gig works from clients abroad. The hourly wages of USA gig workers are higher than their counterparts in other countries. However, managers from the advanced nations can have access to freelancers of developing countries on the digital platforms and can hire the workforce at the cheapest rate. In the global scenario, hence, the gig economy is primarily pro-employers putting a downward pressure on wages of labour. Getting a stream of gig jobs in online market spaces like Upwork.com, freelancer.com, etc is indeed very challenging as many of the workers from developing countries offer for the jobs at lower wage rates. It is however noteworthy that there is a positive drift in gig economy as various corporate companies have started hiring freelancers for short and long term projects. Earlier only cash-strapped ventures, bootstrapping entrepreneurs and small businesses hired freelancers as support workers. For instance, many fortune 500 companies outsourced different non-core jobs like back-office bearers, marketing, HR functions etc to gig professionals. The number of job seekers in a gig economy is always greater than the number of jobs created particularly on the digital platforms, leading to stiff competition among the gig workers. The following figure: 1 represents job sources of the freelancers with the use of their inherent skills such as networking skills, marketing skills, computer skills globally.

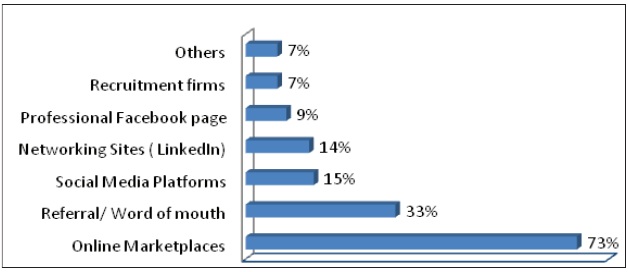

Figure 1: Sources of Freelancing Jobs

Source: *Warner, 2020.*

Another significant trend in the gig economy is that more and more youth find this business much profitable (around 52 per cent of gig workers are below 28 years) in comparison to older generation (around 2 per cent of gig workers are above 60 years) due to its heavy dependence on technology boosted platforms for job sourcing (Warner, 2020). According to the latest Payoneer's Freelancer Income Survey (2022 and 2023), the global average hourly rate of a gig employee has reached $28 which shows a significant rise from $21 in 2020. Hence with the possessed characteristics of gig economy like work freedom and work time flexibility, it observes increased participation of women as workforce attributing to cultural diversity and better accessibility of global resources (Roy & Shrivastava, 2020).

In India, it is estimated that **a**pproaximately 77 lakh workers were occupied in the gig economy in 2020-21(NITI Aayog report) which constituted 2.6% of the non- agricultural labor force in the country. In addition, the economy generated 56% of new employment in the country by the gig companies including both blue-collar and white-collar employees. According to the estimates of government think tank, the gig economy may possibly employ over 23.5 million workforce contributing to 7%

of the non-farm workforce and around 4% of the total livelihood in India by 2030.The forecasts of the Boston Consulting Group depicts that the gig economy possess the potential to generate 90 million jobs by 2029-30 across all roles with annual transaction volumes of over $250 billion. Though the gig market in India is prevalent among blue-collar jobs, but the demand for gig workforce is also emerging in white-collar jobs such as web designers, software developers, content writers, project-specific consultants, salespeople etc. India's gig economy is composed of different segments of Gig workers, which includes:

1. **Highly skilled workforce** like tutors, Hair and beauty professionals, cooks, electricians, technicians, carpenters,etc tending preference towards like flexibility of working hours, new learning opportunities and convenient environment for job assurance,
2. **Moderately skilled workforce** like Data entry operator, LIC Agent, Local transport drivers etc, resoluted in establishing a career with persistent growth and lifting their ranks with promotions,
3. **Semi-skilled workforce** like Health care workers, Food Delivery Agents, liable to become great source of reliance for family earnings with low skill sets and also to build a savings corpus,
4. **Students who seek to earn** for discretionary expenditure and personal development like engaging themselves as food delivery partners, package delivery agents etc. (Samad *et al.*, 2022).

Thus, the growth of the gig economy can function as a building block to bridge the gap between income and unemployment on one hand and attain efficiency and productivity gains on the other.

Opportunities in Gig Economy

In recent years, the gig economy has experienced considerable growth, changing the traditional employment landscape with creation of new opportunities for employees. The technological advancements like mobile applications and digitalized platforms have contributed much towards its expansion through revolutionized working patterns. Workforces, particularly younger generations seek more autonomy and flexibility in their work arrangements fueling the growth of gig work. Moreover, job market fluctuations, economic recessions and sprouting business models have paved the way for diverse income generation (Jaiswal & Chaudhari, 2023). The ability to work remotely through online platforms has transcended geographical limitations and nurtured the entrepreneurial culture. All these factors has created an ecosystem where gig work tuned out to be progressively prevalent and viable for both businesses and workers. This section explains a range of opportunities and advantages that gig work provides to personnel.

a) **Flexibility and Autonomy:** One of the imperative advantages of the gig economy is the elasticity that it offers to workers. Gig workers have the autonomy to choose where,when and how much will they work, allowing to achieve a better work-life balance and to chase personal interests or pledges outside work.They can integrate work better with personal responsibilities and pursuits with customized work approach.

b) **Diverse Income Streams:** Gig work permits individuals to engage in multiple project works simultaneously with different clients, creating the prospective for multiple income streams. This can help in creating greater financial stability and diversify earning opportunities at time of crisis.

c) **Entrepreneurial Opportunities:** The gig economy cultivates an entrepreneurial mindset, encouraging folks to leverage their expertise and skills to build their own business and brand. The gig employees have the opportunity to promote their services through market specific projects aligned with their strengths and interested clients. Gig work also allow individuals to explore and experiment diverse industries, projects, and roles, to discover new areas of interest or to transit from existing to new fields.

d) **Skill Development and Learning:** Working in gig market often requires persons to widen their skill set and fulfill the demands of their clients. This persistent learning and disclosure to different experiences of work can augment their knowledge and build a versatile professional development.

e) **Professional Networking:** In a gig economy, the workers get a scope to connect with a wide range of clients, fellow professionals and businesses on a global scale. The economy provides opportunities for novel collaborations, career growth and referrals digitally expanding their access to client base.

These advantages in the gig economy have attracted individuals from different demographics and backgrounds, including freelancers, retirees, students, women folk and those seeking greater control over their employment. In India, particularly, Gig economy has extended the availability of jobs and enhanced labour force participation owing to its flexibility of timings (Banwari, 2018) .Employers can now eliminate inefficiencies and reduce costs by initiating a dual job market within their organization or company. It has also opened doors for educated skilled women to enter the workforce, who were incapable to continue as a full time employee within the corporate world. Hence, the gig economy has become a remarkable pathway to improve India's GDP with advent of artificial intelligence.

Challenges of Gig Economy

Though the gig economy offers ample of opportunities, it is important to concede that not all gig workers experience the equivalent level of benefits or success. Challenges such as lack of benefits, income instability, and inadequate worker protections need to be addressed to ensure a sustainable gig economy for all individuals. This section will explore the drawbacks and potential challenges associated with the gig economy, identifying their implications for businesses, workers and society as a whole.

a) **Income Instability:** Due to the unpredictable and erratic nature of gig work, the workers engaged in such occupation often face income volatility. Thus, irregular work opportunities, fluctuating demand in the market and inconsistent compensation makes it a hurdle for gig workers to uphold financial stability with a steady income flows. Since the gig economy fosters a competitive environment, the workers associated even need to lower their wage rates to secure work.

b) **Lack of Benefits and Social Protections:** The gig employees are often not entitled to benefits like retirement plans, paid leave, parental leave, health insurance, or compensation of workers like the traditional employees earns. The absence of such social protections creates financial and security concerns among the workers, mostly in times of injury, illness, or retirement.

c) **Limited Job Security:** Gig work is illustrated by project-based engagements for employees, which may not recommend the same level of job security like traditional employment does. Thus, the gig workers may face uncertainty in discovering consistent work or they may need to search for new opportunities constantly to maintain their regular income stream. Furthermore, the act of commodification of certain skills might undervalue the qualification and expertise of gig workers.

d) **Unequal Bargaining Power:** When it comes to negotiation or compensation with platform providers or clients, individual gig workers may experience limited or collective bargaining power due to dispersed nature of gig work. Such, power imbalances can result in dealing with low wages, unfair contracts, immobility of workers and insufficient working conditions.

e) **Lack of Labor Protections:** Gig workers may countenance challenges in accessing legal rights and protections while engaging in employment as the gig economy operates within a complex regulatory environment. Issues such as misclassification of works, requirement of employment benefits, access to healthcare, forming unions and retirement planning can leave gig employees struggle without the necessary protections and support.

f) **Isolation and Limited Social Interaction:** Gig employment often involves working independently, without the social associations unlike the companionship found in traditional workplace surroundings. This seclusion can impact workers' mental well-being and obstruct opportunities for partnership and professional development. Moreover, the status of gig workers as independent contractors may result in exclusion from various labor regulations, including overtime pay, minimum wage requirements, , and protection aligned with unfair dismissal.

An imperative challenge to employers of gig-economy is maintaining confidentiality of data and acquiring intellectual property of the product and services rendered by the freelancers (Roy and Shrivastava, 2020). Thus, addressing these negative impacts of gig economy requires a comprehensive approach that stabilizes the flexibility of gig work with the necessity to protect worker rights and privileges and promote social and economic well-being (Jaiswal & Chaudhari 2023).

POLICY CONSIDERATIONS

A sector that makes promise is also loaded with challenges, both regulatory and social. The latter is to be expected more because online freelancing and microwork are comparatively new phenomenon in the functioning of labour markets. Gig economy establishes one-to-one relationship between the contractor and the employee which is easy to exploit and hard to monitor (Banwari, 2018). Thus, addressing the drawbacks of gig-market requires a comprehensive approach that not only considers the rights and welfare of gig workers, but also fosters innovativeness in the employment sector. The subsequent section will try to explore policy frameworks, regulatory considerations and potential resolutions to mitigate the challenges and augment the opportunities within the economy.

a) **Worker Classification:** Policy considerations should address the issue of workers classification to make sure that gig workers receive appropriate benefits and protections. Developing a lucid and standardized framework that distinguishes between independent service providers and employees can help in creating a consistent approach to worker classification.

b) **Access to Benefits and Protections:** Policy framers should investigate mechanisms to offer gig workers with access to crucial benefits and protections conventionally associated with employment. This may include expanding access to healthcare, paid leave, retirement savings options, and unemployment insurance, either through government agenda or through innovative interventions tailored to the gig economy.Policy initiatives of exploring Portable benefits schemes can offer gig workers with a safety net to allow access of benefits like retirement savings, healthcare coverage etc regardless of their definite work arrangement.

c) **Labor Standards and Protections:** Implementation and enforcement of labor standards precise to the gig economy can help in safeguarding worker rights. This involves ensuring safe working conditions, fair compensation, protection against discrimination, and the right to form union for collective bargaining. Adaptation of existing labor laws and regulations to the concerned economy may be essential to address the exclusive challenges faced by gig workers. Policy rules should also focus on establishing mechanisms to handle grievances and disputes within gig-work arrangement effectively.

d) **Training and Upskilling:** Policymakers and businesses can support gig staffs by investing in upskilling and training programs that develop their employability and ease transition between gigs or companies. By furnishing gig workers with the necessary skills, policy makers can aid them adapt to shifting market demands enhancing their earning potential. Additionally, collaborating with different gig platforms to launch accountable business practices can endorse fair treatment of gig workers.

e) **Data Privacy and Security:** Policymakers and Government ought to address data privacy and security concerns connected with gig work. Work Systems should safeguard personal information of gig workers' and ensure that platforms stick to stern data protection standards. With reference to the evolving nature of the gig economy, the regulatory bodies should continuously monitor and evaluate the effectiveness of adopted policy decisions.

In India, a few states have taken initiatives in path of regulating the gig sector. The Rajasthan government has approved an act for the registration and wellbeing of these workers with the establishment of Platform-Based Welfare Board for Gig Workers. The board will make certain that registered workers' rights are protected and grievances are settled in an appropriate manner. Government in Karnataka has also initiated Gig Workers Insurance Scheme, which aims in providing Rs 2 lakh for health and life insurance for gig workers at the expense of the state. Concerning about the demand of workers, the government think tank NITI Aayog also urged the business platforms to broaden social security benefits such as insurance, paid sick leave, and healthcare to all gig workers. Only by screening the unique requirements and challenges of gig workers, the policymakers can succeed in creating a gig economy that maximizes the benefits of individuals while ensuring equitable state of affairs for all participants.

CONCLUSION

In conclusion, we can say that the gig economy has transformed the setting of work, offering new opportunities to people and at the same time presenting challenges for job security, income inequality and skill development. The examination of its long-term implications reveals a dynamic and complex atmosphere that requires cautious attention from businesses, policymakers, and society. The power dynamics between freelancers and employers, as well as the distraction of traditional industries, further highlights the call for practical measures to ensure fair labor practices and protection of worker rights. Collaboration among the businesses, policymakers, gig workers, and other stakeholders' is crucial to shape the future of work that fosters an inclusive gig economy. Being in its embryonic stage, the digital based platform economy in India is yet to be studied comprehensively. There lies ample scope of research in areas like identifying the unique features of small platforms, exploring the difficulties confronted by women-run platforms, analyzing the use of technology towards potential employment generation and estimating growth of gig sector and its contribution to India's GDP.

Acknowledgement

I, Anindita Chakravarty, hereby declare that the concerned manuscript is original and has not been published before and has not currently been considered for publication elsewhere.

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Opportunities and Challenges in the Gig Economy: A Contemporary Labour Market Analysis

Debikha Bathari*

ABSTRACT

The market that is based on a fixed-term contract or that is paid on a project basis by a business, third party, or online marketplace is known as the "gig economy." The gig economy has a profound effect on the workplace that is felt in many different areas. It has fundamentally altered how our economy functions and drastically altered how individuals are engaged at work. Since many of the smartest and brightest people choose gig work as their major source of income, the number of gig workers will continue to rise due to its unparalleled benefits. Even though the gig economy offers workers a lot of advantages in terms of independence, employment, flexibility, etc., it also negatively affects the working environment in the sector.Think about the workplace of the future for a moment. It's possible that trucks and other automobiles may drive autonomously in the future. A world where you do all of your shopping alone, online, or without any personal contact entering a store without any employees. A world where a bot that sounds and possibly even looks perfectly human answers your questions about everything, from technical or customer service issues to legal or financial issues. In a world where unsightly transmission towers have long since been demolished, energy is produced on home roofs and distributed across communities. A society where young people, the elderly, and the disabled are assisted by robotstrolling from a Chicago, Dallas, or Mumbai air-conditioned office. A future where everyone works as a freelancer and chases the next job like Uber. The nextrideis pursued by the driver. Perhaps, if this libertarian idea of a society of independent contractors

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relieves us of the grind of work, it is also a nightmare for people who are concerned about future security and equity. Some people (typically from conservative political parties) sit in a different corner and tell us that nothing is truly changing and that everything will work out in the end. Who should I trust?This chapter also examines how work and workplace relations are being impacted by and are likely to be impacted by digital change. We look into whether the "gig economy" or a world of independent contractors is what we are heading toward(also called "Uberization"). We examine whether employment is being radically altered or destroyed by digital platforms.

Keywords: *Gig, Labour, Worker, Opportunities, Challenges, Gig Economy, Freelancing,Bbridge Employment, Freelancers.*

INTRODUCTION

The widespread use of cellphones and the expansion of the internet, utilize digital channels to link internet users worldwide. This aids businesses in communicating their talent requirements and reaching out to distant employees via digital platforms (Healy et al., 2017). In the current digital era, these tendencies increase the gig economy's prominence and relevance. According to Techtarget (2020), the gig economy is a free market system in which businesses use independent contractors for brief projects or service engagements. It has long been customary to work a full-time job, but adding a largerdigital revolution, the annual decline in the workforce, and the recent economic slump, many prospective employees are unable to obtain long-term employment (Manyika et al., 2016). Due to the lack of permanent positions, they are encouraged to work as independent contractors, often known as "independent workers," "gig workers," or "freelancers." In several developed nations, young workers choose these contract positions as a way of life to get around the legally obligatory requirements of permanent positions. Gig platforms, however, offer "bridge employment" prior to permanent positions in several nations. The jobdigital startups are drawn to the economy because it allows themtooffer contract workers lower compensation and avoid possible lawsuits brought by workers during recessions (Friedman, 2014). The primary players in the gig economy's demand side include single entrepreneurs, small and medium-sized businesses, online start-ups, and even some large organizations that frequently use gig workers for both temporary and permanent positions. Individual employees or small businesses, independent consultants, and freelancers make up the majority of the supply side. According to a recent report, the gig economy is expanding throughout the countries. The number of independent contractors in the United States increased from 3.7 million in 2014 to 62.2 million in 2019 (Statista, 2020; Pofeldt (2019). Organizations can now hire gig workers, also known as freelancers, nationwide because to the rise of numerous gig online platforms like Upwork, Guru, and Fiverr. In a similar vein, a lot of independent contractors and freelancers sign up for internet marketplaces to market their skills to clients abroad. As a result, freelancers can easily locate tasks and projects online thanks to digital channels. Hiring from huge corporations is one of the main causes of the rise in freelancing activity, according to Stephane Kasriel, CEO of Upwork, the largest freelance platform in the world. He claims that 30% of Fortune 500 organizations currently use leading freelance platforms and significant Technology companies using the platforms arerecruiters (Pofeldt, 2019).Prior research on the gig economy primarilycentered on how laws and regulations guarantee improved working conditions, higher pay, and adherence to current labour regulations for gig workers both domestically and internationally (Aloisi, 2015; Kässi & Lehdonvirta, 2018; Graham et al., 2017). The rise of the entrepreneurial generation in developed countries has increased demand for flexible work arrangements devoid of conventional employment contracts. In the mainstream economy, this results in the establishment of the shadow corporation (Friedman, 2014). Leading digital outsourcing platforms in the gig economy have prompted a large number of highly qualified workers from developing economies to enter the gig workforce. Through these platforms, businesses can now acquire talent from several nations at a little portion of the price of their native nations.These make it difficult for gig workers to draw in a sizable clientele at reasonable rates. Gig workers must be adept at maintaining organization, meeting deadlines for clients abroad, maintaining client relationships, and, lastly, managing their emotions when working with clients from various cultures and regions in order to succeed in this economy (Ashford et al., 2018). For gig workers, personal branding is therefore crucial to long-term success. In a same vein, using marketing channels wisely to generate leads is crucial for long-term viability in the gig economy. Since many young, educated professionals in India are entering the vast global freelancing market, the gig economy is also growing in India. In 2015, India had 15 million gig workers, second only to the US, which had 53 million independent contractors (Verma, 2018). Gig labor is popular with hiring professionals in India because it "drives efficiency, innovation, and competitive advantage", while keeping the cost of human resources as low as possible. The flexibility of work hours, the chance to be their own boss, and the freedom to select a job based on their interests and responsibilities are the primary reasons Indian freelancers are entering the gig economy. Remarkably, 41% of Indian gig workers are employed by their domestic and international clients in information technology (IT) and related fields (Verma, 2018).We offer an exploratory analysis of the gig economy's future in this work. Additionally, we have incorporated the branding andmarketingdifficulties faced by agencies and gig workers in the ever-evolving gig economy, which is by definition not limited by national or cultural borders. Major trends in gig labor and the skill set that clients throughout the world require are also presented in this study. Leading gig job sourcing platforms (Upwork, For example) were created as a result of computerizations. In order to provide "people in poor countries with access to buyers in rich countries," digital sourcing platforms are essential for chance to improve their skills in order to participate more fully in the gig economy's global workforce supply chain (Graham et al., 2017). According to a recent study, the gig working environment is defined by three actors: the requester (clients), intermediary platform companies, and gig workers (sometimes referred to as freelancers or independent contractors) (Meijerink & Keegan, 2019). In order to link gig workers and clients without a formal employment contract while guaranteeing project completion and payment procedures, intermediary digital platforms perform a critical human resource role (Meijerink & Keegan, 2019). To survive in this cutthroat industry, it indicated that gig workers should obtain certifications to advance their skills, and the sector should be supported by sound regulatory policies and democratic governance of digital platforms (Graham et al., 2017). Additionally, there are a lot of significant shifts and trends brought about by digital disruption in how gig workers manage their personal andprofessionallife in the modern workplace. Gig Economy Trends in addition to the widespreaduse of gig job outsourcing websites like Guru and Upwork. It has been discovered that the supply and demand for gig work have become more worldwide distributed thanks to websites like freelancers.com. The majority of demand is from developed countries like the USA, UK, Canada, Australia, etc. However, supply comes from the low-income nations such as the Philippines, India, and others (Graham et al., 2017). In the USA, local clients account for 75% of freelancers' gig business. In contrast, freelancers in developing countries like India, Pakistan, and the Philippines receive almost 90% of their gig work from clients abroad. Gig workers in the USA have typically earned greater hourly wages than their counterparts in other countries since they work for local clientele. Recent trends indicate that following upskilling in programming and IT fields, freelancers in low-income nations can command higher hourly rates (USD 4 to USD 20). However, freelancers in low-income countries can be accessed by employers from affluent countries through digital platforms (Beerepoot & Lambregts, 2015). As a result, they engage in "labor arbitrage," hiring employees at the lowest possible price. As a result, they engage in "labor arbitrage," hiring employees at the lowest possible price. Thus, in the worldwide. Never the less, the gig economy is dominated by employers, and labor earnings are under pressure to decline (Graham et al., 2017). Since many large companies have begun using freelancers for both short-term and long-term projects, the gig economy is also seeing good trends. Originally, the only companies that employed freelancers as support staff were small enterprises, cash-strapped organizations, and boots trapping entrepreneurs. Now a days, a large number of Fortune 500 businesses have begun to contract with gig workers for a variety of non-core tasks, such as marketing, back-office work, and human resources (Caminiti, 2018). There are usually more job seekers than positions offered on digital platforms in the gig economy, and gig workers constantly have to contend with fierce competition from co-workers from other countries. The Figures below shows Distribution of Buyers and Sellers in Gig Economy:

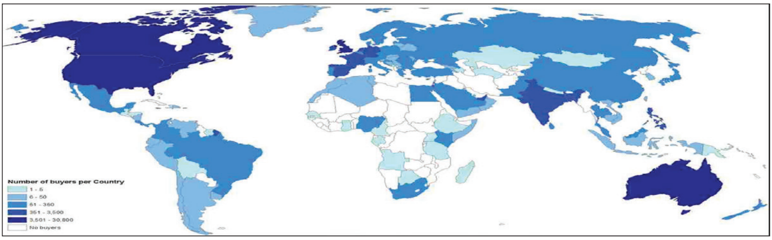

Fig 1: Distribution of Buyers and Sellers in Gig Economy

Source: *Graham, Hjorth &Lehdonvirta, 2017*

Figure 2 shows the various jobsources as used by the freelancers and onlinemarket space is the topmost (73 per cent) jobsource for gig workers.The three important market players in online market places are Freelancer.com, Upwork.com and Fiverr.com with 31 million, 17 million, and 7 million registered usersrespectively (Warner, 2020). Getting a streamof gig jobs on these online market space

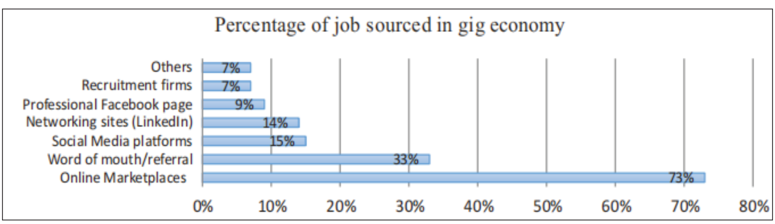

Fig 2: Sources of Freelancing Jobs

Source: *Warner, 2020.*

becomes extremely difficult when a large number of independent contractors from underdeveloped countries bid for the employment at lower hourly rates. Numerous innate Freelancers with computer, networking, and marketing abilities are better able to get employment on online platforms (see Figure 3). According to Figure 3, 33% of gig workers think that having computer skills will help them grow in their careers (Warner, 2020). Another significant development in the gig economy is that younger individuals are finding this line of work more lucrative (52 percent of gig workers are under 28 years old).years), in contrast to the older generation (2 percent of freelancers are over 60), as a result of their substantial reliance on platforms related to technology.In order to source jobs (Warner, 2020). Nonetheless, elder gig workers make more money than younger independent contractors. Remarkably, only 28% of freelancers work gigs on a daily or weekly basis, meaning that 50% of gig workers are sporadic workers. According to the most recent Payoneer Freelancer Income Survey from 2018, the average hourly wage for gig workers worldwide is $19. However, depending on the industry and skill level, their prices range from $11 to $28. (Thibodeaux, 2020). Due to work independence and flexibility, the gig economy has seen a rise in the number of women participating in the independent contractor workforce. Thus, the gig economy portends a shift in the dynamics of managing a workforce, cultural diversity, and access to international resources.

