

**ROLE OF RURAL WOMEN
IN THE AGRICULTURAL DEVELOPMENT OF ODISHA**

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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PHILOSOPHY**

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Role of Rural Women in the Agricultural Development of Odisha

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**In Partial Fulfillment of the Requirement of the Degree of Doctor of Philosophy
in Public Administration, Mizoram University, Aizawl**



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CERTIFICATE

This is to certify that the thesis titled '**Role of Rural Women in the Agricultural Development of Odisha**' is submitted by Ms. Kirttimayee Sarangi in Partial Fulfillment for the Degree of Doctor of Philosophy (Ph.D) in Department of Public Administration, Mizoram University, Aizawl.

This thesis is an original work of her research which has not been used previously and which has not been submitted to any other University for any purpose. She is duly permitted to submit her thesis for examination.

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I KIRTTIMAYEE SARANGI, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to do the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any research degree in any other University/Institute.

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Research Scholar

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LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
APC	Agricultural Prices Commission
APEDA	Agricultural and Processed Food Products Export Development Authority
APMC	Agricultural Produce Market Committee
BPL	Below Poverty Line
CAA	Constitution Amendment Act
CLFs	Cluster Level Forums
DAFW	Department of Agriculture and Farmers’ Welfare
DARE	Department of Agricultural Research and Education
DDA	Deputy Director of Agriculture
DDU-GKY	Deen Dayal Upadhyay Grameen Kaushalya Yojana
FAO	Food and Agriculture Organization
FCI	Food Corporation of India
GDI	Gender Development Index
GEM	Gender Empowerment Measure
GIAHS	Globally Important Agricultural Heritage system
GP	Gram Panchayat
GPLFs	Gram Panchayat Level Federations
HYV	High yield seeds
ICAR	Indian Council of Agricultural Research
ILO	International Labour Organization

IMF	International Monetary Fund
KALIA	Krushak Assistance for Livelihood and Income Augmentation
KBK	Kalahandi, Balangir, and Koraput
LPG	Liberalisation, Privatization, Globalization
MANAGE	National Institute of Agricultural Extension Management
MDGs	Millennium Development Goals
MFALDA	Marginal Farmers and Agricultural Labourers Development Agency
MMMSY	Mukhya Mantri Mahila Sashaktikarana Yojana
MSP	Minimum Support Price
NABARD	National Bank for Agriculture and Rural Development
NAS	New Agricultural Strategy
NPM	New Public Management
NREGP	National Rural Employment Guarantee Programme
NSA	Net Sown Area
OPRM	Orissa Poverty Reduction Mission
PRIs	Panchayati Raj Institutions
PMEGP	Prime Minister's Employment Generation Program
PMKVY	Pradhan Mantri Kaushal Vikas Yojana
RLTAP	Revised Long-Term Action Plan
SAARC	South Asian Association for Regional Cooperation
SC	Scheduled Castes
SDGs	Sustainable Development Goals

SFDA	Small Farmers Development Agency
SHGs	Self-Help Groups
SJGSY	Swarna Jayanti Gram Swarozgar Yojana
ST	Scheduled Tribes
TADP	Tribal Area Development Programme
U. N	United Nations
WCDMS	Women and Child Development and Mission Shakti

CHAPTER- I INTRODUCTION

1.1 Introduction

1.2 Theories on Agricultural Development

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- Tools for Data Collection
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CHAPTER- I INTRODUCTION

1.1 Introduction

Chapter One serves as the introductory chapter, providing a comprehensive overview of the contextual landscape of development and the pivotal role of women in shaping its progress. This chapter sets the stage for understanding the broader framework of development while showcasing the essential role women play in fostering sustainable growth and societal advancement.

Gender represents the social dynamics between men and women. It describes the connections and interactions among men, women, boys, and girls, shaped by societal norms and constructs. In socially constructed, it includes acceptance of men and women with their related power and value (Deaux, K., 1985). Gender or personal identity encompasses the distinct roles, characteristics, attitudes, behaviours, and styles of dress that individuals adopt to convey their self-expression. This means gender is not only something socially made but also it is including the men and women's relationship (Ibid). Gender comes from the Latin word "genus" which means type or race. It is defined as "a kind, sort, or class referring to the common sort of people" (Torgrimson & Minson 2005). A feminist writer Simone de Behaviour point out, "one is not born a man but becomes one" and, "one is not born a woman but becomes one" (Jenkins,2016). Sex is a word that define the biological contrast between males and females the visible distinctness in genitalia, and the related differences in procreative function (Oakley,1985). Sex is what we are born with; it is universal and not varied from culture to culture and from time to time (Little, 2016). The biological term "sex" describes the morphological, functional, and behavioural characteristics of living things that are dictated by their sex chromosomes. Derived from the term "sexus" in Latin. It signifies the two categories of organic life traditionally classified as male and female. According to the Oxford English Dictionary, sex (noun) refers to the collective differences in reproductive anatomy and function that differentiate males and females, along with the related physiological characteristics and phenomena. (Torgrimson & Minson 2005).