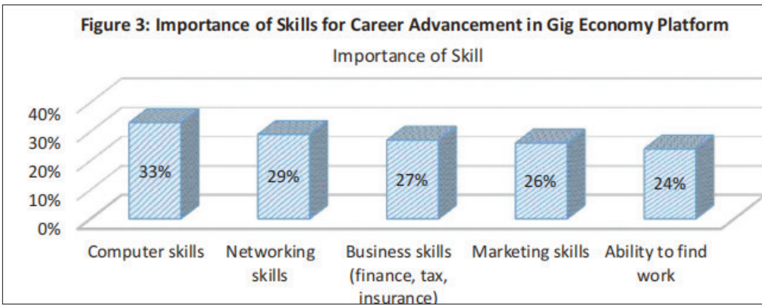

Fig 3: Importance of Skills for Career Advancement in Gig Economy Platform

Source: *Warner, 2020.*

Strategy for Marketing and Branding in the Gig Economy

Adoption of technology has caused a significant disruption in the gig economy by giving clients access to talent from both developed and developing countries. Similarly, digital platforms enable millions of freelancers from developing countries to apply for jobs posted on these platforms, but the market becomes cluttered due to the mushrooming of fake profiles on gig platforms, making it difficult for clients to choose the best talent for the job. Freelance platforms like Upwork and Freelancer.com have taken various steps to weed out those nonserious freelancers by implementing various checks on the personal verification, background verification, previous earning credentials, delivery of inactive profiles, etc. It is still difficult for gig workers to consistently acquire new contracts. Establishing and building a personal brand on the gig economy platform is difficult since one must present oneself as capable and trustworthy in the competitive market. Additionally, he or she requiresto present themselves as more innovative and economical than steady workers in the same field (Petriglieri et al., 2019). It has been discovered that a client's perception of a freelancer's brand is significantly influenced by gender. Women must put in more effort to establish their online reputation despite receiving only two-thirds of their male peers' salaries (Barzilay & Ben-David, 2016). Regardless of gender, freelancers can establish their brand on gig platforms by maximizing their fees, displaying their experience and qualifications, and improving their feedback score (Barzilay & Ben-David, 2016). Remaining viable in offering, staying organized, maintaining a verified identity on digital media other than the gig sourcing platform, maintaining relationships with past clients, and managing emotions while completing projects in cross-cultural settings are all essential skills for establishing a reputation as a trustworthy gig worker (Ashford et al., 2018).According to earlier research, freelancers' self-branding ononline gig working platforms can be developed by a robust social relationship that serves as the primary means of "procurement of employment opportunities" on gig platforms (Grugulis & Stoyanova, 2011) (Gandini, 2016). In addition to developing a strong personal brand, gig workers frequently struggle to find new customers through a variety of offline and online media platforms.Freelancers now frequently source tasks using gig digital platforms (see Figure 2). Furthermore, they make use of social. To exhibit their projects and experience, they use word-of-mouth marketing (33 percent) and media (15 percent) to target the new client category (Warner, 2020). In order to reach their target audiences without using digital gig platforms, gig workers are increasingly turning to search engine marketing (paid marketing) techniques like Facebook paid campaigns and pay-per-click (PPC). As a result, they are able to avoid the strict terms and conditions and exorbitant commissions that the top digital platforms impose for each job they complete on them (Key, 2017). Due to its affordability, reliability, practicality, and simplicity of usage, gig workers are becoming more prevalent in email marketing to regularly inform their clients and potential clients about the range of goods and services they provide (Key, 2017).

Possibilities in the Gig Economy

The term "gig economy" was first used during the crisis, when the majority of workers were dependent on temporary work after losing their jobs. In contrast to a regular job role, 85% of gig workers in the US are interested in continuing contract work for the next five years, citing Met Life's 17th Annual U.S.Employee Benefit Trends Study 2019. These gig workers are not your average independent contractors who are drawn to this kind of employment. Workers who work full-time are considering "going gig" full-time by quitting their current jobs in order to make more money through giging.employers for freelance or contract labor. In addition to having more talent available, the gig economy offers a chance in offering "bridge employment" when typical full-time positions are out of their price range during a recession (Donovan et al., 2016). In the corporate world, gig work opportunities are growing. The "war for talent" is nothing new in the corporate world, and most businesses prioritize their bottom lines in an effort to boost earnings due to fierce competition. For all professionals who work as freelancers and forego the comfort and security (or lack thereof) of the corporate world in order to pursue their passions and become their own bosses, here is the ideal place. Businesses are embracing this tribalism because it allows them to develop more quickly, cut costs, and obtain a workforce instantly. As a group of business operations, learning and development, customer service, and corporate website development and support have always utilized freelancers, and the majority of businesses today prefer to use a small number of traditional employees for certain tasks while using outside expertise to complete the remaining job. With this strategy, businesses may get the most up-to-date and pertinent knowledge and experience for a fraction of the price. The gig economy opens up a lot of job opportunities in India. The Indian economy is currently experiencing jobless growth, which prevents inclusive growth. The gig economy would be able to give young people profitable jobs. Additionally, it can open up new doors for women by allowingWomen's employment in these occupations has increased as a result of their ability to choose their own working conditions and schedules. Increased gig worker participation in corporate tasks can assist businesses in streamlining their personnel and cutting operating expenses.

Challenges in Gig Economy

Even though the number of gig workers is growing daily, these professionals have been having a hard time consistently landing high-quality jobs or projects. First, according to Barzilay and Ben-David (2016), there are no rules that address gender disparities while seeking gig labor on internet platforms. Second, there is a lack of structure and government backing for establishing favorable conditions for high-quality projects and work, worker protection, and access to benefits offered by traditional jobs (Donovan et al., 2016). The emergence of online and gig economies Employers and workers who do not fit inside the parameters of current labor regulations have been given a new concept of "jobs" by the gig economy and online talent portals, creating a significant issue and necessitating the development of new labor models (Horney, 2016). These positions are referred to as self-employed or microentrepreneurial, and they are not eligible for the same benefits as regular employees, as is shown in the case of Uber in the UK (Lusher, 2017). The long-term requirements of the employees were adversely jeopardized by this new company strategy.

Another issue facing gig workers is that there is no assurance of a consistent income, making it challenging to determine their trustworthiness. This issue is significant in the Indian context since there is no social safety net for jobless people. Legal entanglements and disputes may arise from issues with confidentiality and intellectual property (Vaidyanathan and Bose, 2017). These make the already hazy relationship much more complicated. Maintaining data confidentiality and acquiring intellectual property for the goods and services provided by freelancers provide significant challenges for companies. Since informal labor agreements lack a "non-compete" clause, the freelancers may be simultaneously working for multiple rival companies, endangering the company's interests. As a result, hiring temporary workers and giving them access to sensitive data may be grounds for concern.

However, finding steady work on digital platforms is the largest obstacle facing the majority of freelancers, whether they are seasoned or new. They also have problems with payment protection following a successful job delivery. There are several particular difficulties for human capital management in the gig economy. Businesses must deal with a number of challenges, including adhering to the Affordable Care Act's regulations and staying abreast of the evolving legislation pertaining to independent contractors. Additionally, managing these administrative responsibilities requires the business to commit valuable time and resources. Businesses may have to deal with opportunity costs. Businesses should use appropriate due diligence when choosing gig workers for certain tasks. It should simultaneously guarantee cost, privacy, and resource optimization.

CONCLUSION

This article explores the significant roles played by stakeholders in the gig economy and demonstrates how a number of factors influence its growth and significance in both the Indian and global contexts. A review of recent research and a market survey support the idea that the gig economy's reach extends beyond the service sector to include the manufacturing sector at a faster rate (Gleim et al., 2019). Digital platforms play a critical role in introducing gig culture to developing nations and remote regions of the world.

The gig economy provides gig workers with a variety of opportunities, including access to international job postings, a flexible work environment, and the ability to work in areas of interest. However, it presents a number of difficulties for independent contractors, including lower compensation, a lack of social benefits, and unstable employment. Employing freelancers offers corporations several benefits, including lower expenses, less commitment, and on-demand skills. However, when using freelancers to manage corporate operations, firms may encounter numerous difficulties in protecting the privacy of data, information, and intellectual property rights.

Future studies may therefore examine the function of data security and privacy concerns in the gig economy. The research analyzing freelancers' concerns about payment protection and compensation on digital platforms is also lacking. This calls for more research on defending freelancers' rights in the gig economy. Furthermore, there is a dearth of study on how gig workers may use different marketing platforms and develop their online brand for long-term growth and job opportunities in this economy. Therefore, future research should focus on the key elements that affect freelancing product marketing and creating a strong brand in the gig economy.

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Diversifying Rural Livelihoods: Evaluating the Impact of the National Rural Livelihoods Mission in Assam

Bhargab Das*, Dr. Suranjan Sarma**

ABSTRACT

This study evaluates the impact of the National Rural Livelihoods Mission (NRLM) on livelihood diversification among rural households in Assam. Drawing on primary data from 405 sample households across three districts—Jorhat, Morigaon, and Dhubri—the study uses the Simpson Index of Diversity (SID) to measure the extent of livelihood diversification. Households are categorized into NRLM beneficiaries and non-beneficiaries, allowing for a comparative assessment. The findings reveal that beneficiaries are more likely to engage in a diversified set of livelihood activities, particularly in the non-farm sector, and earn significantly higher mean incomes than non-beneficiaries. Beneficiaries also display a greater involvement in entrepreneurial and skill-based occupations, such as handloom, handicrafts, and petty businesses. The statistical analysis confirms that the mean primary income and extent of livelihood diversification are significantly higher among beneficiaries. This indicates that NRLM has played a pivotal role in enhancing income opportunities and promoting economic resilience in rural Assam by reducing overdependence on agriculture. The study underscores the importance of targeted livelihood interventions in addressing poverty and income vulnerability in agrarian economies.

Keywords: *Rural Livelihoods, Livelihood Diversification, National Rural Livelihoods Mission, Impact Assessment, Assam.*

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INTRODUCTION

Even after more than 70 years of country's independence, India is still fighting poverty, a persistent social unrest. About 260.5 million individuals in rural India continue to live below poverty line and in urban India, the number stands at 102.5 million (Planning Commission Raangarajan Committee Report, 2014). Again, the 5th Annual Employment Unemployment Survey at the national level indicates that roughly 77% of households do not have a regular wage/salaried person with India's unemployment rate reached its highest level in five years in 2015-16 (GoI, 2016). In addition to poverty, deprivation in consumption of calories plays a significant role in the economy. In rural area, According to the National sample survey (NSS) data, people engaged as agricultural workers are deprived of calories consumption to a maximum of 80.06 % followed by causal labourers i.e. 77.57% and self-employed non-agricultural laborers (75.45%). Again the marginalized groups such as the Scheduled Tribes, the Scheduled Castes, poor minorities, women, and persons with disability continue to experience extreme poverty as presented in the recent poverty and social inclusion assessments carried out by the World Bank (MoRD, 2012). The aforementioned statistics describes the state of food insecurity along with extreme poverty in India (Ashish, 2018).

Reduction of poverty, and thereby improving the livelihoods and quality of life of the poor, has been one of the primary objectives of India's Five Year Plans. Often these have translated into different major programmes like the Integrated Rural Development Programme (IRDP) and Community Development Programmes (Patnaik and Prasad, 2014). In the most recent times, to provide a sharper focus as well as momentum for reduction of poverty, the Ministry of Rural Development, Govt. of India had launched National Rural Livelihood Mission or Aajeevika in the FY 2010-11 which is considered as the world's largest poverty alleviation programme. The primary objective of the Mission is to promote sustainable livelihoods for the poor such that they come out of poverty. The key feature of the mission is to encourage poor households to have multiple livelihoods in order to cope with vulnerabilities. NRLM look at the entire portfolio of livelihoods of each poor household, and work towards stabilizing and enhancing the existing livelihoods and subsequently diversifying their livelihoods. It focuses on stabilizing and promoting existing livelihoods portfolio of the poor through vulnerability reduction and livelihoods enhancement by enhancing and expanding existing livelihoods options and tapping new opportunities in both farm and non-farm sectors (IRMA, 2017).

Assam, situated in the north eastern part of India is primarily agrarian state as almost 85 percent of the state population is living in rural areas and more than 70 percent state's population relies on agriculture as farmers, as agricultural laborers, or both for their livelihood (AHDR, 2016). However, agriculture in Assam is a risky investment due to the volatility in price and weather condition making the associated population vulnerable towards extreme poverty (Das & Bora, 2020). The impact of "Risk" and "Seasonality" in agriculture triggered the diversification process in rural occupations and income of Assam also. The role of agriculture is becoming less significant in rural livelihoods, while non-agricultural sources including commerce, services, remittances, and non-farm labor are becoming more relevant in the most recent time. Assam State Rural Livelihood Mission Society (ASRLMS) is implementing the NRLM in the state since November, 2011, has been constantly encouraging the rural poor to diversify their livelihoods to cope with risk and vulnerability in order to achieve sustainable livelihoods. Therefore, in this study an attempt has been made to analyze the impact of National Rural Livelihood Mission on livelihood diversification in rural Assam.

2. Objective

To assess the impact of National Rural Livelihood Mission (NRLM) in the extent of livelihood diversification among rural households in Assam.

3. METHODOLOGY

3.1 Data Sources

The core work of the present study is mainly based on primary data. However, some amounts of secondary data have also been used to fulfill the objectives of the study. The required secondary have been collected from the official website of NRLM, annual reports of ASRLM of different years, annual action plan of

ASRLM of different years and annual compendium of ASRLM (The Sylvan Saga). The required primary data on pattern of livelihood diversification have been collected from the sample households with the help of appropriately constructed interview schedule. Multistage sampling technique has been employed to select the sample households for the present study.

In the first stage, three sample districts have been selected purposively to represent the all three regional division of Brahmaputra valley of Assam. Thus from upper Assam Jorhat district, from middle Assam Marigaon district and from lower Assam Dhubri district have been selected purposively as sample districts in order to conduct the present study. In the next stage, sample development blocks have been selected. Jorhat district contains six development blocks among these six blocks Kaliapani and Titabor blocks have been selected randomly. From Dhubri district out of 11 development blocks Bilasipara and Gauripur blocks have been selected randomly as sample blocks. Again from Marigaon district Kapili and Moirabari block have been selected randomly as sample blocks. Thus a total of six sample blocks have been considered. In the next step from every selected block, two sample villages have selected for the purpose of the study. One village where livelihood intervention of NRLM has started and one village where livelihood intervention has not started yet have been selected. Thus from Kaliapani Block Boria Gaon and Kotikuchia Gaon and from Titabor Block Bosa Gaon and Bongal Gaon have been selected. Again from Bilasipara Block Baghmari and Kaimari and from Gauripur Block Bagulamari and Bhelakoba villages have been selected as sample villages. Garmai and Kalmoubari from Kapili Block and Haldhibari and Borbori villages from Moirabari block have been selected as the sample village to conduct the present study. After the selection of the sample villages 10 percent households have been selected from both types of sample villages i.e. where livelihood intervention of NRLM has started and where livelihood intervention of NRLN has not started yet. Thus a total of 405 households have been selected as sample households out of which 221 are beneficiary households and 184 are non beneficiary households.

Table 1: Sampling Design

Sample Districts	Sample Blocks	Sample Villages	Total Household	Sample Households
Jorhat	Kaliapani	Boria Gaon	335	34
		Kotikuchia Gaon	372	37
	Titabor	Bongal Gaon	313	31
		Bosa Gaon	311	31
Dhubri	Bilasipara	Baghmari	463	47
		Kaimari	281	28
	Gauripur	Bagulamari	447	45
		Bhelakoba	160	16
Morigaon	Kapili	Garmari	224	23
		Kalmoubari	574	58
	Moirabari	Haldhibari	135	14
		Borbori	415	42
Total Sample Households				**405**

3.2 Methods

After the collection of the primary data, the data have been processed and analyzed by applying simple statistical tools live frequency table, percentage, ratio, t test, bar diagram, pi diagram etc.

The Simpson Index of Diversity (SID) is used to measure the extent or level of livelihood diversification among the sample households. The SID takes into account both the number of income sources and how evenly the distributions of income are made between the various sources. This justifies the use of the SID to measure the level of livelihood diversification in this study over other diversification measures, such as Herfindahl, Shannon, and others (Roy, B. C., Khatun, D., & Roy, A. 2018; Alemu, 2023). It is defined as :

$$SID = 1 - \sum_{i=1}^{n} p_i^2$$

Where, Pi as the proportion of income coming from source i. The value of SID always falls between 0 and 1. If there is just one source of income, Pi=1, so SID=0. As the number of sources increases, the shares (Pi) decline, as does the sum of the squared shares, so that SID approaches to 1. If there are k sources of income, then SID falls between zero and 1-1/k, accordingly, households with most diversified incomes will have the largest SID, and the less diversified incomes are associated with the smallest SID. For least diversified households' SID takes on its minimum value of 0. The upper limit for SID is 1, depends on the number of income sources available and their relative shares. The higher the number of income sources as well as more evenly distributed the income shares, the higher the value of SID.

4. FINDINGS

4.1 Pattern of Livelihood Diversification in the Study Area

In Assam, the primary livelihood option is agriculture and allied activities for the people residing in rural areas. However, the reliance on agriculture as the principal livelihood activity varies across different regions of the state (Upadhyaya, 2023). In the recent times, the youths are commercially attracted to livestock rearing. In addition to that people earn their livelihood from petty vending and wage laborers also. As the principal objective of the NRLM, the ASRLM promote both farm livelihoods including agriculture, horticulture, animal husbandry, fishery etc. and non-farm livelihood activities like handloom, handicraft, micro and small businesses, tourism and rural hospitality etc. among the beneficiaries in order to achieve livelihood sustainability. In order to examine the pattern of livelihood diversification, different livelihood options of the sample households and the amount of income derived from each livelihood sources have been calculated. For this the livelihood sources have been classified into two categories – farm livelihoods and non-farm livelihoods. Farm livelihoods basically include crop income, livestock rearing, fishery and agricultural labourers and non-farm livelihoods include salaried group, petty businesses, non-agricultural labourers, handloom and handicraft and others. An analysis of the sample households according to their livelihood choices is presented in the subsequent sections.

Principal Occupations of the Sample Households

The economic activity or profession that contributes the majority of the family's income or means of subsistence is referred to as the primary or principal occupation of the household. It is the primary occupation that provides for the fundamental necessities of the household. The primary occupation of the sample households categorized into beneficiaries and non beneficiaries of NRLM along with their mean income from that principal occupation are presented in table 2.

Table 2: Principal Occupations of the Sample Households

Sources	Beneficiary			Non-Beneficiary		
	Fre-quency	%	Mean Income (Per Month)	Fre-quency	%	Mean Income (Per Month)
Crop Income	77	34.84	5233.33	69	37.50	4120.40
Livestock Rearing	32	14.48	4640	40	21.74	4400
Fishery	12	5.43	2633.33	13	7.07	2742
Farm Total	121	54.75	4818.56	122	66.30	4065.19
Service (Salaried)	17	7.69	11613.64	9	4.89	10100
Petty Business	22	9.95	6250	8	4.34	5250
Non-Agricultural Laborers	23	10.41	8333.33	24	13.04	6750
Handloom and Handicraft	24	10.86	6235.5	3	1.63	5333.33
Others	14	6.33	2150	18	9.78	2450
Non-Farm Total	100	45.25	7063.50	62	33.69	5580

Source: Primary Data

It has been observed from the above table that 54.75 percent of the beneficiary households are engaged in farm sector for their primary source income. Within the farm sector, majority of the sample households i.e. 34.84 percent are engaged in crop cultivation followed by 14.84 percent involved in livestock rearing and a smaller proportion, 5.43 percent, rely on fish farming as their primary source of income. On the other hand, the remaining 45.25 percent sample beneficiary households are engaged in nonfarm sector as the primary source of income. Of these, 10.86 percent are engaged in handloom and handicraft, followed by 10.41 percent households who earn their livelihoods as non agricultural labours, 9.95 percent runs petty business, 7.69 percent are employed in salaried jobs, and the remaining 6.33 percent sample households derive their primary income from various other sources live transfer payment or remittances.

Among the non beneficiary households, a larger proportion i.e. 66.30 percent depends on the farm sector for their primary income. Among these, majority i.e. 37.50 percent are engaged in crop cultivation, followed by 21.74 percent in livestock rearing, and only 7.07 percent rely on fish farming as their primary source of income. The remaining 33.69 percent sample non beneficiary households earn their primary income from nonfarm sector. Within this group, the majority (13.04 percent) earns their livelihood as non agricultural labours, 4.35 percent does petty businesses and only 1.63 percent is engaged in handloom and handicraft. Again among the non beneficiary households only 4.89 percent earn their primary income from salaried jobs and 9.78 percent earn from other activities like transfer payments and remittances.

The data reveals that while 54.75 percent of beneficiaries rely on the farm sector, a larger proportion of non-beneficiaries (66.30 percent) depend on agriculture to earn their primary income. Beneficiaries are more engaged in nonfarm activities, such as handloom/handicrafts, petty business, and salaried jobs, reflecting better access to formal employment, financial and skill development opportunities. In contrast, only 33.69 percent of non-beneficiaries are engaged in nonfarm sectors. The data suggests NRLM's impact on reducing agricultural dependence and explore stable income sources like entrepreneurship and formal employment. Overall, NRLM's efforts to foster livelihood diversification and provide financial and skill support have positively impacted beneficiaries, contributing to improved economic resilience and empowerment.

The findings from the income data show that NRLM beneficiaries generally earn higher mean incomes across both farm and non-farm sources compared to non-beneficiaries. For farm activities, the mean income for beneficiaries is Rs. 4818.56, which is higher than the Rs. 4065.19 earned by non-beneficiaries. The difference is particularly noticeable in crop income, where beneficiaries earn Rs. 5233.33 per month, compared to Rs. 4120.4 for non-beneficiaries. While livestock rearing and fishery incomes are slightly higher for beneficiaries in some categories, these differences highlight the positive impact of NRLM's interventions in improving agricultural income, potentially through access to better resources, training and financial support.

In the non-farm sector, beneficiaries also exhibit higher mean incomes, with a non-farm total of Rs. 7063.5 compared to Rs. 5580 for non-beneficiaries. The most notable disparities are seen in salaried jobs (Rs. 11613.64 for beneficiaries versus Rs. 10100 for non-beneficiaries) and non-agricultural labor (Rs. 8333.33 for beneficiaries versus Rs. 6750 for non-beneficiaries). This suggests that NRLM has successfully facilitated access to better income opportunities outside of agriculture, likely through skill development, entrepreneurship support, and financial inclusion initiatives.

Table 3 shows the difference between the mean primary income of the sample beneficiary and non beneficiary groups of NRLM by using students''t' test. It is observed that the t value (2.61) is significant at 1 percent level and beneficiaries of the NRLM have a significantly higher mean primary income than Non-Beneficiaries in the study areas.

Table 3: Status of primary income between Beneficiaries and Non-Beneficiaries

Groups	Mean Primary Income	't' value
Beneficiaries	5834.375	2.61 P<0.00
Non-Beneficiaries	4624.748	

Source: Primary Data

Supplementary Occupations of the Sample Households

It has observed from the previous discussion that all the sample households are engaged in one or more supplementary occupations apart from the primary occupation. Secondary or extra activities that households partake in to augment their primary income are referred to as supplementary occupations. These livelihood options are frequently pursued part-time or as a way to supplement the household's income, particularly in situations where the principal job is seasonal or does not provide enough returns. The table 4 shows supplementary occupations of the sample households in the study area.

Table: 4 Supplementary Occupations of the Sample Households

Sources	Beneficiary			Non-Beneficiary		
	Fre-quency	%	Mean Income (Per Month)	Fre-quency	%	Mean Income (Per Month)
Crop Income	61	16.71	2203.57	27	10.31	1888.88
Livestock Rearing	90	24.59	1904.87	65	24.81	2055.55
Fishery	29	7.92	2115.78	11	4.20	2015.25
Agricultural Labors	36	9.84	2033.33	21	8.02	2687.5
Farm Total	216	59.02	2038.95	124	47.33	2122.71
Service (Salaried)	9	2.46	6384.61	13	4.96	5071.42
Petty Business	19	5.19	3100	7	2.67	1500
Non-Agricultural Laborers	28	7.65	2192.30	39	14.89	1871
Handloom and Handicraft	45	12.30	1976.19	13	4.96	1921.5
Others	48	13.11	1675	66	25.19	1450
Non-Farm Total	149	40.71	2329.36	138	52.67	1957.08

Source: Primary Data

The data compares the supplementary occupations of NRLM beneficiaries and non-beneficiaries. Beneficiaries are more engaged in farm-related activities, with the majority (59.02 percent) involved in crop income, livestock rearing, and other agricultural occupations. Crop income and livestock rearing are particularly prominent among beneficiaries, though they also show higher involvement in fishery too. In contrast, non-beneficiaries are more inclined to engage in non-farm occupations (52.67 percent vs. 40.71 percent for beneficiaries), with a higher percentage working in non-agricultural labor and salaried jobs. While non-beneficiaries show more diversity in their supplementary occupations, particularly in unclassified “others” categories (25.19 percent) which include basically transfer payments, beneficiaries have notably higher involvement in petty businesses (5.19 percent) and traditional crafts (handloom/handicraft), indicating NRLM's focus on promoting small-scale entrepreneurship and local industries. The data reflects the differing economic activities between the two groups, with NRLM beneficiaries tending to focus on agricultural and craft-based occupations as their supplementary livelihood options, while non-beneficiaries rely more on non-farm labours.

The income related data shows that for farm-related supplementary occupations, beneficiaries have a mean income of Rs. 2038.95 per month, slightly lower than non-beneficiaries, who have a mean income of Rs. 2122.71. Among specific farm sources, agricultural labor provides the highest income for non-beneficiaries (Rs. 2687.50), whereas beneficiaries earn Rs. 2033.33 from agricultural labor. However, beneficiaries earn slightly more from crop income (Rs. 2203.57) compared to non-beneficiaries (Rs. 1888.88). In general, farm-based income sources appear to provide relatively similar earnings for both groups, with beneficiaries slightly ahead in some areas like crop income and fishery.

In terms of non-farm occupations, beneficiaries tend to earn higher income compared to non-beneficiaries. The mean income for beneficiaries from service (salaried) is Rs. 6384.61, significantly higher than non-beneficiaries at Rs. 5071.42. Additionally, petty businesses yield a higher income for beneficiaries (Rs. 3100) compared to non-beneficiaries (Rs. 1500). Non-agricultural laborers among beneficiaries earn Rs. 2192.30, while those in the non-beneficiary group earn Rs. 1871. Interestingly, while non-beneficiaries earn more from agriculture-related occupations, beneficiaries earn more from non-farm supplementary occupations, particularly in salaried work and small businesses, suggesting that NRLM beneficiaries have more opportunities to earn higher supplementary income from non-agricultural sources.

Table 5: Status of Supplementary Income between Beneficiaries and Non-Beneficiaries

Groups	Mean Supplementary income	't' value
Beneficiaries	2157.503	1.64 $P<0.104$
Non-Beneficiaries	2035.471	

Source: Primary Data

The data on table 5 reveals that beneficiaries of the NRLM have a slightly higher mean supplementary income (Rs. 2157.50) compared to non-beneficiaries (Rs. 2035.47), but the difference is not statistically significant. With a t-value of 1.64 and a p-value of 0.104, which is above the 0.05 threshold for statistical significance, the difference in supplementary income between the two groups is not considered meaningful.

Households' Involvement in Number of Activities

Except a few, all the sample households of the present study are earning their livelihood from more than one livelihood activities. The figure 1 shows the number of activities (Both principal and supplementary) pursued by the sample households in the study area.

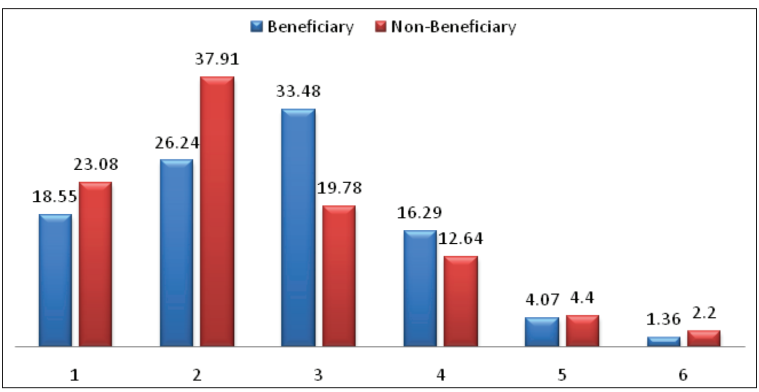

Figure 1: Percentage of Sample Households According to Number of Activities

Source: *Primary Data*

From the figure 1 it can be seen that for beneficiaries, the highest percentage of households (33.48 percent) are engaged in three activities, followed by two activities (26.24 percent) and one activity (18.55 percent). A smaller proportion (16.29 percent) is engaged in four activities, and very few (4.07 percent) participate in five activities only 1.36 percent are involved in six activities. The cumulative percentages show that a large proportion (78.27 percent) of beneficiaries is involved in up to three activities, and nearly all (98.63 percent) are engaged in up to five activities. On the other hand, non-beneficiaries show a different pattern. The largest percentage (37.91 percent) of non-beneficiaries pursues two activities, followed by one activity (23.08 percent) and three activities (19.78 percent). Fewer non-beneficiaries are involved in four (12.64 percent) or five activities (4.40 percent), and only a very small percentage (2.20 percent) are engaged in six activities. Cumulatively, a significant portion (60.99 percent) of non-beneficiaries is involved in up to two activities, and 80.77 percent are involved in up to three activities.

The data reflects that NRLM beneficiaries are more likely to diversify their activities compared to non-beneficiaries, potentially due to the support and resources provided by NRLM in Assam, which encourages multiple income-generating activities. The fact that beneficiaries are more engaged in a variety of occupations is indicative of NRLM's role in improving livelihood diversification, allowing households to increase their resilience to economic shocks. This suggests that NRLM is having a positive impact on increasing the number of income-generating activities for beneficiaries, helping them reduce dependency on a single source of income

Income Statistics of the Study Area

This section represents the monthly income statistics of the sample households in the study area.

Table 6 : Status of Monthly Income among the Sample Households

Sources	Beneficiaries	Non-Beneficiaries
Total Farm Income (per month)	1023459	759169.2
Average household farm income (per month)	4631.036	4171.259
Total Non-farm income (per month)	1053425	604877
Average household non-farm income (per month)	4766.627	3323.5
Total income (per month)	2076884	1364046
Average income of the household (per month)	9397.663	7494.76

Source: *Primary Data*

The data on table 6 shows that NRLM beneficiaries in Assam have higher total and average incomes compared to non-beneficiaries, both in farm and non-farm activities. Beneficiaries earn a total of 1,023,459 per month from farm income, with an average of 4631.04 per household, slightly higher than non-beneficiaries' 4171.26. However, the most significant difference is in non-farm income, where beneficiaries earn 1,053,425 in total monthly income, averaging 4766.63 per household, compared to 3323.50 for non-beneficiaries. As a result, total household income for beneficiaries is 2,076,884 per month, significantly higher than 1,364,046 for non-beneficiaries, with an average income of 9397.66 for beneficiaries versus 7494.76 for non-beneficiaries. These figures indicate that NRLM has had a positive impact, particularly by boosting non-farm income opportunities, leading to higher overall income levels for beneficiaries.

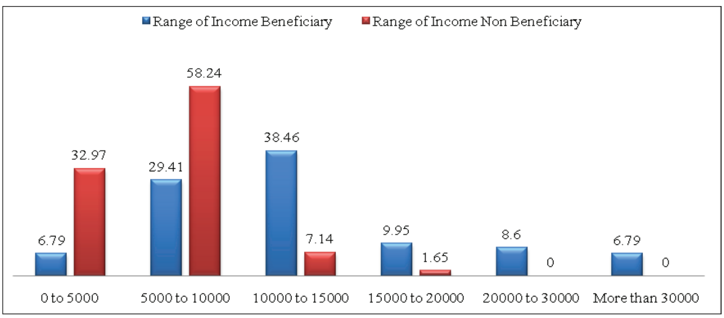

Figure 2: Distribution of Sample Households on the Basis of Monthly Income

Source: *Primary Data*

The figure 2 highlights significant disparities between beneficiaries and non-beneficiaries monthly income, particularly at the lower and higher ends of the income spectrum. Among non-beneficiaries, a substantial proportion (32.97 percent) falls within the lowest income range of 0 to 5000, compared to only 6.79 percent of beneficiaries. Furthermore, a majority of non-beneficiaries (58.24 percent) earn between 5000 and 10000, indicating a concentration of lower-income households in this group. In contrast, beneficiaries exhibit greater representation in the higher income brackets, with 38.46 percent earning between 10000 and 15000 and 9.95 percent earning between 15000 and 20000, compared to only 7.61 percent and 2.17 percent of non-beneficiaries, respectively.

The data also reveals that income levels above 20000 are exclusively observed among beneficiaries, with 8.60 percent earning between 20000 and 30000 and 6.79 percent exceeding 30000. This stark contrast indicates that beneficiaries are more likely to achieve higher income levels, potentially reflecting the positive impact of targeted programme interventions. On the other hand, the absence of non-beneficiaries in these higher income categories underscores the economic challenges faced by this group.

4.2 Extent of Livelihood Diversification in the Sample Districts

Table 7: Extent of Livelihood Diversification among the Different Sample District

Sample Districts	Beneficiaries	Non-Beneficiaries
	Value of Simpson Index	Value of Simpson Index
Jorhat	0.426	0.359
Morigaon	0.377	0.243
Dhubri	0.398	0.311

Source: *Primary Data*

The data on the extent of livelihood diversification shown in table 7, as measured by the Simpson Index, highlights the variation in livelihood diversification between beneficiaries and non-beneficiaries across different districts. In Jorhat district, beneficiaries have a Simpson Index of 0.426, which is notably higher than the non-beneficiaries' index of 0.359. In Morigaon, there is a more significant disparity between beneficiaries and non-beneficiaries, with beneficiaries showing an index value of 0.377 compared to 0.243 for non-beneficiaries. This substantial difference suggests that the NRLM's intervention in Morigaon and Jorhat have been particularly effective in promoting livelihood diversification. Non-beneficiaries, however, have much lower index values, indicating a more concentrated reliance on fewer income sources, likely dominated by agriculture.

In Dhubri district, both beneficiaries and non-beneficiaries have relatively close Simpson Index values, with beneficiaries at 0.398 and non-beneficiaries at 0.311. While beneficiaries still exhibit more diversified livelihoods, the difference is smaller than in the other districts.

The overall extent of livelihood diversification among the beneficiaries and non beneficiaries are shown in table 8.

Table 8: Overall Extent of Livelihood Diversification among the Beneficiaries and Non Beneficiaries

Groups	Value of Simpson Index	"t" value
Beneficiaries	0.401	2.89 P<0.00
Non-Beneficiaries	0.302	

Source: *Primary Data*

The data on table 8 reveals a significant difference in extent of livelihood diversification between beneficiaries and non-beneficiaries, with beneficiaries exhibiting a higher value of the Simpson Index (0.401) compared to non-beneficiaries (0.302). This indicates that NRLM beneficiaries have more diversified sources of income, reflecting the programme's effectiveness in promoting both farm and non-farm livelihoods. The "t" value of 2.89 with a p-value of less than 0.00 confirms that the difference is statistically significant.

Distribution of Households by the Extent of Livelihood Diversification

For further analysis of degree of extent of livelihood diversification, the sample households have been classified into six categories as per their extent of livelihood diversification. The extent of household's livelihood diver_sification have been classified into no diversification, very low diversification, low diversification, average diversification, high diversification and full diversification groups.

Table 9: Distribution of Households by the Extent of Livelihood Diversification

Classifi-cation	Value of SID	Extent of Diversification	Beneficiaries		Non-Beneficiaries	
			Nos.	%	Nos.	%
Minimum	0	No diversification	8	3.62	16	8.70
0 > to $\bar{x} - \sigma$	to 0.11	Very low diversification	33	14.93	32	17.39
$\bar{x} - \sigma$ to $\bar{x}$	0.12 to 0.33	Low diversification	67	30.32	77	41.85
$\bar{x}$ to $\bar{x} + \sigma$	0.34 to 0.54	Average diversification	87	39.37	48	26.09

$\bar{x} + \sigma$ to < 1	0.55 to < 1	High diversification	26	11.76	11	5.98
Maximum Value	1	Full diversification	0	0.00	0	0.00
Total no of household:			221	100.00	184	100.00

$\bar{x} = 0.33$, $\sigma = 0.22$

Source: *Field Survey*

The distribution of households by the extent of livelihood diversification shows clear differences between NRLM beneficiaries and non-beneficiaries. The data on table 9 reveals that beneficiaries are more likely to have higher levels of livelihood diversification compared to non-beneficiaries.

For beneficiaries, the majority (39.37%) fall into the "Average diversification" category (SID between 0.34 and 0.54), followed by 30.32% in the ***σ*** "Low diversification" category (SID between 0.12 and 0.33). Only 11.76% of beneficiaries exhibit "High diversification" (SID between 0.55 and 1). A small proportion (3.62%) has no diversification at all, while 14.93% show very low diversification. These figures indicate that NRLM beneficiaries generally experience moderate to low levels of diversification, with a notable portion engaged in both agricultural and non-agricultural activities, though they are still in the process of increasing their diversification.

On the other hand, non-beneficiaries show a different pattern. A larger portion (41.85%) of non-beneficiaries fall under the "Low diversification" category, and 26.09% fall under "Average diversification." Notably, only 5.98% of non-beneficiaries reach the "High diversification" category, much lower than the 11.76% of beneficiaries. Moreover, 8.70% of non-beneficiaries have no diversification at all, and 17.39% show very low diversification. These figures highlight that non-beneficiaries are more likely to have concentrated income sources, particularly in agriculture, compared to beneficiaries.

In summary, the data indicates that NRLM beneficiaries, on average, enjoy greater livelihood diversification, as reflected by their higher presence in the "Average" and "High diversification" categories, whereas non-beneficiaries remain more reliant on limited income sources, showing lower overall diversification.

5. CONCLUSION

The implementation of NRLM in Assam has significantly influenced the pattern and extent of livelihood diversification among rural households. Beneficiary households have shown a clear shift toward non-farm livelihoods, supported by higher mean incomes and greater involvement in multiple economic activities. The use of the Simpson Index of Diversity confirms that beneficiaries exhibit a statistically higher degree of livelihood diversification than non-beneficiaries, pointing to the effectiveness of NRLM interventions in enhancing economic resilience. The mission has not only increased access to diversified income sources but also contributed to skill development, enterprise promotion, and greater inclusion of women and marginalized groups in sustainable livelihood activities. While the impact varies across districts, with Morigaon and Jorhat showing the most notable improvements, the overall trend suggests that NRLM has successfully contributed to income enhancement and poverty alleviation in rural Assam. Nonetheless, to achieve more equitable outcomes, further strengthening of capacity-building initiatives and support for market linkages in lagging districts is essential. This study reinforces the relevance of integrated, grassroots-level development strategies in promoting rural livelihoods in vulnerable regions.

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Factors Influencing Rural Household Labour Allocation Decisions for various wetland & related and other livelihood activities: The Case of Chandubi Lake of Assam

Annesha Mech*

ABSTRACT

Wetlands directly and indirectly support people by providing food, fodder, fibre, fuel and raw materials, contribute to livestock and crop yields, water for domestic purposes, irrigation. A large section of rural households depends on wetland resources for their livelihood and other domestic uses. This study attempts to assess the factors influencing rural household labour allocation decisions for various wetland-related and other livelihood activities by households residing in the vicinity of Chandubi Lake of Assam. Among the various livelihood combinations - tourism, agriculture and fishing has the highest frequency. Seemingly unrelated regression (SUR) model is used in the study for assessing the factors influencing allocation of labour time in various livelihood activities. Age of the household head, education level of the household head, distance of the household from Chandubi lake, household wealth status and income derived from products and services extracted from Chandubi lake are significant factors influencing allocation of labour time in various wetland-related and other livelihood activities. Efforts should be made to generate alternative livelihood options for the people residing in the vicinity of Chandubi lake. Developing sustainable Eco-tourism projects will offer numerous benefits such as conservation of biodiversity, generate employment avenues and increase tourism revenues. Proper lake management plan should be adopted by integrating both land and water policies for preserving Chandubi lake.

Keywords: *Labour Allocation, Livelihood, Seemingly Unrelated Regression, Eco-tourism.*

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INTRODUCTION

Assam is endowed with aquatic wealth in the form of beels, swamps, ponds and rivers carrying huge amount of silt enriching the floodplains. The livelihood systems of the communities residing in its vicinity evolved around dynamics of water and silt exchange. Cropping cycles are aligned to make the best use of natural fertilization by the inundation made each year during monsoon. In Assam there are about 690 lakes and ponds covering an area of 15,494 hectares which constitute 0.20 percent of the total geographical area of the state. The smallest of them measures about 2.50 hectares while the largest one has 882.50 hectares of area coverage. There are about 861 number of ox-bow lakes in Assam covering an area of 15,460 hectares constituting 0.20 percent of the total geographical area of the state. The smallest is of the size 5 hectares while the largest one is of about 582.50 hectare. They are one of the crucial natural resources which constitute the most important fishery source of the state. But they are facing threats due to various hydro-morphological, biodiversity conditions and anthropogenic causes. Chandubi lake is one of the important lakes of Assam which has been depleting due to various natural and anthropogenic causes. It is a tectonic lake situated in Kamrup district and is about 64 km south-west of Guwahati. It was formed during great earthquake of 1897 when the surrounding forest partially submerged under water. The main inlets of the lake are Um siri river and Khri river flowing from Khasi hills, Meghalaya which joins near Rajapara, Kamrup, Assam to form the Kulsi river. This water body which was designated as a lake spread over an area of 354.42 hectares (Gait, 1906; Survey of India Toposheet.1967). But with the course of time, it has been converted into palustrine type and Lacustrine environment came into prominence with the emergence of diverse flora and fauna. It gradually matured into meadow stage after filling up of the peripheral parts with macrophytic vegetations and also due to reduction of the depth in the main basin. These losses of ecosystem services have serious economic repercussions on various stakeholders directly or indirectly related with wetland for their livelihood.

This study attempts to assess the factors influencing rural household labour allocation decisions for various wetland-related and other livelihood activities by focusing on the case of Chandubi Lake of Assam.

MATERIALS AND METHODOLOGY

Both primary and secondary data were collected for the study for analysing the objective. Primary data were collected through interview schedules, formal as well as informal discussions with the people residing in the vicinity of Chandubi lake. There are about 5 villages around the Chandubi beel namely Raja Para, Joramukhia, Kothalguri, Borigaon and Sonapur. About 25 percent of the total households were selected randomly from each village and villages with small sample were increased to minimum 15 households.

Table 1: Sample Design for Household Survey

Name of Wetland	Villages	Total Number of households	Number of sample households
Chandubi Lake	Raja Para	133	33
	Joramukhia	25	15
	Kothalguri	76	19
	Borigaon	43	15
	Sonapur	30	15
	Total	307	97

Source: *Authors Compilation*

Seemingly unrelated regression (SUR) model is used in the study for assessing the factors influencing allocation of labour time in livelihood activities. SUR models are a special case of multiple, multivariate regression that is applied if all the dependent variables are paired with exactly the same set of predictors (Zellner and Huang, 1962; Greene, 2001). Zellner and Huang (1962) considered the possibility of a relationship between the dependent variables which is not already incorporated in the set of separate regression equations that explains the dependent variables of interest. SUR technique is the most appropriate technique when the disturbances or error terms are correlated. The error terms across the equations in the system are potentially correlated as the same explanatory variables and unobserved characteristics influence the different equations. In such cases estimating the individual equations using ordinary least squares will yield biased and inconsistent estimates as it ignores the error correlation across equations (Woodridge, 2002). Table

2 represents the definitions of the dependent and independent variables used in the SUR model.

Table 2: Description of the Variables used in Seemingly Unrelated Regression

Variables	Description
Dependent Variable: Labour time allocation (L_i)	Labour time allocated in rice production (hours/ household/year); Labour time allocated in fishing in Chandubi lake(hours/ household/year); Labour time allocated in tourism activities (hours/ household/year); Labour time allocated in non-farm work not related with Chandubi lake (hours/ household/year).
Independent variable with notations	
Age (AGE)	Age of the household head
Education level (EDU)	Educational attainment level in terms of schooling by the household head
Distance to the wetland (DIS)	Distance of the respondent's household from the wetland (in kms)
Family size (FS)	Number of family members in the household
Sex of the household head (SEX)	Gender of the household head; 1= if the household head is male 0= if the household head is female
Wealth index (WEALTH)	Composite wealth index is computed as a linear combination of household assets such as housing, bathroom, kitchen, light, fuel, toilet, living room, possession of cultivable land; farm assets, internet access, financial assets and mode of transportation using principal component analysis.
Income (INCOME)	Income from sale of wetland products and from services;

Results and Discussion

Socio-economic Profile: In this section the socio-economic characteristics of users of Chandubi lake are examined which shall comprise the analysis of their demographic composition and income obtained from extraction of products and services from the lake. Table 3 depicts that most of the respondents i.e., the household head belongs to the age group 40-60 years. Majority of them belongs to Scheduled tribes (87.63 percent) and they are mostly engaged in tourism and fishing activities in the lake. Educational status reflects that majority of them have attend school up to high school (30.92 percent). Household size reflects that 46.39 percent households comprise of family members of 6 to 10 members. Majority of the users (47.42 percent) have obtained income from Rs 25,000 to Rs 1,00,000 by extracting products and services from Chandubi lake.

Table 3: Socio-economic Profile of the Respondents

Indicators	Sub-indicators	Number of respondents
Age -group	25-40	34 (35.05)
	40-60	46 (47.42)
	60+	17 (17.53)
Caste	Scheduled Castes (SC)	12 (12.37)
	Scheduled Tribes (ST)	85(87.63)
Educational status	Illiterate	19 (19.59)
	Primary	10(10.31)
	High School	30 (30.92)
	Matriculation	20 (20.62)
	Higher Secondary	11 (11.34)
	Graduation and above	07 (7.22)
Household size	0-5	40 (41.24)
	6-10	45 (46.39)
	10+	12(12.37)
Value obtained from extraction of products and services from Chandubi lake (in Rs)	1-25,000	37(38.14)
	25,000 – 1,00,000	46(47.42)
	Above 1,00,000	14(14.43)

Note: *Figures in the parentheses show percentage.*

Source: *Field Survey*

Labour Participation in the Utilisation of Chandubi Lake

The rural community is intrinsically related with Chandubi lake for their livelihood. With the rapid increase in population and less alternative livelihood option many households rely upon it for their living as a consequence it has led to its depletion. The users of Chandubi lake residing in its vicinity are mostly engaged in tourism related activities as boatmen, engaged in cleaning the site (as often tourist leave the garbage in massive quantity). Local communities are engaged as guides; earns income from boat rides, employees in hotels and lodges, set up tourist lodge, camps and opened up petty shops selling snacks and other food items. There are some who are engaged as camp manager. They take tourists to sight-seeing and give the backpackers a glimpse into the lifestyle of Rabha community. The lake is also used for catching fish for household as well as for commercial purpose. Edible plants such as *meteka, heluk, kola kochu, tora, dubari bon, kehraj, mukua and Dhekia* are collected for household consumption and selling in the market. Fuelwoods are also collected for cooking and for heating purpose by the household. They also use the lake for livestock grazing and regards it as important habitat for wild flora and fauna, earlier they were engaged in illegal hunting of birds and animals but such activities are stopped now-a-days due to increasing awareness among the people regarding conservation and the local communities themselves are involved in protection of flora and fauna. The important livelihood combinations of the households depending on Chandubi lake are shown in the following table 4:

Table 4: Different Livelihood Combinations of the Household's Dependent on Chandubi Lake

Livelihood Combinations	Number of households	Percentage
Tourism and Fishing	15	15.46
Tourism and Agriculture	20	20.62
Fuelwood and edible plants extraction	4	4.12
Tourism, agriculture, fishing,	22	22.68
Agriculture, fishing, livestock grazing	12	12.37
Agriculture, fishing, fuelwood	9	9.28
Livestock grazing and agriculture	7	7.22
Livestock grazing, fodder extraction, collection of edible plants	8	8.25

Source: *Field Survey*

Different livelihood combinations are shown in the above table. The combinations of tourism, agriculture and fishing have the highest frequency (22.68%) followed by combination tourism and agriculture (20.62%) and tourism and fishing (15.46%). The household heads depending on resource extraction from lakes are mainly engaged for a relatively longer period in tourism, agriculture and fishing activities and so these activities are considered as principal usual activity status. They simultaneously absorbed themselves in other activities like collection of edible plants, fodder, fuelwood for a relatively shorter period and so these activities fall in subsidiary economic activity status.

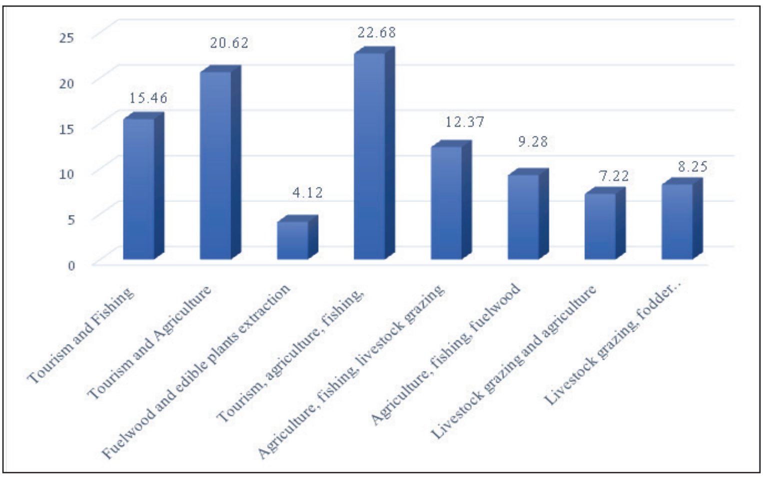

Figure 1: Different Livelihood Combinations of the Household's Dependent on Chandubi Lake

Factors Influencing Household Labour Allocation in Various Livelihood Activities

Seemingly Unrelated Regression model is used to explain the variation of set of dependent variables. The results of the SUR model for household labour allocation in various livelihood activities such as fishing, farming, tourism activities and off farm work is depicted in table 5. The SUR estimators are more efficient than ordinary least square particularly in estimating standard errors. It allows conducting of joint test to evaluate the impact of explanatory variables across the equations. The Breusch-Pagan test was employed to test the null hypothesis that the error terms across the equations in the system are independent. The results of the test showed that (7) = 48.96; p<0.001 and so the null hypothesis of independence of errors across the equations is rejected and the application of SUR model to jointly estimate the equations is justified

Table 5: Seemingly Unrelated Regression Results for Household Labour Allocation in Various Livelihood Activities

Independent variables	Dependent Variables			
	Labour used in fishing	Labour used in farming	Labour used in tourism related activities	Labour used in non-farm work
Age	2.104	0.08	-1.62**	-0.03
Education level	-2.44**	-0.06**	-2.65	0.32***
Distance to the Chandubi lake	-2.02**	-0.27***	-2.19	0.26**
Family size	1.45	0.26	8.53	0.65
Sex of the household head	-5.53	1.47	1.36	0.43
Wealth index	-6.79**	-0.11	-7.76**	0.06**
Income	6.64**	0.95***	4.93***	-0.18***
Constant	3.69	-3.13	9.43	-3.99

**** 1 % level of significance; ** 5% level of significance; * 10% level of significance*

Age of the household has a negative impact on labour time allotted in tourism related activities and non-farm work which implies that with the increase in age engagement in such works reduces. Elderly heads are more likely to engage in fishing and farming activities.

Education level of a household head has a positive effect on labour time allocated to off farm activities and a negative effect on labour time allocated in farming activities in the fringe areas of Chandubi lake; fishing and engaging in tourism services. As education increases one's potentiality and productivity increase so it increases the opportunity to get engaged in non-farm work.

Households with educated head spends less time in extraction of products from the lake and prefers to get engage themselves in non-farm activities where income is lucrative and flow of income is also regular throughout the year.

Distance of the household from Chandubi lake has a significant negative impact on labour time allocated to fishing activities and farming activities indicating that more the distance of the household from the lake lesser is the time allotted to resource extraction activities from the lake. While distance to the lake has a positive effect on labour time allotted in off farm work which implies that with the increase in the distance of the household from Chandubi lake allocation of labour time in off farm work increases.

Household wealth status has a significant negative effect on labour used in fishing and tourism activities which implies that poor households spend more time in extraction of products and availing services from the lake. They have limited access to assets and other employment avenues. This compels them to diversify their income sources through engaging themselves in diversified form of environmental resource extraction activities. On the other hand, individuals from wealthier households are less likely to take part in such environmental resource extraction activities and are more likely to engage in non-farm activities as they are in a better position than the poorer households to overcome the entry barriers that rural non-farm employment entails.

Income derived from products and services extracted from Chandubi lake has a positive effect on labour time allotted in fishing, farming and tourism. With the increase in such income the allotment of time to such activities increases. But it has a negative impact on labour time allotted in non-farm work as increase in such income reduces the need to undertake non-farm work

Issues Related to Chandubi Lake

There are various regulations related to fishing gear use, mesh size, time of fishing and size of catch. But they are hardly implemented resulting in decrease of fish fauna in Chandubi lake due to indiscriminate catch of fries, fingerlings and gravid fishes. Sizeable number of breeders are lost due to festival fishing. As fish catch are declining many are engaged in agricultural activities which had further aggravated the issue of Chandubi depletion. In order to increase agricultural production some farmers are indulge in application of fertilisers, insecticides and pesticides which pollutes the water, loss of breeding grounds, eutrophication and creates algal bloom. The Chandubi lake was earlier connected with Kulsi river which was the breeding ground for various fish species. But the encroachment and siltation had led to closure of the outlet leading to loss of habitat of various fish species (Nath and Deka, 2012).

The wetland is extremely vulnerable due to the progression of sedge meadows (marshes and swamps). The peatland which are created in the periphery gradually emerging to the flat shallow water zones. Due to allochthonous sedimentation caused by flash floods a huge area along the Lokeiyajan to Borgurong point between Ghoraputa and Tourist Ghat point and along the Gutipara Dong towards the eastern most part beyond Picnic Ghat is subjected to high siltation to form shallow meadows and peatlands. On the other hand, surrounding Umananda from the Kathalguri Ghat in the peripheral area of the wetland extending to the western part of the Tourist Ghat, Northern part of Borgurong loop (dendrite) followed by the dendrites (loops) extending to the northern hill shore line to Jarmukharia point and the north eastern loop along the eastern shore line of Dighaltari and the western part of Chalchali peatland, a huge area is infested with sedge meadows (marshes)created by autotrophic eutrophication by the macrophytic succession. Progression of such sedge meadows towards the shallow open water posed as a threat to the life of wetland. The open water of the wetland holds at least 30 to 40 floating grass and sedge vegetations mats which freely moves from one place to other due to mechanical action of the wind. These floating mats have tremendous positive impact on the productivity of the wetland and these should be remained undisturbed. High velocity wind from west to east pushes huge number of floating mats to the extreme eastern dendrites(loops) away from Picnic Ghat to Dighaltari high land which stuck in the end points of the loops resulting eutrophication of a large water area of the basin. Due to the threat to longevity of the wetland it is not wise to eradicate the sedge meadows from its periphery. These sedge meadows, swamps and peatlands are considered as habitats for different types of animals. The wild elephants also depend on marsh, swamps, bogs vegetation for their food. Removal of vegetations of marshes, swamps, bogs will lead to human-elephant conflict in the region (Goswami, 2017).

Conclusion and Policy Recommendations

The main aim of the study was to analyse the factors influencing rural household labour allocation decisions for various wetland-related and other livelihood activities by the household residing in the vicinity of Chandubi lake. Among the various livelihood combinations - tourism, agriculture and fishing has the highest frequency. Factors such as age of the household head, education level, distance of the household from Chandubi lake, household wealth status and income derived from products and services extracted from Chandubi lake are significant factors influencing allocation of labour time in various wetland-related and other livelihood activities. But the lake has been depleting due to various anthropogenic pressures and problem of eutrophication and sedimentation. Based on the findings of the study following recommendations are put forwarded: Efforts should be made to generate alternative livelihood options for the people residing in the vicinity. Proper lake management plan should be adopted by integrating both land and water policies for protecting Chandubi lake which is the habitat of various species of flora and fauna in order to flourish the eco-tourism sector which have huge scope in generating employment opportunities. Effective initiatives need to be taken by government so that the farmers continue to adopt organic techniques while growing agricultural crops. Irrigation pumps should be provided at a subsidised rate to the farmers so that they grow crops in their own agricultural fields rather than encroaching the fringe areas of the lake.

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India's Act- East Policy and Economic and Political Cooperation between India and East-Asia: A Comprehensive Analysis

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ABSTRACT

The Act-East Policy (AEP) of India is being projected as the new economic development strategy for the North Eastern Region of India. After the initiation of the economic liberalization policies in 1991, India adopted a 'Look East Policy' (LEP) with the twin objective of obtaining economic growth and maintaining maritime security. Cooperation of India with East Asia received further enhancement, when the 'Act East Policy' came into effect during the visit of Prime Minister Mr. Narendra Modi at the ASEAN-India summit in 2014, which emphasized on practicing more action-oriented policy towards ASEAN and the wider East Asia. As a result of the policy shift and through the other initiatives like Make-in-India, trade and investment linkages of India with the East Asian countries is on the rise. AEP has brought a great sense of speed and priority to India in engaging with the East and Southeast Asian countries. On maritime front, the nine-dash line doctrine of China created strategic concerns both in East and Southeast Asia and India has emerged as a strategic player in the region. The present paper examines the future for the relations between India and East Asia in days to come, especially in the current geo-political set-up. It also discusses some challenges and opportunities of Act - East Policy in North-Eastern Region of India.

Keywords: *Trade Policy, Intra-Industry Trade, Maritime.*

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INTRODUCTION

After the initiation of economic liberalization policy in 1991, India adopted the Look-East Policy (LEP) which was officially announced in 1994, in order to promote economic integration with Southeast Asia. It has different aspects such as cultural, political, economic, and strategic. In 2003, in the first phase of LEP, India has developed institutional and economic engagements with ASEAN states. In its second phase, LEP moves towards Free Trade Agreements (FTA) and security cooperation. LEP provides an opportunity to India for economic transformation and growth to its lagging regions especially the North Eastern states. Southeast Asia finds it more fascinating to engage with India, especially after the global financial crisis of 2008. LEP was renamed as Act-East Policy (AEP) in November, 2014 by the Prime Minister Narendra Modi in the 9th Asian-India summit in Myanmar, which highlighted on carrying out further action-oriented policy towards the ASEAN as well as the wider East Asia. The Act-East has not diverted from the main objectives of LEP in promoting commerce, culture and connectivity with ASEAN. Due to the policy shift and through the other initiatives taken by India such as Make-in-India programme, trade and investment linkages of India with the East Asian countries are increasing.

REVIEW OF LITERATURE

Various researchers have conducted different studies relating to Act-East Policy. **Saikia (2010)** studied a number of measures for promoting economic cooperation among India and Southeast Asia. The study finds that the economic reorganization and liberalization had paved rapid future economic growth and international economic relations of India with the countries of South East Asia by adopting the Act East Policy. The analytical results of the study showed that foreign exchange reserve and foreign direct investment (FDI) of India were interrelated and there was a considerable contribution of foreign exchange reserve on India's FDI from 1991 to 2008. **Hussain (2017)** studied the proper utilization of cultural influence in bringing closer link between India and Southeast Asia through the adoption of Act East policy. The study concluded that India has always been a cultural importer from the past, but seen as a cultural exporter to the world. **Panda (2018)** analysed a number of strengths and opportunities of the NER of India such as cultural capital, abundant natural resources, low labor cost, high opportunity for investment in agro processing, hydropower, petrochemicals, Information Technology, presence of good educational institutions etc. that can enable the economic integration between North- East India and Thailand and concluded that there is enough scope for economic integration between these two regions under the framework of Act - East Policy. The study also pointed out some challenges and weaknesses of NER of India to the anticipated relation between NER and Thailand. In a similar study, **Brahma (2018)** stated that under the Act - East Policy framework, the government of India is relying on the 3 C's, that is, Culture, Connectivity and Commerce to develop better relationship with ASEAN nations through the NER of India. According to him, the Act-East Policy admits the importance of North-East India as the gateway of the East- Asian countries and it is an extended corridor for the growth and prosperity of India, and therefore, the development of the NER is a priority in the policy.

Statement of the Problem

The Look-East Act- East policy have been initiated by India focusing mainly on bringing close relationship between India and the Southeast Asian countries on political, cultural, economic, and strategic context. Does this Act-East policy become successful in bringing economic and political cooperation between India and the Southeast Asian countries? This is what the present study tries to investigate. It also tries to find out does the AEP is facing any challenge particularly in case of the North Eastern Region (NER) of India.

Importance of the Study

A vast majority of the studies related to Act- East Policy have been conducted by different researchers. However, very few studies have been conducted regarding the cooperation of India through AEP with the Southeast Asian countries especially in the political context such as by Chakravorty and Chakravorty (2017). Therefore, the chief purpose of the present study is to analyse the political and economic cooperation of India with Southeast-Asian countries through the AEP.

Objectives

The main objectives of the study are -

- To examine the relations between India and East Asia, especially in the present geo-political set-up.
- To discusses some challenges and opportunities of Act - East Policy in North-Eastern Region of India.

Research Question

The research question taken for the study is -

Does the trade integration of India with East and Southeast Asian countries is increasing?

Data Source and Methodology

This present study is based on secondary data. Data are collected from the sources such as trade map database etc. To analyse the future potential of the trade integration of India with East and Southeast Asian countries, the intra-industry trade (IIT) index developed by Grubel and Lloyd is used.

DISCUSSION

Political Cooperation of India with East Asian Countries: Engagement beyond ASEAN:

India has subsequently built up the relationships with the east through becoming partner of the ASEAN (Association of Southeast Asian Nations) in 1992. India has also started to cooperate with other countries in areas such as, joint naval exercises (e.g., Singapore), gathering support for its Nuclear Suppliers Group (NSG) (e.g. Australia), developing strategic partnership and energy cooperation (e.g., Mongolia) in recent years. The cooperation and the concerns of India with selected East Asian countries are discussed below:

Republic of Korea (South Korea) and Democratic People's Republic of Korea (North Korea):

India has its diplomatic relations with both South and North Korea. With North Korea, political cooperation of India is limited in nature because of the strong resentment of India against its nuclear proliferation record. For example, when North Korea conducted a nuclear test in 2009, India immediately voiced its concerns. Moreover, India has been one of the constant critics on nuclear technology exchange between North Korea and Pakistan. But, the policy of India towards North Korea reflects the ideology of investment for the future. The increasing numbers of North Korean people are receiving scientific and computer training in India, which creates a mechanism for civilian interactions.

Over the decades, the political and diplomatic engagement of India with the republic of Korea (i.e., South Korea) has increasing. The discussions between Indian Prime Minister and former South Korean President on the edge of the 14th India-ASEAN Summit and the 11th East Asia Summit in Vientiane on 8th September 2016 highlights that, the AEP concerns to mobile the engagements with these countries beyond ASEAN. The relationship between India and South Korea was raised to the level of 'Special Strategic Partnership' during the visit of Prime Minister Narendra Modi to South Korea during 18-19 May 2015. The defense and security relationship between these two countries was boosted with the Agreement on the Protection of Classified Military Information and the Memorandum of Understanding (MOU) on joint applied research. Although the potential in bilateral relations between South Korea and India has not been fully explored, yet, there is deep understanding between the two countries and it is reflected in the non-intrusive stand of South Korea towards the food aid supply of India to its troubled neighbor, i.e. North Korea.

Japan

The Prime Minister of India visited Japan in 2014 and in November 2016. Both India and Japan are the two major Asian powers and one is the largest and another is the oldest democracies in Asia. Presently India is seeking opportunity from Japan to train 30,000 Indian youth in the Japanese styled manufacturing over the next 10 years, which will significantly give assistance to the recent 'Make in India' and 'Skill India' process initiated by India. The Indo-Japanese relation is further increasing through the collaboration on science and technology, covering a wide range of areas such as, marine and earth science, agriculture and food industries, protecting geographical indication of agriculture products etc. The bilateral relation between India and Japan have further raised when the Japanese Prime Minister, Mr. Shinzo Abe was invited to be the Chief Guest at the 2014 Republic Day parade of India, and this enabled both the countries to take the opportunity to establish the Special Strategic Global Partnership between them. Japan intends to develop and strengthen reliable, sustainable and resilient infrastructures that augment connectivity within India and between India and other countries in the region.

China

India and China show a high degree of similarity in terms of energy consumption, growth rate and the ability to influence policies. Also, they are cooperated in various forums, such as environmental challenges, economic infrastructure etc. Despite the personal interest of PM Modi to resolve the differences between China and India, the relation between these two countries during the NDA (National Democratic Alliance) government is yet to proof the significant improvements.

The recent drive of China to construct key roads and ports in South Asia can be considered as a move to enclose India. Again, the recent assistance of India to countries like Myanmar, Vietnam, some of the Indian Ocean island countries and African countries can be considered as counterbalance to the increasing presence of China in these countries. In the BRICS summit at Goa in October 2016, it has been observed that China is not likely to come to an accord with the standpoints of India, including the ways to counter terrorism.

The bilateral relations of India with the East Asian countries are not representative enough to grasp the depth of the connection of India with East Asia. Despite the diversity of relationship between them, India holds multilateral engagement with the East Asian region through East Asia Summit (EAS), ASEAN Regional Forum (ARF), ASEAN Defense Ministers' Meeting Plus (ADMM+) and Expanded ASEAN Maritime Forum (EAMF). These platforms provide alternative space to India to interact its common interests with the partner countries. There are also several non-traditional security concerns that could bring India closer to the East Asian countries along with the ASEAN members.

ECONOMIC COOPERATION WITH EAST ASIAN COUNTRIES

Trade Integration Scenario:

India is graving in making partnership with the Southeast as well as the East Asian countries by the AEP, and it is obvious from the fact that more than 80 per cent of the superior trade agreements of India are concentrated in these countries.

Table 1: India's Trade Scenario with Selected East Asian Countries (2001-2014) in US $ Million

Partner Name	Export			Import			Trade Balance		
	2001-05	2006-10	2011-14	2001-05	2006-10	2011-14	2001-05	2006-10	2011-14
Australia	586.26	1275.62	2430.13	2615.17	9566.07	11788.02	-2028.91	-8290.45	-9357.89
China	3260.72	11045.02	15324.54	4856.17	28732.67	54872.37	-1595.45	-17687.65	-39547.82
Indonesia	976.33	2793.48	5606.22	1911.30	6435.42	14550.48	-934.97	-3641.94	-8944.26
Japan	1870.18	3542.52	6272.63	2580.31	6662.93	11008.76	-710.13	-3120.40	-4736.13
North Korea	139.37	518.91	179.61	3.91	181.32	48.85	135.46	337.59	130.77
South Korea	846.68	3192.91	4479.16	2515.69	7366.46	12975.37	-1669.01	-4173.56	-8496.21
Macao	2.57	10.74	1.33	3.37	0.26	1.63	-0.80	10.49	-0.30
Singapore	2570.46	7453.00	13261.46	2041.41	6759.14	7512.17	529.06	693.86	5749.29
ASEAN	6145.64	17296.85	33993.1	7004.34	23527.68	42459.05	-858.69	-6230.83	-8465.96

Source: *Constructed by the author from Trade Map database (undated)*

Table 1 presents the India's merchandise trade scenario with the Southeast and East Asian countries from 2001to 2014. To understand the trade pattern, the entire period is divided into three sub-periods, i.e. from 2001to 2005, 2006 to 2010 and 2011 to 2014. The table depicts that the Indian trade balance is consistently in surplus with respect to the countries like Singapore among the ASEAN members and North Korea, South Korea etc. in East Asian members. The point here to be considered is that the deficit in the trade balance of India rises after 2011. Also, India faces negative trade balance with the countries such as Japan, Macao and South Korea. It can be said that the inclusion of services, trade and investment provisions have not improved the merchandise trade balance of India.

Production Networks: Sectoral Perspective

The future potential of the trade integration of India with East and Southeast Asian countries can be understood from the bilateral 'intra-industry trade' (IIT) index, which measures the level of trade in intermediate and semi-finished products. The Grubel and Lloyd index of IIT is calculated by taking into account the export and import data for any two given country, with the following formula:

$$GLC = \sum i\ (Xij + Mij) - \sum i\ (Xij - Mij) / \sum i\ (Xij - Mij) - (\sum i\ Xij - \sum i\ Mij) \times 100.$$

Here Xij and Mij denote the value of export and imports of one country (e.g. India) and the partner country (e.g. Japan) respectively. The calculated IIT index could vary between 0 and 100. As per the construction of the formula, when exports exactly match imports at each HS 4-digit classification, it signifies growing relationship between the two countries and IIT value reaches 100. On the other hand, when either of export or import is zero, this implies specialization in both countries in complementary sectors and the IIT index takes the value of zero. It is expected that when two countries enter into FTAs, which results into tariff reforms or a trade facilitation agreement resulting into procedural reforms, IIT type trade increases, because the firms from both the countries may engage into trade in intermediate products across the border to lower the cost of business. Since, various Asian countries have already entered into FTAs with India, the present study takes into account the bilateral IITs of that countries during 2005, 2010 and 2015. The results are shown in the right panel of table 2.

Table 2: Trade Intensity and Intra-Industry Trade Index of India with some Selected East-Asian Countries

Partner	Trade Intensity Index			Intra-Industry Trade		
Australia	**2005**	**2010**	**2015**	**2005**	**2010**	**2015**
China	2.15	1.84	1.62	11.70	11.52	5.92
Hong Kong, China	0.92	1.02	0.92	12.40	11.49	27.66
Japan	0.50	0.49	0.55	13.56	15.32	26.29
North Korea	-	-	-	19.37	5.23	8.77
South Korea	0.97	0.82	0.84	19.47	30.64	39.95
Macao, China	-	-	-	10.79	4.98	0.11
Malaysia	1.10	1.16	1.41	20.15	19.66	24.07
Mongolia	0.10	0.18	0.07	0.00	0.00	0.09
New Zealand	0.63	0.75	0.59	4.07	7.69	3.60
Singapore	2.20	1.75	1.32	21.00	52.27	33.42
Taipei, Chinese	0.41	0.55	0.40	20.40	13.47	19.15
Thailand	0.85	0.86	0.96	19.77	31.96	32.18

Result Analysis

The table shows that, in general the IIT between India and the partner countries have increased with the exceptions of Hong Kong, Macao and New Zealand. The increase in IIT indicates the specialization in narrower products by India and the East which include intermediate products and parts and components. Among the ASEAN countries, IIT of India with Brunei has declined. Moreover, Singapore has consistently witnessed a high level of IIT, which signifies the deep integration between India and Singapore in product categories. Again, in case of Japan, Malaysia, South Korea and Thailand, the IIT level increased over 2005-2015. This indicates that the inception of the trade agreements led to deeper production integration between countries. On the other hand, although there is no comprehensive trade agreement of India with China, the IIT has remained at a relatively higher level, given the geographical proximity and rising complementarities between these two countries.

In case of the basic metal and fabricated metal products, the domestic contribution of India with China has increased, but the same has declined for other countries. In case of exports, the contribution of OECD (Organization for Economic Cooperation and Development) and ASEAN countries have increased for India. The share of India in the exports of the East Asian countries has also increased. Regarding computer, electronic and optical equipment sector, the domestic value addition of India has increased in China, but the same has declined in the other East Asian countries in the study period. Again, the contribution of Asia-Pacific Economic Cooperation (APEC), ASEAN and OECD countries in total exports have increased for India, and the share of India in the exports of the East Asian countries has increased. In case of electrical machinery and apparatus, textiles, leather and footwear products, India's domestic contribution of exports has increased only in China. Contribution of OECD, APEC, ASEAN and the East Asian countries in total exports have increased for India for the study period.

Challenges and Opportunities of Act-East Policy

The main challenges of Act- East Policy are:

1. **Security Concerns:** Increased cross-border interplays can worsen existing security issues, like drug trafficking, ethnic conflicts, insurgency etc. particularly in the border regions such as Manipur.
2. **Internal Challenges:** This policy may need addressing internal problems within India, like infrastructure gaps as well as development disparities in Northeast.
3. **Competition from Other Powers:** Act East Policy faces opposition from China as well as other regional powers, entailing strong strategic partnerships to keep influence.
4. **Complex Geopolitical Landscape:** The policy is required to steer the complications of Indo-Pacific region, where taking part in geopolitical interests as well as security concerns exist.

The opportunities of Act-East policy in North Eastern Region of India are:-

1. **Economic Growth:** Act East Policy can encourage economic development trough boosting investment, trade and connectivity among India and Southeast Asia.

2. **Strategic Partnerships:** Act East Policy can strengthen security as well as strategic ties with the ASEAN members, especially important for regional stability.
3. **Cultural Exchange:** This policy advances cultural exchanges as well as academic collaborations, displaying the rich cultural heritage of the North-Eastern Region of India and encouraging deeper understanding.
4. **Infrastructure Development:** The policy promotes infrastructure development, like Integrated Check Posts (ICPs), in order to assist trade and connectivity.

FINDINGS

From the above discussion, the following findings can be drawn-

a) AEP has brought a great sense of speed and priority to India in engaging with the East and Southeast Asian countries.

b) There is enough scope for the NER of India to become an important trading centre than mainland India, which will further strengthen the ties between India and the countries of East and Southeast Asia.

CONCLUSION

It can be said that the Act East Policy initiated by the NDA government is yet to deliver the expected results. AEP must continue to focus on strengthening collaboration with the ASEAN. Partnerships must aim at the promotion of economic revival through the implementation of India-ASEAN FTA in services and investment and strategic cooperation to fight terrorism, freedom of navigation, maritime security and defence cooperation. However, with the exception of China, the attempt of India to integrate with the East Asian countries has been quite successful. The ongoing economic cooperation agreement, i.e., RCEP can play a constructive role in reducing the political differences across the Asian countries.

Limitation of the Study

The Act East Policy has different aspects such as cultural, political, economic, and strategic. But, the present study mainly focuses only on the political and economic aspects of AEP. This is the main limitation of the present research study.

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Sustainable Production and Consumption: A Pathway to Equitable and Lasting Development

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ABSTRACT

Sustainable Development is more than a theoretical construct, it is a practical necessity. The present study explores the interconnected roles of sustainable consumption and production in achieving true sustainability. Grounded in social and environmental responsibility, the study critically examines how consumption patterns, waste, and lifestyle choices influence the environment and disproportionately affect vulnerable populations. Through descriptive analysis, an attempt has been made to highlight the urgent need for conscious consumption, sustainable industrial practices, and the integration of social accountability at both individual and institutional levels. With an emphasis on energy use, food systems, water management, and lifestyle habits, the paper offers a holistic look at the barriers and opportunities in creating a more balanced and inclusive future. The study concludes by reinforcing the shared responsibility of all stakeholders, governments, corporations, and citizens to make sustainability an integral part of everyday life.

Keywords: *Consumption, Environment, Production, Sustainable Development, Sustainability.*

INTRODUCTION

The concept of Sustainable Development (SD) is rooted in the idea of intergenerational justice, meeting current needs without compromising the ability of future generations to meet theirs.

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Coined in the 1987 Brundtland Report, the term has evolved to encompass a variety of disciplines, practices, and social imperatives. Central to this concept are two pivotal components: sustainable consumption and sustainable production.In recent decades, the imbalance between human consumption patterns and the Earth's carrying capacity has intensified environmental degradation, resource depletion, and socio-economic inequalities. Unsustainable consumption patterns drive excessive production, leading to resource depletion, environmental degradation, and social inequities. Conversely, unsustainable production methods exacerbate these issues, affecting ecosystems and communities worldwide. Themodern industrialized lifestyle characterized by overconsumption, waste generation, and disregard for long-term consequences has triggered a crisis that spans across ecosystems, communities, and generations. Yet, this crisis also presents an opportunity by realigning how we consume and produce, it is possible to chart a course toward a more equitable and sustainable future. The study explores the intrinsic connection between consumption and production, identifying how individual actions, corporate behaviour, and policy frameworks can collaboratively promote sustainability. In doing so, it addresses the social, environmental, and economic impacts of unsustainable living and emphasizes the need for systemic transformation.

Objectives of the Study

- To examine the interconnectedness between sustainable consumption and sustainable production, and how their integration is essential for achieving Sustainable Development Goals (SDGs).
- To analyse the socio-environmental consequences of unsustainable practices, particularly their impact on marginalized populations and long-term ecological health.

Methodology

The present study employs a descriptive methodology, synthesizing data from global reports, case studies, and scholarly articles. The analysis focuses on current trends in consumption and production, their environmental and social impacts, and the effectiveness of existing policies and initiatives aimed at promoting sustainability. It also relies on an interpretive review and synthesis of relevant themes derived from contemporary sustainability discourse, real-world examples, and critical reflections on current practices. The analysis builds upon observational data, experiential evidence, and theoretical underpinnings of sustainable development to present a holistic understanding of the issue. The study does not rely on primary data collection but instead emphasizes analytical reasoning and ethical reflection as tools for insight and transformation.

ANALYSIS AND DISCUSSION

Sustainable Development cannot be meaningfully addressed without examining the dynamic feedback loop between consumption and production. Consumption patterns dictate market demand, which in turn shapes production decisions. This cyclical relationship is at the core of the global sustainability crisis. When individuals consume excessively, industries respond by scaling up production often without adequate concern for environmental consequences.Sustainable production refers to manufacturing processes that minimize negative environmental impacts, conserve energy and natural resources, and promote safe working conditions. From eco-friendly design to waste-reducing technologies, industries must innovate with sustainability as a core objective. This is not only about compliance but about forward-thinking economic planning. Businesses that incorporate sustainability often experience long-term cost savings, brand loyalty, and resilience against resource volatility.

Sustainable consumption, on the other hand, involves making informed, ethical choices about what to buy, how to use resources, and how to minimize waste. It goes beyond personal convenience or affordability. A sustainable consumer considers the life cycle of products from extraction and production to usage and disposal. For example, choosing products with minimal packaging, supporting local artisans, or buying second-hand goods are all ways consumers can reduce their ecological footprint.Yet, individual change alone is not enough. Structural reforms are equally critical. Policy instruments such as carbon pricing, green procurement policies and product labelling can nudge both producers and consumers toward sustainable choices. Moreover, educational campaigns can play a significant role in fostering a culture of environmental awareness and ethical consumption, especially among the youth who will become the future workforce and decision makers.

Unsustainable practices have far-reaching social consequences, especially for poor and marginalized communities. Often, these populations suffer the harshest impacts of environmental degradation while contributing the least to the problem.For instance, electronic waste is a growing concern. As the use of multiple electronic devices becomes widespread, so too does the accumulation of hazardous waste. While affluent consumers upgrade their gadgets frequently, it is often underprivileged communities that bear the brunt of unsafe recycling practices and toxic exposure, particularly in the Global South.Similarly, food waste represents not only an ethical failure but also an environmental and economic one. The discarded food at social events or due to inefficient supply chains represents squandered water, labour, and energy. Meanwhile, millions still face hunger and malnutrition. This disparity highlights the urgent need for coordinated efforts in reducing waste and improving food distribution systems.Water, an equally vital resource, is mismanaged at multiple levels. While millions lack access to clean drinking water, others waste it in daily activities or through inefficient agricultural practices. The neglect of traditional water conservation methods such as rainwater harvesting and community-managed irrigation has worsened the crisis. The commodification of water, like food, reflects deeper issues of accessibility and justice.

Overconsumption refers to the use of resources at a rate that exceeds the Earth's capacity to regenerate them. This phenomenon is prevalent in high-income countries but increasingly observed in emerging economies as well. The consequences are far-reaching:

- **Resource Depletion**: Overconsumption leads to the rapid depletion of natural resources, including fossil fuels, minerals, and water. For instance, the World Economic Forum has projected that global water demand will surpass supply by 40% by 2030.
- **Environmental Degradation:** Excessive consumption contributes to pollution and habitat destruction. The United Nations reports that food waste alone accounts for 8-10% of global greenhouse gas emissions, primarily due to methane emissions from landfills.
- **Social Inequities:** The benefits of overconsumption are often unequally distributed, exacerbating social inequalities.

Marginalized communities bear the brunt of environmental degradation and resource scarcity.

Production methods that prioritize profit over environmental and social considerations lead to unsustainable outcomes-

- **Pollution and Waste**: Industries often discharge pollutants into air, water, and soil, leading to health hazards and ecosystem damage. The textile industry, for example, is a significant contributor to water pollution due to the use of toxic dyes and chemicals.
- **Resource Inefficiency:** Many production processes are resource-intensive and inefficient, leading to waste generation and increased carbon footprints. The electronics industry, for instance, generates millions of tons of e-waste annually, much of which is not properly recycled.
- **Labour Exploitation:** Unsustainable production can involve exploitative labour practices, including poor working conditions and inadequate wages, particularly in developing countries.

The economic logic of market externalities further complicates sustainability. When the environmental costs of consumption are not reflected in market prices, consumers and producers have little incentive to change their behaviour. This is evident in fuel usage, where personal vehicle ownership is often seen as a status symbol, rather than a resource-intensive choice with environmental consequences.

Additionally, lifestyle inflationthe tendency to upgrade one's consumption as income increases exacerbates unsustainable habits. Dining in high-end restaurants, purchasing luxury goods, and using high-energy appliances all contribute to a larger carbon footprint. In contrast, lower-income households tend to practice more conservative consumption by necessity, often making them inadvertent role models for sustainable living.

Climate change, driven by overproduction and overconsumption, has emerged as the defining issue of our time. Its impacts rising sea levels, extreme weather events, and disrupted agriculture are already being felt across the globe. These disruptions affect infrastructure, displace populations, and strain government resources, creating feedback loops of poverty, inequality, and instability.

The younger generation, therefore, has a crucial role to play. As future entrepreneurs, leaders, and policymakers, their awareness and commitment to sustainability will shape the trajectory of global development. Integrating sustainability into education, professional ethics, and governance is essential to ensure a future that balances economic growth with environmental stewardship.

Strategies for Sustainable Consumption and Production

Addressing the challenges of unsustainable consumption and production requires concerted efforts at multiple levels:

- **Individual Responsibility:** Consumers can reduce their environmental impact by making informed choices, such as opting for sustainable products, reducing waste, and conserving energy and water.
- **Corporate Accountability:** Businesses can adopt sustainable practices by implementing eco-friendly production methods, reducing emissions, and ensuring fair labour practices. Companies like Patagonia and Interface have set examples by integrating sustainability into their business models.
- **Government Policies**: Governments play a crucial role by enacting and enforcing regulations that promote sustainability, such as carbon pricing, waste management policies, and incentives for renewable energy adoption.
- **Educational Initiatives**: Raising awareness about the importance of sustainability through education can empower individuals and communities to adopt sustainable practices.

Case Studies and Global Initiatives

Several global initiatives have made strides in promoting sustainable practices:

- **The Paris Agreement:** An international treaty aimed at limiting global warming to below 2°C, with efforts to reduce greenhouse gas emissions and promote renewable energy.
- **Circular Economy Models**: Countries like Japan and the Netherlands have implemented circular economy principles, focusing on recycling, reusing, and reducing waste.

- **Community-Led Conservation:** Indigenous communities have long practiced sustainable land management techniques that balance ecological health with human needs.

CONCLUSION

Sustainable Development is not an abstract ideal it is a collective mission that calls for urgent and responsible action. The twin pillars of sustainable production and consumption provide a practical framework to address pressing global challenges. From resource depletion and climate change to social inequality and economic instability, the consequences of inaction are profound. The study has demonstrated that individual behaviour, industrial practices, and policy decisions are deeply interconnected. A shift toward sustainability must therefore occur at multiple levels, in our homes, our workplaces, our schools, and our governments. Citizen Social Responsibility and Consumer Social Responsibility must complement Corporate Social Responsibility to create a holistic approach to sustainability.While the challenges are significant, the opportunities are equally compelling. Cleaner technologies, ethical consumption patterns, and resource-efficient systems not only protect the environment but also offer economic and social dividends. By fostering awareness, encouraging behavioural change, and implementing supportive policies, societies can build resilience and equity.Ultimately, sustainable development is about fairness between people today and across generations. Every choice we make, whether as consumers, producers, or citizens, contributes to shaping that future. The responsibility lies with each of us to ensure that progress does not come at the cost of the planet, but through harmony with it.

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Climate Variability and Rice Production Dynamics in Karbi Anglong District of Assam: Evidence from a Time Series Study

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ABSTRACT

The research paper examines how the climatic factors influence the production of major food crop of Karbi Anglong district of Assam using district level time series data for the period of 1981 to 2022. The ARDLbound testing approach is used to determine the short run and long run effect and Johansen and Juselius Co-integration (JJC) test is used to confirm valid long-term relations between the variables. Findings of the study reveal that all climatic parameters, including temperature variability, precipitation variability, and wind speed have impact negatively on rice production in the long run across the district. The CUSUM and CUSUM of squares tests are used in the study and it validates that the model's estimated parameters are stable. Based on these findings policymakers and government institutions should develop cohesive adaptation and mitigation strategies to cope up with these adverse effects of climate change on major agricultural output.

JEL Classifications: *Q1, Q54, Q58*

Keywords: *Climate Factors, Short-run, Long-run, Rice Production, ARDL.*

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INTRODUCTION

Climate change is the most critical issue confronting the world today. In the present situation, Policymakers and researchers are increasingly concerned about climate change caused by both natural and anthropogenic activity. There is a growing scientific consensus that natural and anthropogenic activities have contributed significantly to increased atmospheric quantities of greenhouse gases (Pachauri & Meyer, 2014). The study of climatic shocks on agricultural output is highly essential for less developed countries like India, where a significant proportion of the population depends on farming for their livelihood (Nath & Mandal, 2018). Due to direct dependence on climatic factors mainly precipitation and temperature, farming sector affect severely. These impacts are going to be worsened in the lessdevelop nations because of their limited adaptive capacity of their farmers(Mandal & Singha, 2020). There are some prominent studies on nexus between climatic change on agriculture by using various statistical and econometric methods from different corners of the world. There are some studies mostly focuses on developed countries, notably Mendelsohn, Nordhaus, and Shaw(1994); Adams et al.(1998)etc.However, less developed countries may be more sensitive and vulnerable to harsh weather calamities (Guiteras, 2009). Even if there are comparativelyless number of studies on developing countries are available now (Chandio, 2021; Sarker et al., 2012; Appiah et al. 2018; Warsame et al. 2021; Abdi et al. 2022; Nath and Mandal 2018) therefore it is crucial to conduct impact analysis study on climate change and agriculture in less develop countries as well as at the regional and district levels.

Assam serves as the gateway to Northeast India, playing a vital role in the region's economy, which is situated on the southern foothills of the Eastern Himalayas, where the role of agriculture is prominent.Mandal and Bezbaruah (2013) state that, Assam's agricultural workforce is higher than the national average and its contribution to state domestic product higher than the country average. As per the recent statistical record published by statistical handbook of Assam the total cropped area of Assam in 2022-23 is 4033754 hectares and area & production of rice in 2023-24 is 2295 thousand hectare and 5539.11 thousand tonnes respectively. There are some notable changes in the climatic characteristics in Assam, as evidenced by decreasing annual and seasonal rainfall and rising average daily mean temperature which leads to effect agricultural sector of the state in significant ways because agriculture in the state is largely rainfall dependent, and majority of farmers are impoverished and have little adaptive capacity to any adverse effect(Nath & Mandal, 2018; Mandal & Singha 2019).

However, a few studies were undertaken at the regional level or district level time series analysis to evaluate the impact of climate change on agricultural productivity in the context of Assam particularly. Hence, this study investigates the effect of climatic factors on major crop mainly production of rice in the Karbi Anglong district of Assam. The district contributes approximately 3.09% of the total rice cultivation area and 3.042 % of total rice production in Assam(as per statistical handbook of Assam, 2023) and as per 2011 census 33.14% population of the district are engaged in agricultural land. The study relies on strong empirical evidence to determine the effect of climatic variability on agricultural production in the district

LITERATURE REVIEW

Li (2023) assesses the climatic impacts on agriculture in Japan with panel data approach . The author has examined the impacts of labour, temperature, precipitation, sunshine duration, wind speed, and technological progress on rice production in 46 prefectures and seven regions in Japan. The study reveals that quadratic temperature negatively affects rice production and implies an 'inverted U' relationship between temperature and rice production, sunshine duration is positively related to rice production, but wind speed negatively affects production of rice.

Abdi et al. (2023) suggest that average rainfall and carbon emissions have positive impacts on cereal yield, while average temperatures have a negative influence. Additionally, land under cereal cultivation and rural population positively affect cereal production. Overall, the study provides useful insights for the policymakers and agricultural stakeholders in East Africa.

Mubenga-Tshitaka et al. (2023) examine the dynamics of climate variability, concentrating on how temperature and precipitation affect East African nations' agricultural output. The short- and long-term effects are examined by using the dynamic fixed effect model and pooled mean group. According to the study, although precipitation variability only affects agricultural productivity in the short-term temperature variance has a long-term influence. The study also reveals that the long-term effects of temperature variability vary drastically among East African nations, suggesting intricate regional dynamics.

Paria et al. (2022) have conducted a panel study on 18 districts of West Bengal during 2004-05 to 2013-14 to examine the determinant factors in influencing cropping pattern changes. The study identifies several infrastructural facilities, ecological and technological factors like road density, storage facilities, crop diversification intensity, fertilizer intensity, humidity, temperature which are mainly responsible for variations in cropping patterns in favour of non-food grains.

Bharadwaj et al. (2022) have conducted a study on selective districts of Punjab to examine the climatic effects on the agricultural production of wheat and paddy. Fully Modified OLS, dynamic OLS, Pooled Mean Group (PMG), and panel causality tests are used. The study reveals that the rice yield is positively affected by minimum temperature and cultivated area, but it is negatively affected by maximum temperature and rainfall. Conversely, minimum temperature enhances the wheat productivity and cultivated area, rainfall maximum temperature, negatively affects it.

Baig et al. (2022) have found that mean temperature, rainfall, carbon emissions, and rural population have significant effects on rice production. The production of Rice is negatively affected by rainfall and carbon emissions; rural population has a beneficial impact on rice output while rice production benefits from other factors viz. fertilizer consumption, agricultural credit and cropped area.

Praveen et al. (2022) have used ARDL & Granger causality to examine the environmental degradation effects on total agricultural factor productivity. The study reveals that use of fertilizer, machinery and metabolic energy enhance efficiency of agriculture in India. On the other hand, methane emissions from agriculture lower agricultural output.

Ozdemir (2022) examine the impact of climatic variable viz carbon dioxide emission, average annual temperature, rainfall and other control variable i.e. total fertilizer and energy consumption on agricultural productivity of eleven Asian countries by using a dynamic panel model that applies the autoregressive distributed lag approach to examine the nexus between climatic factors and agricultural productivity. Study reveals that in the long run temperature and CO2 emission reduce agricultural yield by 1.98% and 2.28% respectively and rise in annual rainfall will increase the productivity by 0.95% and rainfall, energy consumption and total fertilizer enhance agricultural yield in long run and the short run estimate states that temperature, rainfall and fertilizer are statistically insignificant, on the other hand CO2 emission and energy consumption are statistically significant.

Guntukula & Goyari (2020) have explored the climatic effects across crop yield and variability especially focused on rice, cotton, jowar and groundnut using the stochastic production function by Just and Pope on Telangana during the period 1956 to 2015. The study reveals that the effect of climate change varies among crops. Rice, cotton and groundnut yields are adversely affected by maximum temperature while these crops are positively affected by minimum temperature. On the other hand, cotton and groundnut yields are adversely affected by rainfall.

Guntukula (2020) employs multiple regression analysis to examine the impact of climate change such as maximum temperature, minimum temperature and rainfall on crop productivity. The regression result shows that the minimum temperature and area of rice are statistically significant and positively related. Conversely, in case of non-food crops except ground nut maximum temperature is statistically significant for cotton, rapeseed and mustard and sugarcane production.

DATA SOURCE AND METHODOLOGY

Data Sources

Annual time series datahave been used in this study over the period of 1981-2022. The data for the study were obtained from the Directorate of Economics and Statistics, NASA data access viewer and Statistical Handbook of Assam. The variables considered in the model are total riceproduction, precipitation, temperature, wind speed and fertilizer consumption viz nitrogen and phosphorus. All the variables are transformed into natural logarithmic form before estimating the empirical model (Guntukula & Goyari, 2020; Singha & Mandal, 2020).

The data of rice production and rice cropped area are measured in thousand tons (1000 tons) and thousand hectares respectively. Moreover, the precipitation is measured in millimetre (mm), temperature is measured in degree Celsius (^{0}C), Wind speed is measured in meter per second (m/s) and fertilizer consumption viz nitrogen and phosphorus are measured in tons. The description of dependent and explanatory variables is presented in Table 1.

Table 1: Description of the Study Variables

Variables	Code	Unit	Description
Rice production	RP	1000 tons	Annual production of rice in the district
Rice cropped area	RA	1000 hectare	Overall cropped area under rice in the district
Temperature variability	VarT	^{0}Celcius^2	Monthly variation of temperature in each year
Precipitation variability	VarP	milimeter^2	Monthly variation of precipitation in each year
Wind speed	WS	Meter/ second	Annual average of wind speed in the district
Nitrogen used	N	Tons	Average used of Nitrogen in the district
Phosphorus used	PH	Tons	Average of Phosphorus in the district

Methodology

The present study employs the ARDL model (developed by Pesaran et al. 2001) to assess the long run and the short run influences of climatic change effects on rice production in Karbi Anglong district of Assam.

The mathematical functional form of the model is given below:

$$RP = f\ (RA, VarT, VarP, WS, N, PH) \qquad \text{(i)}$$

Toexplorethe impact of climatic variables viz. temperature variability (VarT), precipitation variability (VarP), wind speed (WS), and other factors viz. rice cropped area (RA), nitrogen consumption (N), and phosphorus consumption (PH) using the following model specifications. In place of maximum or minimum temperature, variability of temperature is considered in order to set the impact of climate variability on production.

$$LNRP_t = \beta_0 + \beta_1 \; LNRA_t + \beta_2 \; LNVarT_t + \beta_3 \; LNVarP_t + \beta_4 \; LWS_t + \beta_5 \; LNN_t + \beta_5 \; LNPH_t + \varepsilon_t \qquad \text{(ii)}$$

$LNRP_t$, $LNRA_t$, $LNVarT_t$, $LNVarP_t$, $lnLWS_t$, LNN_t, $LNPH_t$ represents the log value of all the variables in year tand ε_t is the disturbance term in time t.

The rationality of the present study is to investigate the immediate impacts and long-term impacts of climate change on rice production by using Auto regressive Distributive Lag model, so we can rewrite the equation (2) as follows to show the long way cointegrating of ARDL equations:

$$\begin{aligned}\Delta LNRP_t &= \lambda_0 + \sum_{i=1}^{n} \lambda_1 \, \Delta LNRP_{t-i} + \sum_{i=1}^{n} \lambda_2 \, \Delta LNRA_{t-i} + \sum_{i=1}^{n} \lambda_3 \, \Delta LNVarT_{t-i} \\ &+ \sum_{i=1}^{n} \lambda_4 \, \Delta LNVarP_{t-i} + \sum_{i=1}^{n} \lambda_5 \, \Delta LNWS_{t-i} + \sum_{i=1}^{n} \lambda_6 \, \Delta LNN_{t-i} \\ &+ \sum_{i=1}^{n} \lambda_7 \, \Delta LNPH_{t-i} + \theta_1 LNRP_{t-1} + \theta_2 LNRA_{t-1} + \theta_3 LNRA_{t-1} \\ &+ \theta_4 LNVarT_{t-1} + \theta_5 LNVarP_{t-1} + \theta_6 LNWS_{t-1} + \theta_7 LNN_{t-1} + \theta_8 LNPH_{t-1} \\ &+ \varepsilon_t \qquad \text{(iii)}\end{aligned}$$

Where λ_0, λ_1 and θ_1 represents the intercept term, coefficient of short-run and the coefficient of long-run variables respectively and n denotes the number of lags and Δ and ε_t indicates the difference operator and disturbance term.

To find the long-term cointegration between the regress and regressors, we regress Eq. (3) using ordinary least squares (OLS). The Wald F-statistic is employed to test cointegration among climatic variables viz temperature variability (VarT), precipitation variability (VarP), wind speed (WS), and other factors such as rice cropped area (RA), Nitrogen consumption (N), and Phosphorus consumption (PH) and rice production (RP) in Karbi Anglong district. The hypothesis is expressed as follows:

$H_0 : \theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = \theta_7 = \theta_8 = 0$, the null hypothesis indicates that all the variables in the long run are not cointegrated.

$H_0 : \theta_1 \neq \theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5 \neq \theta_6 \neq \theta_7 \neq \theta_8 \neq 0$, this alternative hypothesis indicates that all the variables are cointegratedin the long run.

The Wald F-statistics determine whetherreject or not to reject the null hypothesis by comparing with lower bound I(0) and upper bound I(1) critical values.Rejection of null hypothesis shows that variables are cointegrated if the value of Wald F statistics exceed the upper bound critical value. And Akaike Information Criterion (AIC) is used to select the lag length of the variables.

After identifying the long-run cointegration between the variables, we subsequently investigated the short-run linkages among the interested variables, which were formed as follows:

$$\begin{aligned} \Delta \mathrm{LNRP_t} = {} & \lambda_0 + \textstyle\sum_{i=1}^{n} \lambda_1 \, \Delta \mathrm{LNRP}_{t-i} + \sum_{i=1}^{n} \lambda_2 \, \Delta \mathrm{LNRA}_{t-i} + \sum_{i=1}^{n} \lambda_3 \, \Delta \mathrm{LNVarT}_{t-i} \\ & + \textstyle\sum_{i=1}^{n} \lambda_4 \, \Delta \mathrm{LNVarP}_{t-i} + \sum_{i=1}^{n} \lambda_5 \, \Delta \mathrm{LNWS}_{t-i} + \sum_{i=1}^{n} \lambda_6 \, \Delta \mathrm{LNN}_{t-i} + \\ & + \textstyle\sum_{i=1}^{n} \lambda_7 \, \Delta \mathrm{LNPH}_{t-i} + \mu ECT_{t-1} + \varepsilon_t \end{aligned} \qquad \text{(iv)}$$

the error correction term (ECT_{t-1}) is illustrated above in equation (4).

Trend line of the dependent and independent variables used in the study:

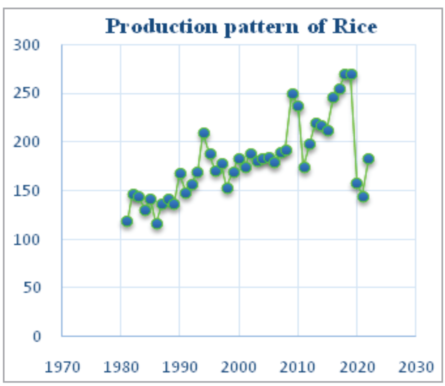

Fig. 1: Temperature variability in Karbi Anglong district in (1000 Tons)

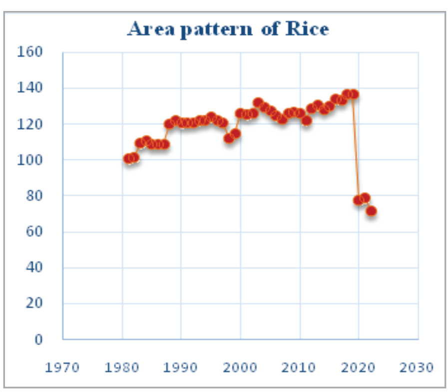

Fig. 2: Temperature variability in Karbi Anglong district (1000 hac)

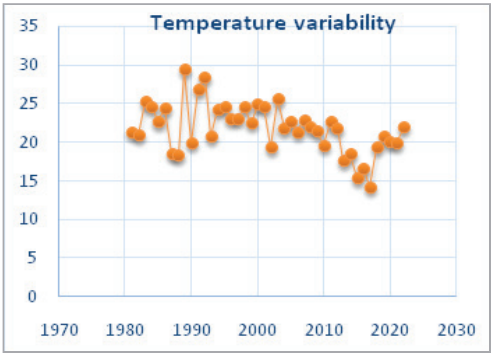

Fig. 3: Temperature variability in Karbi Anglong district (degree Celsius)

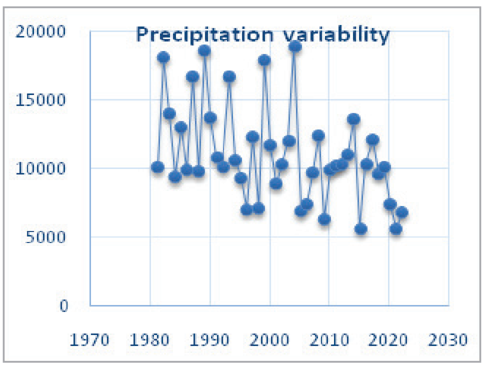

Fig. 4: Precipitation variability Karbi Anglong district (in millimetre)

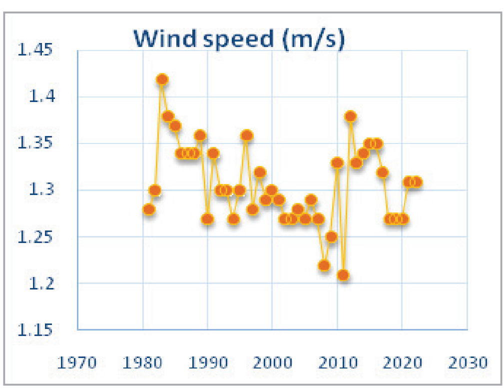

Fig. 5: Wind speed in Karbi Anglong district

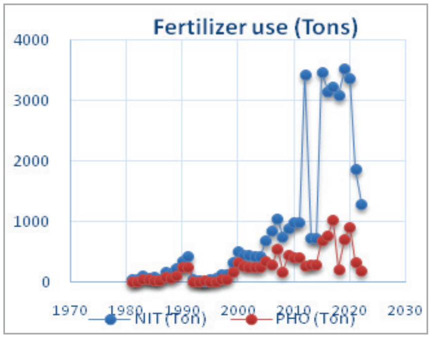

Fig. 6: Fertilizer used in Karbi Anglong district

RESULTS AND DISCUSSION

Results of Summary Statistics

Summary statistics are presented below in table 2. The mean production of rice across the sample districts is 181.97 thousand tons. The average precipitation variability for the district throughout the period is 11077.47 (mm). The standard deviation of precipitation variability is very high which is 3529.827mm indicates a risk factor which might have adversely affect crop production. Mean temperature variability is around 21.94 degree, and the mean wind speed is 1.307 m/s during study period. The mean use of chemical fertilizer viz nitrogen and phosphorus are 929.90 tons and 265.190 tons respectively. The total number of observations is 42.

Table 2: Summary Statistics

	RP (1000 tons)	RA (1000 hectare)	VarT (^{0}Celcius^2)	VarP (mm^2)	WS (m/s)	N (Tons)	PH (Tons)
Mean	181.9758	118.5638	21.92443	11077.47	1.307381	929.9048	265.1905
Median	178.78	121.87	21.94764	10277.54	1.3	442.5	247
Maximum	270.81	136.637	29.53998	19002.52	1.42	3534	1031
Minimum	117.4	71.335	14.29809	5717.448	1.21	17	8
Std. Dev.	39.35286	14.84916	3.220469	3529.827	0.04401	1158.368	255.3909
Skewness	0.619244	-1.708696	-0.033815	0.715845	0.21943	1.40237	1.311089
Kurtosis	2.771332	5.722575	3.130238	2.908816	2.921352	3.435238	4.244124
Jarque-Bera	2.775748	33.40922	0.037688	3.601585	0.347872	14.09799	14.74141
Probability	0.249605	0	0.981333	0.165168	0.840351	0.000868	0.000629
Observations	42	42	42	42	42	42	42

Source: *Authors' calculation from the compiled data set.*

Results of Unit Root Test

Prior to incorporating the data into the empirical model, the time series features of the variables must be tested to giving out the possible incorrect regression. Augmented Dickey–Fuller (ADF) test is used to check the stationarity of the variables. The unit root test results are reported in Table 2. The results of the unit root test show that rice production (RP), precipitation variability (VarP), wind speed (WS) are stationary at their level while other variables rice area (RA), temperature variability (VarT), Nitrogen (N) and Phosphorus (PH) are stationary at first difference. Though mix order of cointegration found among the variables and no variable is found to be stationary at second difference therefore it validates the use of ARDL method to determine the long way relationship between considered variables.

Table 3: Unit Root Test

Variables	ADF		Order of Integration
	Level	First difference	
LnRP	-2.789	-6.281***	I(0)
	0.069	0.000	
LnRA	-0.958	-6.269***	I(1)
	0.7591	0.000	
LnVarT	-2.486273	-8.125***	I(1)
	0.1263	0.000	
LnVarP	-5.883***	-7.223***	I(0)
	0.000	0.000	
LnWS	-4.591***	-11.112***	I(0)
	0.000	0.000	
lnN	-1.670	-6.736***	I(1)
	0.4386	0.000	
LnPH	-2.539	-7.020***	I(1)
	0.1138	0.000	

Source: *Authors' calculation from the compiled data set*

Note: ****,**, and* show the significance at 1%, 5%,and 10% levels*

Results of Cointegration Test

Table 4 explain the result of the ARDL bound test for the model which shows that F value i.e.(LnRA, LnVarT, LnVarP, LnWS, LnN, LnPH) is 5.177 that is greater than the upper bound at 1%

level of significant and it indicates that rice production have a long-term cointegration relationship with crop area, temperature variability, precipitation variability, mean wind speed and fertilizer consumption mainly nitrogen and phosphorus.

Table 4: Co Integration Results of the Model

Function	F-statistic	
(LnRA, LnVarT, LnVarP, LnWS, LnN, LnPh)	5.177978***	
Critical value bounds Significance	Lower Bound I(0)	Upper Bound I(1)
5 percent	2.27	3.28
1 percent	2.88	3.99

Note: ****,**, and* show the significance at 1%, 5%,and 10% levels*

Results of co integration test

Furthermore, Johansen and Juselius (1990) cointegration test is used to estimate the long-run association between study variables to check the robustness. The trace statistics are significant for r<=0, r<=1, r<=2 indicating the presence of at least 3 cointegrating vectors. As a result, the cointegration test results ensure that the variables under consideration are cointegrated in the long run which is displayed in in Table 5.

Table 5: J-J Cointegration Test Results

Dependent Variable : LRP		
Hypothesis	**Trace Statistic Test**	**Max-eigen Statistic Test**
r<=0	284.225***	136.7185***
	0.000	0.000
r<=1	147.5061***	61.85186***
	0.000	0.000
r<=2	85.65422***	36.60996***
	0.000	0.000
r<=3	49.04426	22.7159
	0.1304	0.2345
r<=4	26.32836	13.21258
	0.3239	0.5361

r<=5	13.11578	8.364835
	0.3547	0.5048
r<=6	4.750945	4.750945
	0.3118	0.3118

Note: ****,**, and * denotes significance levels at 1%, 5%,and 10%*

Long and Short Run Estimations

After long-term linkage has been confirmed, an attempt is made to investigate both short-run and long-run relations by using the ARDL method. Results from Table 6indicates that in all the independent variables viz temperature variability (VarT), precipitation variability (VarP), wind speed (WS), Nitrogen used (N) and Phosphorus (Ph) are significantly affecting rice production in the Karbi Anglong district both in short run and long run. Results suggest both in the long run and short run temperature and precipitation variability have a significant adverse effect on rice production, it shows that a 1% rise in temperature and precipitation variability leads to decrease rice production in the long run by 0.47% and 0.23% respectively at 5% level of significance. Average wind speed also has a significant adverse effect on rice production in the long run and short run; the findings are strongly verified by Caixia Li (2023). Error correction coefficient denotes that about 82.7% of the disequilibrium from the previous period is corrected in the current period.

Furthermore, other variables like rice area and fertilizer consumption,particularly nitrogen, have had significant effects on rice output over time. Long-term rice production increased by 0.47% and 0.24% with a 1% increase in area and use of nitrogen fertilizer.

The result of all diagnostic tests viz JB normality test, LM test and Breusch- pagan- Godfrey testin the table 6 are also signifying that the residuals are normally distributed and free from serial correlation and heteroscedasticity, and it shows the model stability for the given study period from 1981 to 2022. Estimated R-squared value is 0.794 which indicates that 79.4% variation in dependent variable which is explained by the independent variable and the value adjusted R-square is 0.740 which also showsthe fit of the model and the stability of the ARDL model's parameter was validated by the CUSUM and CUSUM square tests(in Fig 7).

Table 6: Results of long-run and short-run estimates

Estimates & Adjustment	Variables Dependent Variable: LNRP	Coefficient	Std. Error	t-statistic	Probability
Long run Estimates	LNRA	0.473435*	0.243715	1.942578	0.0639
	LNVarT	-0.474541**	0.177691	-2.670591	0.0134
	LNVarP	-0.233298**	0.100174	-2.328921	0.0286
	LNWS	-3.644005***	0.962672	-3.785303	0.0009
	LNN	0.245979***	0.052469	4.688126	0.0001
	LNPH	-0.239847***	0.059981	-3.998734	0.0005
	C	7.283499	1.797715	4.051531	0.0005
Short run Estimates	D(LNRA)	1.109716***	0.134546	8.247824	0.000
	D(LNRA(-1))	0.618666***	0.144729	4.274638	0.0003
	D(LNVarP)	-0.102912***	0.033738	-3.050344	0.0055
	D(LNWS)	-1.42468***	0.371874	-3.831082	0.0008
	D(LNN)	0.00996	0.025943	0.383929	0.7044
	D(LNN(-1))	-0.110824***	0.028076	-3.947237	0.0006
	D(LNPH)	-0.018556	0.020912	-0.887321	0.3837
	D(LNPH(-1))	0.088725***	0.02772	3.200752	0.0038
	CointEq(-1)*	-0.827995***	0.113195	-7.314764	0.000
R-squared		0.794068	**Diagnostic test**		**Probability**
Adjusted R-squared		0.740924	Normality test		0.781
F-statistics		5.177978	LM test		0.4825
			Breusch- pagan- Godfrey test		0.9953

Note:****,**,and*denotessignificanceat1%,5%,and10%levels,respectively*

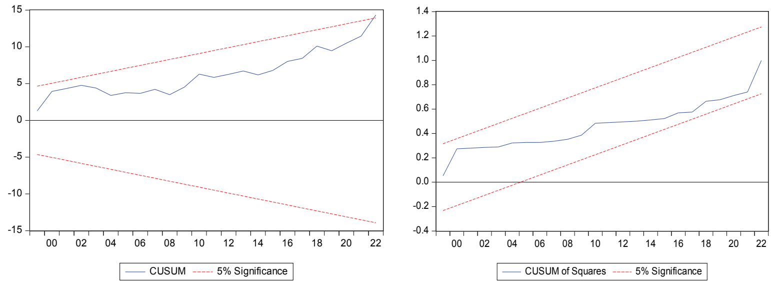

Fig 7: Plot of CUSUM test and CUSUM Square Test for Model

CONCLUSION

The paper examines the short run and long run impacts of climatic factors viz precipitation variability, temperature variability, wind speed and other non-climatic factors namely area and used fertilizer i.e Nitrogen and Phosphorus on rice production in Karbi Anglong district during the period 1981-2022 by using ARDL bound testing approach and JJ cointegration test approach. The findings of the study reveal that temperature variability, precipitation variability and wind speed had a short-term and long-term negative impact on rice production. Conversely short run changes in the temperature variability does not significantly influence rice production even though it effects in the long run path. And the other non-climatic variables i.e area and used fertilizer (nitrogen and phosphorus) have a long-term significant effect on rice production.

The outcomes are advantageous for the district's farmers to implement adaptation measures for the adverse effects of current and upcoming climate change on production of agricultural crops. More precisely, the study suggests crop insurance, variety of stress-tolerant seeds, irrigation facilities to help farmers to cope with potential losses due to climate change along the side the agro-infrastructure can be developed under Rastriya Krishi Vikas Yojana (RKVY) to boost crop yields and raise the state's agricultural share.

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United Nations' Sustainable Development Goals: An Assessment of India's Achievements and Challenges

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ABSTRACT

India holds a critical position in the global effort to achieve the United Nations Sustainable Development Goals (SDGs) due to its large population, diverse socio-economic landscape, and rapid development. The country has made notable progress in several areas such as poverty reduction, expanding access to clean energy, improving sanitation, and enhancing education and healthcare services. Initiatives like the Swachh Bharat Mission, Ayushman Bharat, and the promotion of renewable energy reflect India's commitment to the SDGs. However, challenges such as income inequality, gender disparities, malnutrition, environmental degradation, and regional imbalances continue to pose obstacles. The COVID-19 pandemic also slowed progress in some sectors, affecting vulnerable populations disproportionately. India's federal structure means that progress varies significantly across states, with some leading in SDG achievement while others lag behind. Overall, while India has laid a strong foundation, continued focus on inclusive, sustainable development and better coordination is essential for the country to fully realize the SDGs by 2030.

INTRODUCTION

The United Nations Sustainable Development Goals (SDGs) are a set of 17 interconnected global objectives adopted in 2015 as part of the 2030 Agenda for Sustainable Development. These goals aim to address the world's most pressing challenges, including poverty, inequality, climate change, environmental

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degradation, peace, and justice. Each goal is designed to be universal, inclusive, and transformative, promoting a holistic approach to development that balances economic growth, social inclusion, and environmental sustainability. The SDGs include targets such as ending extreme poverty (Goal 1), ensuring quality education (Goal 4), achieving gender equality (Goal 5), and taking urgent action to combat climate change (Goal 13). By fostering partnerships among governments, civil society, and the private sector, the SDGs encourage collaborative efforts to build a more just, equitable, and resilient world. Progress on these goals is measured through specific indicators, helping nations track improvements and identify areas that require further attention. While significant strides have been made, ongoing global crises, including pandemics and conflicts, highlight the urgent need for sustained commitment and innovation. The SDGs serve as a roadmap for a better future, inspiring collective responsibility and action to ensure that no one is left behind.

India has made significant strides toward achieving the United Nations Sustainable Development Goals (SDGs), but its progress is mixed and varies across different goals and regions. As one of the most populous and diverse countries in the world, India plays a crucial role in the global success of the 2030 Agenda. The Indian government has integrated the SDGs into its national development strategies, including the NITI Aayog's SDG India Index, which tracks progress across states and union territories. India has performed relatively well on goals like SDG 1 (No Poverty), SDG 6 (Clean Water and Sanitation), and SDG 13 (Climate Action), with targeted schemes such as the Pradhan Mantri Awas Yojana, Swachh Bharat Abhiyan, and the National Action Plan on Climate Change.

However, challenges remain in areas like SDG 2 (Zero Hunger), SDG 3 (Good Health and Well-being), SDG 5 (Gender Equality), and SDG 10 (Reduced Inequalities), where issues such as malnutrition, unequal healthcare access, gender-based violence, and socio-economic disparities persist. Urban-rural divides and regional imbalances further complicate progress, with some states outperforming others significantly. Additionally, the COVID-19 pandemic disrupted development efforts, pushing millions back into poverty and straining health and education systems. Despite these setbacks, India has shown resilience by accelerating digital initiatives, promoting renewable energy, and enhancing social welfare programs.

India's position in achieving the SDGs is both promising and challenging. The country's vast scale, demographic diversity, and complex socio-economic fabric require tailored, inclusive approaches to development. Continued collaboration between government, civil society, and the private sector is essential to overcoming obstacles. With focused efforts, innovation, and sustained political commitment, India has the potential not only to meet the SDGs but also to serve as a global model for inclusive and sustainable development.

The United Nations' Sustainable Development Goals (SDGs) are a set of 17 global goals adopted in 2015 as part of the 2030 Agenda for Sustainable Development. They aim to address major global challenges such as poverty, inequality, climate change, environmental degradation, peace, and justice. The SDGs provide a universal framework for countries to work towards inclusive and sustainable development.

Here is a brief overview of each goal:

1. **No Poverty**: End poverty in all its forms everywhere.
2. **Zero Hunger**: End hunger, achieve food security, and promote sustainable agriculture.
3. **Good Health and Well-being**: Ensure healthy lives and promote well-being for all ages.
4. **Quality Education**: Ensure inclusive and equitable quality education.
5. **Gender Equality**: Achieve gender equality and empower all women and girls.
6. **Clean Water and Sanitation**: Ensure access to clean water and sanitation for all.
7. **Affordable and Clean Energy**: Ensure access to sustainable and modern energy.
8. **Decent Work and Economic Growth**: Promote inclusive and sustainable economic growth and employment.
9. **Industry, Innovation and Infrastructure**: Build resilient infrastructure and promote innovation.
10. **Reduced Inequalities**: Reduce inequality within and among countries.
11. **Sustainable Cities and Communities**: Make cities inclusive, safe, and sustainable.

12. **Responsible Consumption and Production**: Ensure sustainable consumption and production patterns.
13. **Climate Action**: Take urgent action to combat climate change.
14. **Life Below Water**: Conserve oceans, seas, and marine resources.
15. **Life on Land**: Protect, restore, and promote sustainable use of terrestrial ecosystems.
16. **Peace, Justice and Strong Institutions**: Promote peaceful and inclusive societies.
17. **Partnerships for the Goals**: Strengthen global partnerships for sustainable development.

These goals are interconnected and designed to leave no one behind, guiding global efforts to build a better future for all.

INDIA'S ACHIEVEMENTS IN REALISING THE UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

India, as a signatory to the United Nations Sustainable Development Goals (SDGs), has made significant strides toward achieving these global objectives. The SDGs, adopted in 2015, encompass 17 goals aimed at eradicating poverty, ensuring quality education, achieving gender equality, and promoting sustainable economic growth, among others. India's journey towards these goals reflects a combination of policy initiatives, targeted interventions, and collaborative efforts at various levels of government.

1. No Poverty

India has made commendable progress in reducing poverty. The Multidimensional Poverty Index (MPI) indicates a substantial decrease in poverty levels, with the percentage of the population living in multidimensional poverty halving from 24.8% in 2015-16 to 14.96% in 2019-21. Key initiatives contributing to this achievement include:

- **Pradhan Mantri Awas Yojana (PMAY):** Over 4 crore houses built, providing shelter to millions.
- **Direct Benefit Transfer (DBT):** Approximately ₹34 lakh crore distributed via PM-Jan Dhan accounts, ensuring financial inclusion and reducing leakages.

2. Zero Hunger

Addressing hunger and malnutrition remains a priority. The National Food Security Act (NFSA) ensures food security for over 80 crore people. Additionally, rice and wheat productivity have increased, and the Gross Value Added (GVA) in agriculture per worker has risen from ₹0.71 lakh to ₹0.86 lakh, indicating improved agricultural productivity.

3. Good Health and Well-being

India has made significant improvements in health indicators:

- **Maternal Mortality Rate (MMR):** Reduced to 97 per 100,000 live births.
- **Under-5 Mortality Rate:** Decreased to 32 per 1,000 live births.
- **Immunization:** 93.23% of children aged 9-11 months are fully immunized.
- **Institutional Deliveries:** 97.18% of deliveries take place in health institutions.

These improvements are attributed to programs like Ayushman Bharat, which has over 30 crore beneficiaries, and the National Health Mission, which focuses on maternal and child health.

4. Quality Education

India has made strides in enhancing educational access and quality:

- **Adjusted Net Enrolment Rate (ANER):** Reached 96.5% for elementary education in 2021-22, up from 87.26% in 2018-19.
- **Higher Education:** Achieved 100% gender parity in higher education enrollment.
- **Infrastructure:** 88.65% of schools have access to electricity and drinking water, improving the learning environment.

5. Gender Equality

While progress has been made, challenges persist:

- **Sex Ratio at Birth:** Improved to 929 females per 1,000 males.
- **Labor Force Participation:** Female labor force participation rate stands at 48%.
- **Mobile Ownership:** 53.90% of women own and use a mobile phone.

Despite these advancements, gender disparities in employment and leadership roles continue to be areas of concern.

6. Clean Water and Sanitation

Significant improvements in water and sanitation include:

- **Rural Households with Improved Drinking Water:** 99.29% coverage.
- **Schools with Functional Toilets for Girls:** 94.7% of schools.
- **Open Defecation Free (ODF) Districts:** All districts have been verified as ODF.

These achievements are largely due to the Swachh Bharat Mission and the Jal Jeevan Mission, which focus on sanitation and water supply, respectively.

7. Affordable and Clean Energy

India has made notable progress in energy access:

- **Households with Electricity:** 100% coverage under the Saubhagya Scheme.
- **Clean Cooking Fuel Connections:** Increased from 92.02% to 96.35% between 2020 and 2024.
- **Renewable Energy Capacity:** Solar power capacity increased from 2.82 GW to 73.32 GW.

These advancements are part of India's commitment to sustainable energy development.

8. Decent Work and Economic Growth

Economic growth indicators show positive trends:

- **GDP Growth:** Annual GDP per capita growth rate of 5.88% in 2022-23.
- **Unemployment Rate:** Reduced from 6.2% in 2018-19 to 3.40% in 2022-23.
- **Labor Force Participation Rate:** Increased from 53.6% to 61.60% during the same period.

Initiatives like the Skill India Mission and Pradhan Mantri Mudra Yojana have contributed to these improvements.

9. Industry, Innovation, and Infrastructure

Infrastructure development has seen significant enhancements:

- **All-Weather Roads:** 99.70% of targeted habitations connected under the Pradhan Mantri Gram Sadak Yojana.
- **Mobile Phone Ownership:** 93.3% of households own at least one mobile phone.
- **Mobile Internet Coverage:** 95.08% of villages have 3G/4G mobile internet coverage.

These developments facilitate economic activities and digital inclusion.

10. Reduced Inequalities

Efforts to reduce inequalities include:

- **Representation in Panchayati Raj Institutions:** 45.61% of seats held by women.
- **Representation of SC/ST in State Legislative Assemblies:** 28.57%.

While these figures indicate progress, challenges in income and regional disparities remain.

11. Sustainable Cities and Communities

Urban development initiatives have led to:

- **Sewage Treatment Capacity:** Increased from 38.86% in 2018 to 51% in 2020-21.
- **Municipal Solid Waste Processing:** Increased from 68% in 2020 to 78.46% in 2024.
- **Door-to-Door Waste Collection:** 97% of wards have 100% coverage.

These improvements contribute to cleaner and more sustainable urban environments.

12. Responsible Consumption and Production

Progress in this area includes:

- **Biomedical Waste Treatment:** 91.5% of biomedical waste treated in 2022.
- **Hazardous Waste Recycling:** 54.99% of hazardous waste recycled/utilized, up from 44.89% in 2018-19.

These efforts are part of India's commitment to sustainable consumption and production patterns.

13. Climate Action

India's commitment to climate action is evident:

- **Disaster Preparedness Score:** 19.20, indicating improved resilience.
- **Renewable Energy Generation:** Increased from 36.37% in 2020 to 43.28% in 2024.
- **Industrial Compliance:** 94.86% of industries comply with environmental standards.

These initiatives align with India's National Action Plan on Climate Change.

14. Life on Land

Conservation efforts have led to:

- **Forest and Tree Cover:** 25% of geographical area under forests and tree cover.
- **Carbon Stock:** 1.11% increase in carbon stock in forest cover.

These efforts contribute to biodiversity conservation and carbon sequestration.

Challenges of India in Achieving UN Sustainable Development Goals

India, as a signatory to the United Nations Sustainable Development Goals (SDGs), has committed to achieving 17 interconnected global goals by 2030. While the country has made notable progress in various sectors, it continues to face several challenges that hinder the full realization of these objectives. These challenges are complex, multifaceted, and often interconnected, requiring focused and coordinated efforts across all levels of government and society.

One of the most pressing challenges is **poverty and inequality**. Despite reductions in poverty levels, a significant portion of the population still lacks access to basic necessities like quality education, healthcare, and adequate housing. Economic inequality between rural and urban populations, and among different states, exacerbates the challenge of inclusive development. The informal sector, which employs the majority of India's workforce, lacks social security and stability, further impeding progress towards SDG 1 (No Poverty) and SDG 10 (Reduced Inequalities).

Health and nutrition remain areas of concern. High rates of child malnutrition, maternal mortality, and unequal access to quality healthcare services particularly in rural and tribal areas hinder progress on SDG 2 (Zero Hunger) and SDG 3 (Good Health and Well-being). Though schemes like Ayushman Bharat and the National Nutrition Mission are in place, implementation and coverage gaps persist.

Environmental degradation and climate change pose growing threats. Air and water pollution, deforestation, and loss of biodiversity challenge the goals of sustainable cities, life on land and water, and climate action (SDGs 11, 13, 14, and 15). Rapid urbanization and industrialization often come at the cost of ecological balance.

Another significant hurdle is **gender inequality**. Despite improvements, women continue to face discrimination in education, employment, and leadership roles. Gender-based violence, low female labour force participation, and digital gender gaps are persistent barriers to achieving SDG 5 (Gender Equality).

Finally, **governance and data-related challenges** also hinder progress. Inadequate coordination between central and state governments, data gaps in monitoring SDG indicators, and inconsistent implementation of policies reduce the effectiveness of developmental programs.

In conclusion, while India is committed to the SDGs, addressing these structural and systemic challenges is essential. Focused policy implementation, inter-sectoral coordination, and inclusive development strategies are vital to ensuring that India meets its SDG targets by 2030.

CONCLUSION

To effectively realize the United Nations Sustainable Development Goals (SDGs), India must adopt a comprehensive and integrated approach that addresses its key developmental challenges. First, the government should prioritize strengthening social welfare schemes and ensuring last-mile delivery to vulnerable populations, particularly in rural and underdeveloped regions. Investing in education, healthcare, and skill development is crucial for building human capital and achieving goals related to health, education, and employment. Promoting gender equality through education, legal reforms, and increased women's participation in the workforce is vital for inclusive growth. India must also focus on sustainable urbanization, expanding clean energy, and improving public transport and waste management systems to align with climate and environmental goals. Strengthening agricultural sustainability through modern technology, irrigation support, and market access can help achieve food security and reduce rural poverty. Enhanced federal coordination between central and state governments, along with public-private partnerships, can improve implementation and innovation. Moreover, India should strengthen data collection and monitoring systems to track progress accurately and make data-driven decisions. Promoting awareness and public participation in sustainability efforts can foster a collective sense of responsibility. By combining strong governance, inclusive policies, and environmental stewardship, India can accelerate its journey toward achieving the SDGs by 2030.

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Economy of North-East India: Special References to Assam's Cottage Industry

Raju Mazumdar*

ABSTRACT

A developing state in north-east India like Assam, play a vital role in an economic development through cottage industry within the broader context of North-East Indian economy. Cottage industries in Assam, including handloom weaving, bamboo and cane crafts, bell metal works, pottery, and sericulture, have historically been vital sources of livelihood, cultural preservation, and rural employment, especially for women. Despite their contribution, these industries face challenges such as technological backwardness, inadequate infrastructure, limited access to credit, and weak market linkages. But in present time both state and central government take policies aimed at revitalizing the sector and explores opportunities for modernization, skill development, and market expansion through digital platforms and tourism integration. The study concludes that with sustained policy support and strategic intervention, Assam's cottage industries can significantly contribute to inclusive rural development and economic growth in North-east India.

Keywords: *Assam's Cottage Industry, Handloom, Rural Employment, Women Empowerment, Traditional Crafts, Economic Development, Government Policies, Skill Development, Sustainable Livelihoods, E-commerce.*

INTRODUCTION

The economy of North East India, comprising eight states including Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim, which combines various traditional occupation with rich natural resources,

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ethnic diversity, and traditional livelihoods. The region remains one of the most economically backward areas of the country despite its potential resources and strategic location. Industrial development is slow, and a large portion of the region's people still rely on agriculture and other informal activities like primitive and cottage industries as their main sources of income.

Among these traditional sectors, cottage industries in Assam hold significant economic and socio-cultural value, historically it played a crucial role in generating employment, preserving cultural heritage, and providing livelihood opportunities, especially for rural women and marginalized communities. The handloom, bamboo and cane crafts, bell metal works, pottery, and sericulture are some of the prominent cottage industries in Assam that reflect the artisanal skill and indigenous knowledge of the region. However, the cottage industry sector faces numerous challenges such as lack of modernization, limited access to formal credit, infrastructural bottlenecks, and inadequate marketing facilities. In recent years, policy initiatives and development schemes by both central and state governments have attempted to revitalize this sector, recognizing its potential for employment generation, rural development, and cultural preservation.

LITERATURE REVIEW

In our country, there are very few research conduct in the field of cottage industries of Assam. An attempt is made to review on previous studies in the area of small scale cottage industries.

Mc Cann. M. (1996). Cottage industries are informal sector of an economy, which contributes major component of developing economy. But these industries face many problems and also require to suitable precautions to hazards in these industries.

Sarkar, A. (2017). Discuss how cottage industry and small-scale industries of the state play an important role in employment opportunity, balance regional growth, mobilization of resources and skill development. To move the economy on industrialization path it requires big-push in the form of inherent talent and incentives.

Das, D.C (2018). Analyses assam is one of the industrial backward states, but rich in natural resources. To promote Assam's industrial and cottage industries there should be proper utilization of natural resources and need to government support to play active role in development.

R. Singha. et al. (2020) explain from *Ahom* kingdom, the royal families of Assam patronized silk weavers, majority of the weavers in India are from assam. How silk cottage industry helps to strengthen the rural women empowerment and become entrepreneurs. Create awareness about the potential scope of online sales(e-commerce).

Objectives of the Study

1. To highlight the economic significance of Assam's cottage industry within the North East Indian economy.
2. To examine the socio-economic contributions of the sector, particularly in employment and women empowerment.
3. To know about the major challenges faced by the cottage industries in Assam.
4. To provide remedial measures and suggest strategies for sustainable development and modernization of the sector.

METHODOLOGY

This study is based on secondary data collected from government reports, economic surveys, research papers, and relevant literature on Assam's cottage industries. A descriptive and analytical approach has been adopted to understand the role, performance, and prospects of this sector within the broader economic framework of North East India.

RESULTS AND DISCUSSION

Economy of North East India

A summary of North East India (NEI), frequently referred as the 'land of seven sisters and a brother,' is situated in a geographically significant and resource-abundant area of the country, sharing international borders with China, Myanmar, Bhutan, Bangladesh, and Nepal. Despite its wealth of natural and human resources, the region has encountered ongoing economic challenges due to its challenging terrain, historical isolation, socio-political unrest, and infrastructural deficits.

Economic Profile of the Region

The economy of North East India is mainly agrarian, more over 60% of total population are employing with agriculture and allied sectors. Include rice, tea, jute, oilseeds, and horticultural are major crops produce in Assam, for instance, is globally renowned for its tea industry and also leads the region in rice and fish production.

As per recent estimates, the combined share of North East India in the national GDP is less than 3%, even though it represents approximately 8% of the country's land area and 3.76% of its population (Census 2011).

Sectoral Composition

Primary Sector: The economy of Assam is dominated by Agriculture, forestry, fisheries, and plantations especially tea in Assam. Shifting cultivation is still practiced by hilly people in their area.

Secondary Sector: Due to geographical backwardness, poor connectivity, and historical neglect industrial development is limited. Cottage and small-scale industries, are crucial for creation employment opportunity and preserving traditional crafts.

Tertiary Sector: Services like education, healthcare, tourism, banking, and transport have experienced growth in recent years, which has contributed to employment and regional development.

Challenges in Industrialization and Employment

There are Several factors have constraints industrial growth in the North East India (Assam) these are -

a) Geographical Isolation and Connectivity Issues: Hilly terrains and underdeveloped transport infrastructure make it impossible access markets and industrial investments.

b) Political Instability: In some areas, unrest and insurgency have historically discouraged private and public investment.

c) Limited Urbanization: Most of rural population with limited number of urban centers limit the development of a consumer base and industrial centers.

d) Infrastructural Deficits: Industrialization on a large scale is also hampered by inadequate infrastructural power supply, transport, and communication facilities.

e) Small Market Size: Economics of scale are reduced by Low purchasing power and dispersed settlements.

Role of Traditional and Cottage Industries

A traditional or cottage industries can provide an alternative source of livelihood, especially for rural and marginalized communities. In Assam, cottage industries like handloom weaving, bamboo and cane crafts, pottery, and bell metal works require limited capital investment and rely on local resources.

Historical Evolution of Cottage Industries in Assam

Assam's cottage industries are basically household based economic activity. It have deep historical roots, with references found in ancient texts and colonial records. Traditionally, the handloom weaving is an integral part of Assamese culture, with every household in rural areas historically owning a loom.

Cottage industries like silk weaving, pottery, bell metal works, and cane and bamboo crafts received royal recognition during Ahom kingdom period. And in the colonial period Assam's resources are commercialization specially Tea. Assam's cottage industries develop the skill of rural population, and socio-economic conditions while preserving indigenous skills.

Major Cottage Industries in Assam

Some major types of cottage industries in Assam include: -

a. Handloom Weaving: Handloom weaving is the backbone of Assam's cottage industry sector. Some products like mekhela chador, gamochas, and eri and muga silk fabrics. It has cultural, economic, and symbolic significance, especially among rural women.
b. Bamboo and Cane Crafts: Assam's rich in forest resources like bamboo and cane are available in large number. It supports a flourishing handicrafts sector producing furniture, baskets, mats, decorative items, and utility products.
c. Bell Metal and Brass Works: Bell Metal and Brass works are born in Sarthebari, Assam. They made traditional household items used in rituals and daily life.
d. Pottery: In Assam, particularly Goalpara and Barpeta districts, continue the age-old practice of earthenware pottery, used for both utilitarian and ceremonial purposes.
e. Sericulture and Silk Weaving: Sericulture and Silk weaving of Assam is globally famous for its muga, eri, and pat silk. It is large cottage-based industries providing employment to thousands.

Socio-Economic Relevance of Cottage Industries

Cottage industries in Assam are contributed both economic and as well as role in social and cultural identity. These industries help to--

a. Provide employment opportunities, particularly in rural and semi-urban areas.
b. Empower women by integrating them into productive economic activities.
c. Protect traditional knowledge and craftsmanship.
d. Generate income through household economic activity.
e. Contribute to exports and the promotion of Assam's cultural identity on national and international platforms.

I. **Economic Contribution of Assam's Cottage Industry:** Particularly in terms of employment generation, rural income enhancement, and cultural preservation cottage industries play a major role. Despite operating on a small scale and often within informal frameworks, these industries contribute significantly to Assam's rural economy and overall economic landscape.

II. **Employment Generation and Livelihood Support:** In rural areas there are scarce of formal job opportunities. Whereas cottage industries in Assam is their capacity to provide large-scale employment. According to the Economic Survey of Assam 2022-23, the cottage and small-scale industries sector directly and indirectly employs over 5 lakhs artisans in the state. Handloom weaving alone accounts for a substantial share of rural employment, with over 15.29 lakhs weavers and allied workers registered under various handloom schemes in Assam. Women constitute the majority of the workforce in this sector, contributing both economically and socially to their households and communities.

III. **Contribution to State Income and Exports:** Though small in scale, cottage industries like handloom, sericulture, bamboo crafts, and bell metal works add value to Assam's State Gross Domestic Product (GSDP). Products such as muga silk, eri silk, pat silk, and traditional handicrafts have also found in international markets, contributing to the state's export earnings.

Role in Women Empowerment: Cottage industries in Assam helps for women's economic empowerment. Most of the female workers are engaged in the handloom and sericulture sectors. This helps to improved income levels among rural women and enhanced their social status, literacy, health awareness and decision-making capacity within families and communities.

I. **Preservation of Indigenous Knowledge and Cultural Heritage:** Assam's rich cultural and artistic traditions like weaving techniques, bamboo and cane craft designs, and metal works are protected by cottage industries workers through generations and safeguarding indigenous knowledge systems and contributing to the state's cultural heritage. These industries not only generate income but also promote Assam's cultural identity at abroad levels.

CHALLENGES AND CONSTRAINTS

The cottage industry sector in Assam faces several challenges that hinder its potential and long-term sustainability. These challenges stem from both internal weaknesses and external constraints in the regional and national economic context.

a. Lack of Modernization and Technological Backwardness: One of the most important challenges in Assam's cottage industries is lack of modernization and technological backwardness. Due to this reason they continue to operate with traditional tools, techniques, and production methods, leading to low productivity, poor product quality, and limited capacity to meet modern market demands.

b. Limited Access to Institutional Credit and Financial Services: Inadequate and timely supply of credit facilities is another important problem of artisans and cottage industry workers. They often face difficulties in accessing formal credit due to lack of collateral, procedural complexities, and low financial literacy. As per a NEDFi survey (2022), nearly 70% of cottage industry units in Assam depend on informal sources of finance, which often carry high-interest rates, affecting profitability and business sustainability.

c. Infrastructural Bottlenecks: Inadequate infrastructure, such as poor road connectivity, irregular electricity supply, limited access to raw materials, and lack of organized market spaces are adversely affecting the quality and quantity of cottage industries production in Assam. And limiting their trade potential.

d. Marketing and Supply Chain Issues: Due to weak infrastructural facilities cottage industries often struggle to transport their products to larger markets, and their backwardness limited market access, reducing their profit margins. The lack of information about e-commerce platforms restricts market expansion.

e. Competition from Mechanized and Imported Goods: Assam's traditional cottage industries find it very difficult to compete with Imported cheap products, particularly in the handicraft and decorative items market, further challenge the survival of indigenous craft industries.

f. Limited Policy Implementation and Coordination: Both central and state-level schemes exist for promoting cottage industries, but lack of inter-departmental coordination and limited awareness among artisans fail to proper policy implementation.

GOVERNMENT POLICIES AND INITIATIVES

Both the Central and State Governments have launched several policies, schemes, and institutional support mechanisms to promote, preserve, and modernize the Cottage industry sector for created employment opportunities, protect their business with cultural heritage of Assam.

CENTRAL GOVERNMENT INITIATIVES:

a. Khadi and Village Industries Commission (KVIC): One of the important central government initiatives for supporting cottage industries is KVIC, functioning under the Ministry of Micro, Small and Medium Enterprises (MSME), provides financial assistance, marketing support, and skill development training to cottage and village industries across India, including Assam. It facilitated self-employment through cottage industry units.

b. North Eastern Council (NEC): The NEC has implemented several projects aimed at skill development, cluster-based craft promotion, and market linkages for artisans and weavers in North East India.

c. Micro Units Development and Refinance Agency (MUDRA) Yojana: Under the Pradhan Mantri MUDRA Yojana, small entrepreneurs in Assam's cottage industry sector have access to collateral-free loans, helping them expand their businesses.

d. Scheme of Fund for Regeneration of Traditional Industries (SFURTI): This cluster-based initiative supports the development of traditional industries, providing assistance for common facility centers, design development, and market promotion. Several handloom and bamboo craft clusters in Assam have benefited from this scheme.

ASSAM STATE GOVERNMENT INITIATIVES

a. Assam Industrial and Investment Policy (AIIP): This policy emphasizes the promotion of traditional and cottage industries through financial incentives, infrastructure development, and skill training programs.

b. Handloom and Textiles Department Schemes: The Assam Government, through its Handloom and Textiles Department, implements schemes for loom upgradation, yarn supply, and artisan welfare. The Assam Weavers' Credit Card Scheme provides easy credit access to weavers.

c. Assam Khadi and Village Industries Board (AKVIB): AKVIB provides financial and marketing assistance, organizes trade fairs, and conducts artisan training programs, promoting khadi, sericulture, and handicrafts.

d. Assam Trade Promotion Organisation (ATPO): ATPO organizes state, national, and international-level trade fairs to enhance market exposure for cottage industry products.

POLICY IMPACT AND CHALLENGES

These policies of both central and state govt. help to provided critical financial, infrastructural, and skill development support, several issues remain:

- Lack of awareness and accessibility among rural artisans.
- Bureaucratic delays in timely fund disbursement.
- Inadequate monitoring and evaluation of program effectiveness.
- Need for integration of digital marketing, e-commerce, and export facilitation into policy frameworks.

OPPORTUNITIES AND WAY FORWARD

Even with the challenges, Assam's cottage industry has a lot of potential for expansion and sustainable development. By leveraging traditional strengths and adopting contemporary tools, the sector can contribute substantially to the regional economy and rural livelihoods.

Market Linkages and E-Commerce Integration: In modern time the rapid expansion of digital platforms offers cottage industries opportunities to reach national and global markets. By the training to artisans to use e-commerce portals like Amazon Karigar, Etsy, and government platforms such as 'Vocal for Local' can boost sales and reduce dependence on intermediaries.

Integration with Tourism and Cultural Heritage: Assam's rich cultural diversity and natural beauty attract tourists who are likely to purchase genuine handicrafts and handloom products. Developing craft villages, exhibition centers, and workshops for tourists can create direct market access and preserve traditional arts.

Skill Development and Capacity Building: In collaboration with design institutes, NGO's and government agencies investing in skill enhancement programs, design innovation, quality control, and entrepreneurship development will empower artisans to produce competitive, high-quality products.

Access to Finance and Infrastructure Improvement: Access finance and infrastructure improvement help to promoting microfinance, and establishing common facility centers for production and marketing will strengthen the sector's infrastructure. Ensuring reliable power supply and improving transport connectivity remain critical.

Promoting Sustainable and Eco-Friendly Practices: Now a days a all products should be eco-friendly. Assam's cottage industries often use natural fibers, organic dyes, and traditional techniques that improve global demand for sustainable products. Promoting these eco-friendly aspects can enhance marketability and environmental sustainability.

POLICY RECOMMENDATIONS

- Create awareness and accessibility of government schemes among artisans through local outreach.

- Improve public-private partnerships for better market development and infrastructure support.
- Encourage digital literacy and marketing skills among rural producers.
- Develop brand identity for Assam's cottage products to distinguish them in competitive markets.
- Support research and innovation to adapt traditional crafts to contemporary design trends.

CONCLUSION

Assam's cottage industry sector is a lifeline of Assam's cultural heritage. It holds a unique position in the North East Indian economy. Rooted in rich traditions and indigenous knowledge, these small-scale, household-based industries provide vital livelihood opportunities, especially for rural communities and women. They contribute significantly to employment, cultural preservation, and regional identity.

However, despite their importance, Assam's cottage industries face considerable challenges, including technological backwardness, limited access to credit, infrastructural deficiencies, and weak market linkages. Addressing these constraints requires a multi-faceted approach involving policy support, skill development, infrastructure enhancement, and market expansion, particularly through digital platforms. Sustainable growth of cottage industries in Assam can possible inclusive rural development, empower marginalized groups, and strengthen the regional economy. By blending tradition with innovation, and local strengths with global opportunities, Assam's cottage industries can emerge as key drivers of socio-economic transformation in North East India.

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Climate Change and Sustainability: Insights from the Philosophy of M. K. Gandhi

Nimai Sarkar*

ABSTRACT

The accelerating climate change crisis demands re-evaluating humanity's relationship with the environment. Amid this global ecological emergency, the philosophy of Mahatma Gandhi offers profound insights into sustainability, ethical living, and environmental harmony. Gandhi's philosophy, centred on truth, nonviolence, simplicity, and trusteeship, anticipates many principles underlying contemporary ecological movements. This paper presents an in-depth analysis of Gandhian philosophy and its relevance to addressing the root causes of climate change. Drawing from Gandhi's writings, practices, and socio-economic views, this work explores how his vision provides a sustainable development model rooted in justice, equity, and ecological balance. By examining Gandhian thought within the context of modern environmental challenges, the paper illustrates how his ideas can serve as a moral and philosophical foundation for sustainable development in the 21st century.

Keywords: *Climate Change, Sustainability, Environment, Nonviolence, Simple Living, Ecology, Sustainable Development.*

INTRODUCTION

Climate change is no longer a future concern; it is a reality affecting ecosystems, economies, and communities worldwide. It is driven by anthropogenic activities, particularly fossil fuel consumption, deforestation, industrial pollution, and unsustainable resource exploitation. Today's ecological crisis

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is deeply connected to the dominant paradigms of material growth, consumerism, and technological expansion.

In this context, Mahatma Gandhi's life and teachings present a radically different vision of human development grounded in ethical restraint, moral responsibility, and reverence for all life forms. Nature was viewed by Gandhi not as a resource to be exploited but as a sacred trust to be preserved. His advocacy for decentralised economies, self-reliant villages, and minimal consumption is especially relevant in an era marked by overproduction, overconsumption, and ecological collapse. This paper delves into the philosophical underpinnings of Gandhi's thoughts and analyses how they can inform contemporary efforts to combat climate change and foster sustainability.

GANDHIAN WORLDVIEW: ETHICAL FOUNDATIONS FOR ECOLOGY

Satya (Truth) and Ahimsa (Nonviolence)

Gandhi's philosophy is grounded in the twin ideals of satya (truth) and ahimsa (nonviolence). For Gandhi, truth went beyond mere facts; it represented conformity with a universal moral law. Ahimsa, his highest moral principle, extended beyond physical nonviolence to encompass thoughts, words, and actions that did not harm others—humans, animals, or the environment. In the ecological sense, Ahimsa demands restraint from exploitative practices such as deforestation, animal cruelty, and industrial pollution. It is an appeal to live gently on the earth, acknowledging the deep interconnectedness of all living beings. This notion resonates deeply with contemporary ecological ethics and the biocentric worldview advocated by environmental philosophers. Gandhi believed true nonviolence could not exist without a deep respect for nature. He condemned the violence inherent in environmental degradation and emphasised the necessity of aligning human behaviour with the welfare of all beings. His inclusive vision of nonviolence forms the ethical bedrock of ecological responsibility.

Trusteeship: A Moral Economy of Resource Use

One of Gandhi's most influential contributions to sustainability is the idea of trusteeship, which emphasizes responsible and ethical stewardship of resources. He proposed that those who possess material wealth should act as trustees, using their resources to benefit society and the planet. This challenges the capitalist ideal of absolute private ownership and promotes a moral economy where individuals act responsibly and share resources equitably. Today, trusteeship can be understood as the basis for sustainable consumption, corporate social responsibility, and ethical management of natural resources. It aligns with the principle of intergenerational equity, a key element in modern sustainable development. Gandhi asserted that wealth was not to be hoarded but used for the common good, creating an ecological and social justice ethos.

Brahmacharya and Restraint

Gandhi practised and advocated for *brahmacharya*, or self-restraint, not only in sexuality but all aspects of life. He argued that limiting desires and exercising discipline were essential for personal spiritual growth and ecological well-being. In contrast to the consumerist culture, which equates happiness with accumulation, Gandhi's emphasis on voluntary simplicity offers a sustainable path forward. This idea of restraint counters the destructive tendencies of consumerism and provides a model for climate-conscious living. By advocating for moderation and mindful consumption, Gandhi set a standard for ecological balance urgently needed in the face of climate change.

Critique of Industrial Civilization

Gandhi's critique of modern civilisation is most evident in his seminal work *Hind Swaraj* (1909), where he challenges the Western industrialisation, urbanisation, and mechanisation model. He believed this model led to social alienation, moral decay, and environmental degradation.

The Machine and Morality

For Gandhi, the unchecked use of machinery led to the displacement of human labour, the erosion of community values, and the exploitation of nature. He wrote, "Machinery is the chief symbol of modern civilisation; it represents a great sin." Gandhi did not dismiss technology entirely but advocated for its ethical and limited use, emphasising that technology should serve humanity instead of controlling it. His preference for hand-spun khadi over factory-made textiles was an economic and ecological choice. His critique was not an opposition to progress per se but to progress devoid of morality and sustainability. He argued that actual progress should enhance human well-being and maintain harmony with nature.

Dehumanization and Ecological Exploitation

Industrial capitalism, in Gandhi's view, commodifies both labour and nature. It turns living beings into units of production and consumption, detaching people from the land and their communities. The ecological consequences of such a system include deforestation, pollution, climate change, and biodiversity loss. Gandhi foresaw these consequences and proposed a counter-model rooted in human dignity, community, and ecological responsibility.

The Village Economy: Decentralization and Ecological Balance

Gandhi envisioned Gram Swaraj, or village self-governance, as the bedrock of a just and self-reliant Indian society. For him, true independence meant economic, political, and ecological self-sufficiency at the grassroots level.

Rural Self-Reliance and Sustainability

In Gandhi's model, villages would produce food, clothing, and necessities using local resources. This would reduce dependence on centralised industries and global markets. Local production and consumption foster economic justice and minimise transportation, energy use, and carbon emissions. This model promotes resilience and sustainability by encouraging communities to live within their ecological means. It reflects the modern concepts of localisation and circular economies, which are vital for combating climate change.

Harmony with Nature

In Gandhi's ideal, traditional village life was attuned to the rhythms of nature. It involved organic farming, rainwater harvesting, and seed preservation. These ecologically sound, and climate-resilient methods offer models for sustainable agriculture in the face of climate change. Gandhi's model of a village economy was rooted in biodiversity, environmental stewardship, and a profound reverence for nature. His holistic approach anticipated the core principles of agroecology and permaculture—systems that are today celebrated as sustainable and regenerative alternatives to industrialized agriculture.

Simplicity, Consumption, and Climate Ethics

Climate change is driven by overconsumption and carbon-intensive lifestyles. Gandhi's principle of **voluntary simplicity** is a radical alternative to the dominant paradigm of endless growth and consumption.

Limiting Wants

Gandhi distinguished between needs and wants. He urged individuals to voluntarily reduce their wants, suggesting that true happiness and fulfilment arise not from material abundance but from inner peace and self-realisation. This idea underpins modern minimalism and the degrowth movement, advocating for living within ecological limits.

Reducing Carbon Footprint

Individuals can significantly reduce their carbon footprint by living simply, consuming mindfully, and favouring local goods. Gandhi's personal life was a testament to this ethic: he walked instead of using motor vehicles, wore homespun clothes, and practised zero-waste principles. His lifestyle is a powerful model for climate-conscious living. His advocacy for non-materialism and simplicity provides a psychological and cultural foundation for sustainable living, helping individuals and societies transition to lower-carbon lifestyles.

Nonviolence and Environmental Justice

Gandhian nonviolence is not merely the absence of physical violence but a positive force for justice, equity, and respect for all life. Applied to environmental issues, it translates into **ecological justice**—the fair treatment and meaningful involvement of all people in environmental decision-making.

Solidarity with the Marginalized

Environmental degradation disproportionately affects the poor, Indigenous communities, and future generations. Gandhi's commitment to the weakest and most vulnerable compels us to consider environmental justice a moral imperative. His idea that "the world has enough for everyone's need but not for everyone's greed" critiques ecological inequality and calls for equitable resource distribution.

Resistance to Ecological Violence

Gandhi's nonviolent resistance (*satyagraha*) can be applied to contemporary environmental activism. Movements such as the Chipko Movement and Narmada Bachao Andolan are rooted in Gandhian principles, using peaceful protest to protect forests, rivers, and communities from destructive development projects. These movements illustrate how Gandhian nonviolent resistance strategies can be powerful tools for climate justice and environmental protection.

GANDHIAN LEGACY AND CONTEMPORARY RELEVANCE

Influence on Environmental Thought

Gandhi's influence is evident in the works of E. F. Schumacher (*Small is Beautiful*), Arne Naess (Deep Ecology), and Vandana Shiva (ecofeminism and Seed Sovereignty). These thinkers have drawn on Gandhian ideals to argue for small-scale, community-based, and ecologically mindful development.

Relevance to the UN Sustainable Development Goals (SDGs)

Mahatma Gandhi's philosophy provides a foundational ethical framework that aligns with several of the United Nations Sustainable Development Goals (SDGs), especially **Goal 12 (Responsible Consumption and Production), Goal 13 (Climate Action), Goal 15 (Life on Land), and Goal 10 (Reduced Inequality).** Gandhi's emphasis on self-restraint and *aparigraha* (non-possession) reflects the essence of **Goal 12**, which calls for reducing wasteful consumption patterns and promoting sustainable lifestyles. He encouraged individuals to "live simply so that others may simply live," promoting conscious and ethical consumption practices. This idea directly counters the unsustainable consumption that drives ecological degradation and supports a shift toward localised, community-based economies that respect ecological boundaries.

About **Goal 13: Climate Action**, Gandhi's lifestyle—low energy use, walking instead of riding, growing food locally, using natural fibres—demonstrated a minimal carbon footprint long before climate science became mainstream. His insistence on *ahimsa* (nonviolence) as a guiding principle extends to ecological nonviolence, advocating for lifestyles that do not harm the environment. In today's context, this calls for climate-resilient development rooted in compassion and justice, especially for vulnerable communities most affected by climate change.

Regarding **Goal 15: Life on Land**, Gandhi believed in the sanctity of all living beings and promoted sustainable agricultural practices such as organic farming, protection of indigenous seeds, and ecological land stewardship. His vision of village-based economies naturally conserved biodiversity and maintained the environmental integrity of land systems. He recognised the interdependence of all forms of life and emphasised the moral responsibility of humans to protect the earth's natural systems.

Finally, **Goal 10: Reduced Inequality** is deeply reflected in Gandhi's socio-economic philosophy of *Sarvodaya* (welfare of all) and *trusteeship*, where wealth and resources are to be held in trust and used for the benefit of the poorest and most marginalised. He tirelessly fought against untouchability and social exclusion, seeking a society where dignity and justice were available to all, irrespective of caste, class, gender, or economic status. This vision anticipates the inclusive and equitable development goals of the SDGs.

His development model offers a path toward holistically, ethically, and inclusively achieving these goals.

Educational and Policy Recommendations

Several interrelated strategies are recommended to harness the potential of Gandhian thought for climate action. Incorporating Gandhian values into environmental education is crucial, as it fosters an ethical and spiritual connection with nature, promoting respect, compassion, and a sense of duty toward the environment. Emphasising these dimensions can inspire individuals to adopt sustainable practices not just out of necessity but from a moral commitment.

Promoting decentralised governance and local economies aligns with Gandhi's principle of *Gram Swaraj*, empowering communities to manage their resources responsibly, enhance self-reliance, and build ecological resilience. This regional focus reduces dependency on large-scale industrial systems that often harm the environment.

Public campaigns encouraging lifestyle changes based on Gandhian simplicity can significantly reduce consumption patterns that drive environmental degradation. These campaigns can shift societal values toward sustainability by advocating for minimalism, non-excess, and mindful living.

Developing eco-friendly technologies that reflect human-scale development is another key strategy. Such technologies prioritise sustainability, affordability, and accessibility, ensuring they serve communities without compromising ecological integrity. Finally, supporting grassroots movements that defend ecological rights through nonviolent resistance draws directly from Gandhian methods of *ahimsa* and *satyagraha*. These movements can protect vulnerable ecosystems and hold polluters accountable, advancing environmental justice.

Together, these strategies weave Gandhian philosophy into a practical framework for combating the climate crisis with ethical clarity and community empowerment.

CONCLUSION

Mahatma Gandhi's life and philosophy offer profound and practical guidance for navigating climate change and sustainability challenges. His emphasis on nonviolence, simplicity, trusteeship, and ecological responsibility anticipates many of the principles recognised as essential for environmental protection. In a world facing ecological breakdown, the Gandhian model is not an anachronism but a visionary alternative rooted in ethics, justice, and harmony with nature. Rediscovering and applying his teachings can inspire individuals, communities, and nations to chart a new path toward sustainable development that respects both human dignity and the integrity of the Earth.

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Role of Self-Help Groups (SHGs) in Community Upliftment of Karbi Anglong and West Karbi Anglong District

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INTRODUCTION

The concept of Self-Help Groups (SHGs) has gained prominence as a tool for poverty alleviation and socio-economic development in rural India. SHGs are small, voluntary associations, primarily of women, that aim to improve their members' living conditions through collective savings, microfinance, and entrepreneurship (India Farm, n.d.; Agriculture Institute, 2023). Karbi Anglong, the largest district of Assam, is home to diverse ethnic communities, primarily the Karbi tribe. The region faces significant developmental challenges, including poverty, lack of infrastructure, and limited access to education and healthcare. Self-Help Groups (SHGs) have emerged as vital instruments in bridging socio-economic gaps, promoting financial inclusion, and empowering marginalized communities (Amri Helping Hands Society, 2023). This paper analyzes the contributions of SHGs in fostering sustainable development in Karbi Anglong.

Glimpse of the District

Karbi Anglong and West Karbi Anglong are the two hill districts of Assam, falling under Sixth Schedule of the Indian Constitution, governed by Karbi Anglong Autonomous Council. It occupies the central position of the state. Agriculture is the main

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economic activity of the district. About 84% of the workforce in the district is engaged in agricultural activities, covering an area of 14.6%. As per the latest BPL survey, out of 89,685 rural families, 58.76% of the rural families in Karbi Anglong are living under BPL. The district has a banking network of 54 branches of which 34 belongs to Regional Rural bank , 18 branches belong to different commercial banks and 2 branches belong to other nationalised commercial banks and two other branches belong to Assam Cooperative Apex Bank. According to report on District Agricultural Development Strategy, prepared by ATMA, the district has witnessed the formation of 1891 numbers of SHGs in the districts as on 31 March 2006.

OBJECTIVES OF THE STUDY

1. To examine the contributions of SHGs to rural entrepreneurship and livelihood generation.
2. To identify challenges faced by SHGs in the district.
3. To explore the role of government policies and NGOs in supporting SHG activities.
4. To provide recommendations for strengthening SHGs to enhance community upliftment.

METHODOLOGY

The study relies heavily on secondary sources to provide a comprehensive understanding of SHG activities in Karbi Anglong. Data was gathered from: Government reports, such as those from the Ministry of Rural Development, Government of Assam, and National Rural Livelihood Mission (NRLM). Research papers and journal articles analyzing the impact of SHGs in India and the Northeast region. Books focusing on rural development, women empowerment, and microfinance initiatives. Case studies of successful SHGs from non-governmental organizations (NGOs) and international agencies. Statistical data and reports from institutions like NABARD (National Bank for Agriculture and Rural Development) that track the progress of SHGs in financial inclusion. Newspaper articles and online publications that discuss recent developments and policy changes affecting SHGs in Karbi Anglong.

REVIEW OF LITERATURE

Several studies highlight the impact of SHGs on community development in India.

According to **NABARD (National Bank for Agriculture and Rural Development),** SHGs have significantly contributed to financial inclusion and women's empowerment by providing microcredit and promoting small-scale entrepreneurship. Research by **Karmakar** (2009) emphasizes that SHGs enhance social capital, leading to better financial literacy and participation in economic activities. Studies conducted by **Sharma and Singh** (2017) indicate that SHGs in the northeastern states, including Assam, have played a pivotal role in promoting self-employment and reducing poverty. The work of **Tripathi et al.** (2020) suggests that SHGs foster collective decision-making and create sustainable income-generating opportunities. Furthermore, NGO reports highlight successful SHG models in Karbi Anglong that have improved the livelihoods of tribal communities. A study by **Swain and Wallentin** (2009) examined the impact of SHGs on women's empowerment and found that participation in SHGs led to improved confidence, decision-making power, and household bargaining abilities. Similarly, **Sinha** (2011) emphasized the role of SHGs in improving financial access and reducing vulnerability to economic shocks. In the context of the northeastern states, **Baruah** (2013) analyzed the growth of microfinance through SHGs and noted that while SHGs have increased financial access, they still face issues related to sustainability and external dependencies. **Das and Bhowmick** (2015) studied the linkage between SHGs and rural banking institutions, highlighting that while formal financial linkages have improved, credit disbursement remains a challenge due to bureaucratic hurdles.

DISCUSSION

1. Growth of SHGs in India

Over the past decade, Self-Help Groups (SHGs) have emerged as a transformative force in India's rural landscape, with more than 10 million SHGs and over 120 million members, predominantly women, driving socio-economic change at the grassroots level (Ministry of Rural Development, Government of India, 2023). The National Rural Livelihoods Mission (NRLM), launched in

2011, has been instrumental in scaling up SHGs, linking over 7 million groups to formal banking systems and mobilizing savings worth ₹40,000 crore ($5 billion) across the country (National Rural Livelihoods Mission, 2023).

2. SHGs in Assam and Karbi Anglong District

In Assam, SHGs have become a cornerstone of rural development, with over 500,000 groups empowering more than 6 million women, particularly in tribal and marginalized communities (Assam State Rural Livelihoods Mission, 2023).

Karbi Anglong district, with its unique socio-economic challenges, has witnessed a remarkable surge in SHG activity, with over 10,000 groups and 120,000 members actively engaged in income-generating activities such as handloom weaving, organic farming, and small-scale entrepreneurship (Karbi Anglong District Administration, 2021). Under the Prime Minister's Employment Generation Programme (PMEGP), the District Industries & Commerce Centre received 331 applications in 2020-21, with 197 cases sponsored and 54 sanctioned, reflecting a growing interest in self-employment initiatives (Government of Karbi Anglong, 2023).

The district has seen a 20% increase in SHG formation over the past five years, reflecting the growing recognition of these groups as a viable pathway to financial inclusion and community upliftment (Assam State Rural Livelihoods Mission, 2023). Additionally, SHGs have contributed to women's empowerment, with studies indicating that 64% of members are in the 25-45 age group and primarily engaged in agriculture (Nath, 2018).

3. Role of SHGs in Community Upliftment

a) Economic Empowerment SHGs provide microfinance opportunities, enabling members to engage in income-generating activities such as agriculture, weaving, poultry farming, and small-scale businesses. The introduction of bank-linkage programs has facilitated access to credit, reducing dependence on moneylenders and improving financial stability.

b) Women's Empowerment SHGs in Karbi Anglong have significantly contributed to women's socio-economic status by fostering self-reliance and entrepreneurship. Women involved in SHGs gain financial literacy, leadership skills, and increased participation in household and community decision-making.

c) Social Development and Community Participation: SHGs play a crucial role in improving healthcare awareness, sanitation, and education. Many groups actively participate in awareness campaigns on maternal health, child education, and social issues such as domestic violence and alcoholism. By fostering collective action, SHGs help strengthen social bonds and community resilience.

d) Skill Development and Entrepreneurship: Many SHGs focus on skill development programs, training members in traditional crafts, tailoring, food processing, and other vocational skills. These initiatives enable rural communities to generate sustainable livelihoods and preserve indigenous knowledge and craftsmanship.

4. Government Policies Supporting SHGs

The government has introduced several policies and schemes to support SHGs, aiming at financial inclusion, skill development, and entrepreneurship. Some of the key policies include:

a) **National Rural Livelihood Mission (NRLM)**: Also known as Aajeevika, NRLM aims to reduce rural poverty by promoting sustainable livelihood opportunities through SHGs (Ministry of Rural Development, 2019). In Karbi Anglong, NRLM has facilitated financial assistance, capacity building, and market linkages for SHGs. According to ASRLM (2021), SHGs supported under NRLM in Assam have seen an average income increase of 30% within three years.

b) **Assam State Rural Livelihood Mission (ASRLM)**: This state-specific program aligns with NRLM and enhances the support for SHGs by providing training, micro-financing, and infrastructure development (ASRLM, 2020). The Karbi Anglong Handicrafts SHG, for instance, received ASRLM assistance to scale up their traditional bamboo and cane craft business, creating employment opportunities in the region. Reports indicate that 1,200 SHGs in Karbi Anglong have received ASRLM support, leading to a 40% increase in sustainable livelihood activities (ASRLM, 2021).

c) **Mudra Yojana**: Under the Pradhan Mantri Mudra Yojana (PMMY), SHGs can access collateral-free loans to expand their micro-enterprises (Government of India, 2015). An example is the Rongbin SHG, which took advantage of Mudra loans to set up a dairy farming unit, leading to increased financial stability for its members. As per the Assam Rural Development Department (2022), over ₹25 crore has been disbursed to SHGs in Karbi Anglong under PMMY.

d) Women Empowerment Schemes: Various programs like Mahila Shakti Kendra and Beti Bachao Beti Padhao also indirectly support SHGs by promoting women's participation in economic activities (Ministry of Women and Child Development, 2018). Government reports indicate that 65% of SHGs in Karbi Anglong are women-led, contributing significantly to local economic growth (Government of Assam, 2021).

5. Role of NGOs in Supporting SHGs

Non-Governmental Organizations (NGOs) complement government initiatives by providing grassroots support to SHGs. In Karbi Anglong, NGOs play a pivotal role in:

a) **Capacity Building**: NGOs conduct training programs on financial literacy, entrepreneurship, and skill development to enhance SHG efficiency (Sharma & Gupta, 2017). For example, the NGO SeSTA has conducted extensive training in organic farming for SHGs in Karbi Anglong, increasing agricultural productivity and income levels. According to SeSTA's 2021 report, their programs have improved the productivity of over 300 SHGs in the district.

b) **Microfinance Assistance**: Many NGOs facilitate micro-credit access through linkages with banks and other financial institutions (Das, 2019). The Karbi Anglong Farmers SHG successfully obtained microfinance through NGO intervention, allowing them to purchase better seeds and farming equipment. Studies show that SHGs supported by NGOs in Assam have a 50% higher loan repayment rate compared to non-assisted SHGs (Das, 2020).

c) **Market Linkages**: NGOs help SHGs connect with local and national markets to sell their products and improve income generation (Borah, 2021). Market linkage programs by NGOs in Karbi Anglong have led to a 25% increase in SHG-generated revenue (Borah, 2021).

d) **Awareness Campaigns**: NGOs educate SHG members about government schemes, rights, and available benefits to maximize their effectiveness (Singh & Mehta, 2020). The Rural Women Empowerment Trust in Karbi Anglong has conducted numerous awareness campaigns, helping SHGs navigate government policies and avail benefits efficiently. Research shows that SHGs involved in such awareness programs experience a 35% increase in participation in government schemes (Singh & Mehta, 2020).

CASE STUDIES FROM KARBI ANGLONG

Several successful SHGs in Karbi Anglong have demonstrated the transformative potential of collective action. For instance, SHGs engaged in organic farming and handloom production have created sustainable economic models. Testimonials from SHG members highlight improvements in household income, education for children, and better living standards.

Karbi Anglong, a district in Assam, India, has witnessed notable successes in the establishment and operation of self-help groups (SHGs), particularly among its indigenous communities. Here are some case studies highlighting these achievements:

a) **Kindulangso Self-Help Group (SHG):** Established in 2018 by Aaranyak, a biodiversity conservation organization, the Kindulangso SHG comprises individuals and families from villages such as Chandrasing Rongpi, Hemai Lekthe, and Phumen Engti in the Kohora River Basin near Kaziranga National Park. The group focuses on promoting eco-tourism by developing homestays that offer visitors an immersive experience of the Karbi community's culture and natural surroundings. As of 2022, they manage eight homestays accommodating up to 26 guests and have hosted approximately 148 visitors since inception. Their efforts were recognized by the Tour Operator Association of Assam (TOAA) during its 12th Annual General Meeting on August 8, 2022, where the SHG received an award for exceptional contributions to tourism. neindiabroadcast.com

b) **Amri Helping Hands Society (AHHS):** Founded in 2018, the AHHS is a rural-based NGO operating in the Amri and Chinthong blocks of West Karbi Anglong district. The organization aims to enhance the living standards of rural communities by empowering women through various livelihood programs. Notably, AHHS has trained 90 women weavers, enabling them to establish small weaving units with funding from NABARD. Additionally, they have provided training in ginger processing to 26 SHG members, resulting in the production and market sale of ginger paste and powder. The society also promotes millet cultivation, focusing on foxtail millet, with 50 beneficiaries participating in this nutritious food initiative. easternmirrornagaland.com

c) **Tailoring Training Initiatives by Aaranyak:** Since 2021, Aaranyak has been committed to empowering indigenous tribal women in the Kohora-Karbi Anglong landscape near Kaziranga National Park by providing tailoring training as an alternative livelihood option. By 2023, 35 women had received basic tailoring training. To further enhance their skills, seven of the most proficient trainees were selected for advanced training at the Community Resource Center in Chandra Sing Rongpi Village. This initiative aims to reduce dependency on forest resources by equipping women with sustainable income-generating skills. neindiabroadcast.com

d) **Karbi Weavers' Success in Mumbai Fair:** In 2005, self-help groups from Karbi Anglong showcased their traditional shawls and jackets at the Lakshmi Charak 2004 international fair in Mumbai. The products received an overwhelming response, with garments worth over Rs 4 lakh sold during the event. The unique designs and manual craftsmanship of the Karbi attire attracted significant attention, highlighting the potential of SHGs in promoting indigenous textiles to broader markets. telegraphindia.com

e) **Dhansiri Cluster Level Federation Cooperative Society Limited:** This organization, headed by Mukuta Hojaisa as president and Rita Cherty as general secretary, involved 22 nearby villages of Diphu, Karbi Anglong and 273 self help groups are noticed taking lot of activities like livestock rearing and cultivation. This organization function within Lumbajong Block. On March 8, 2022, they has been conferred an award by Deendayal Antoday Yojana National Rural Livelihood Mission by Ministry of Rural Development Giriraj Singha at New Delhi.

CHALLENGES FACED BY SHGS IN KARBI ANGLONG

Despite their achievements, SHGs encounter several hurdles, including:

a) **Political Interference and Lack of Transparency in Fund Allocation:** Political interference often manifests in the form of favouritism and the manipulation of group formations to serve political interests. This undermines the autonomy of SHGs and hampers their primary goal of empowering members through collective financial activities. Such interference can lead to the disintegration of groups and the misuse of loans, as political affiliations may influence the distribution and utilization of funds (Das, 2012).

b) **Lack of Technical Knowledge:** Many SHG members lack the necessary technical skills to undertake productive activities, which limits their ability to manage and expand income-generating ventures effectively (JNEIS, n.d.).

c) **Inadequate Financial Support:** The financial assistance provided to SHG members is often insufficient to significantly impact poverty alleviation. Moreover, these loans are frequently used for consumption rather than investment in productive activities, further restricting their impact (NIRDPR, n.d.).

d) **Poor Infrastructure and Connectivity:** Limited road infrastructure and inadequate connectivity in remote areas of Karbi Anglong create significant obstacles for SHG operations, making it difficult for members to access markets and essential services (The Print, 2022).

e) **Limited Marketing Facilities:** Many SHGs struggle with inadequate marketing opportunities, preventing them from effectively selling their products and sustaining their businesses (Journal of Emerging Markets and Trade, 2023).

f) **Low Educational Background:** A low level of education among SHG members hampers effective group functioning, decision-making, and financial literacy (Journal of Emerging Markets and Trade, 2023).

g) **Lack of Training for Skill Improvement:** Insufficient training programs for skill enhancement limit the entrepreneurial growth of SHG members (Journal of Emerging Markets and Trade, 2023).

RECOMMENDATIONS FOR STRENGTHENING SHGS

To enhance the impact of SHGs in Karbi Anglong, the following measures are recommended:

i) Strengthening financial literacy programs and digital banking access.

ii) Developing better market linkages for SHG products.

iii) Encouraging government-NGO collaborations for capacity building.

iv) Addressing socio-cultural barriers to increase women's participation.

v) Implementing robust monitoring and evaluation frameworks to ensure transparency and accountability.

Government and concerned authorities should take the following necessary steps to bring development to the region.

a) Priority should be given to the development of basic infrastructure in the district so as to minimise the overhead cost in particular.

b) Karbi Anglong Autonomous Council should adopt people-oriented models for development schemes which should be technically sound, transparent, culturally sensitive and institutionally effective.

c) Increased agricultural production and other allied production through conservation to settled agriculture, where possible, with linkage to easy credit and markets and assured irrigation as the districts are heavily dependent on agriculture.

d) Promote diversification of agricultural and non-farm sectors to create job opportunities. Train tribal women in farm-based agriculture, child care, food processing and preservation etc.

e) Impart practical knowledge and training in modern techniques to all tribal women regularly so that their work becomes easier and production increases.

f) Focus on girls' education, inclusive of context-specific traditional and innovative interventions.

g) Encourage women's organisations working among tribal people and ensure the formation, stabilisation and bank linkages of SHGs to promote viable micro-economic activities with substantial support in terms of credit and market.

CONCLUSION

Self-Help Groups in Karbi Anglong have emerged as powerful agents of socio-economic transformation. By fostering financial independence, skill development, and social cohesion, SHGs contribute significantly to community upliftment. Women involved in these groups in the rural areas are now participating in the decision-making processes, having gained skills to support their livelihoods. However, addressing challenges related to infrastructure, market access, and institutional support is crucial to fully realize the potential. Strengthening SHGs through policy interventions and capacity-building initiatives are essentials for the continued success and to achieve sustainable development of the region.

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