Feminist thinkers and developmental theorists realize that gender inequality is one measure of social progress and the nation-building process. This forms the basis of gender and influences the development approach. Around 1960, the women's movement took its first step in the name of gender equality throughout the western world. In the period of 1950-60 most of the Latin American and African nations are recently got their Independence and almost all the countries are adopting the liberal approach and distributive justice in their policy formulation process. In this period poverty is playing a master role to bring the issues of gender inequality into the developmental approach. In the year of 1962, the UN (United Nations) General Assembly instructed a commission to make a study on women's contribution in development. In 1975 the inaugural world conference on women was took place in Mexico City which is again a major step bringing issues in the developmental approach, also this conference explains the women's condition in patriarchy and capitalist society. Then the SAARC (South Asian Association for Regional Cooperation) declared 1991-2000 decade as the "SAARC decade of the girl child". In 1995 the historic Beijing Declaration declared that decision-making power can empower women. Followed by all this progress gender development was divided in two way one is GDI (Gender Development Index) which mainly talks about the gender gap in education, income, and inequality in life expectancy. Other one is GEM (Gender Empowerment Measure) which mainly talk about inequality in the area of political participation and decision-making process. The Feminist theory primarily examines gender politics, power dynamics, and sexuality. Politically feminist deals with domestic violence, equal pay, sexual harassment, and discrimination. But developmental feminism discussed inequality between gender, absence of women in developmental policy or decision-making power (Mohanty, 2014).

Feminism is a movement that include women from different background. Gradually the First Wave of the feminist movement starts in the latter half of the 19th century. In this feminist movement, they focused on equal contract right and property right. And it ended by giving women voting right. So, this wave of movement empowered women politically. The early 1960s saw the start of the second wave of the feminist

movement, which continued until the late 1980s. In USA the second wave of movement emerge as a civil-right movement. Betty Friden (1963) critically describes about the status of women in present society by her book, '*The Feminine Mystique*'. The Third wave of feminism starts from the year of 1990. New ideas of feminism were taking entry in this movement they are Post structural and postmodern feminism. This wave of feminism movement emphasizes on gender issues and fight for transgender politics. This wave of movement focusses more on poverty, gender issues, critical idea on development. After this movement, different types of feminists emerge such as black feminists, lesbian feminists, and liberal feminists.

Now feminism became important in international agencies dealing with development problems and to solve this problem, a new theory emerge internationally known as feminist theory (Zubieta, 2010). A society cannot achieve competitive conditions if a female gender, who constitute half of the population, do not benefit from development (Ibid). According to the Richard Peet and Elaine Hartwick, "feminist theory mostly focusses on gender politics, power relations and sexuality. Politically feminist deals with domestic violence, equal pay, sexual harassment, discrimination." But by, development feminist discussed inequality between gender, and the absence of women in developmental policy or decision-making power and try to reformulating the developmental theory.

Public administration is one of the primary institutions responsible for implementing national policy and tasks in which women should be included equally. Including women participation in public administration brings women priority in policy making and get equal access to public service. The gender development approach also ensures gender balance in workplace and support gender equality in policy framework. Also, public administration is guided by the principle of justice, fairness, and equality. So, ending gender gap in public administration is much more important for restore trust and faith in public institution and build confidence and enhance sustainability in responsive public policy (Demirbas, 2008).

Reflecting on the development history, agriculture has been a recurrent topic in global debates since the 1950s, marking the inception of global development cooperation.

Initially, in the 1950s and early 1960s, manufacturing industries were prioritized in development efforts, relegating agriculture to a secondary role. However, the narrative shifted soon after, placing agriculture at the forefront when addressing issues related to growth and a global food crisis. During the period of 1960s to 1970s, within the classical paradigm of developmental economics, agriculture was viewed as a tool for driving industrialization. This era also marked the onset of the Green Revolution, which averted mass famine and saved countless lives. Agriculture continued to hold move slowly on the political agenda until the 1980s. However, a change occurred by the late 1970s and early 1980s, there was a switch towards anti-agricultural policies and the promotion of import substitution industrialization. As the sustainability concept gained traction around the 1990s, agriculture for development began to be viewed beyond purely economic terms. Henceforth, ecological and social considerations had to be given equal importance alongside the economic dimension in development of agriculture (Herger, 2020).

Since the publication of the “World Developmental Report” 2008 titled “Agriculture for Development,” agriculture has once again been thrust into the limelight as a significant factor in addressing the global challenge of penury alleviation and economic growth. William Nicholls posits that when agricultural productivity in the food sector reaches a sufficiently high level, a nation can achieve a significant food surplus. This surplus can be exported on favorable terms, which, in turn, can positively impact the balance of payments and support domestic industrialization (De Schutter, 2009). Many developing countries had previously overlooked agriculture in their development strategies, particularly since the advent of the Washington Consensus and the implementation of import substitution industrialization following the debt crisis. It's apparent that low-income agrarian economies often neglect the needs of food producers (Herger, 2020).

Agriculture, often regarded as the world's oldest profession, serves as the foundation for sustaining human life. This sector remains a crucial source of livelihood for societies across the globe. Advancing the agricultural industry is prioritized not only to ensure reliable access to food and alleviate poverty but also to support the sustainable growth of the broader economy. Establishing the necessary conditions to

maximize agricultural potential is called as agricultural development (Barrett, 2011). In recent years, nearly every region of the developed world has experienced significant agricultural transformation. Advances in farming techniques have contributed to increased incomes, better health, and stronger economies. Over the past year, global attention has shifted back to agriculture to address the challenges of rising food prices and growing population concerns.

International organizations, particularly the World Bank, have played a proactive role in promoting agricultural development through financial assistance, policy support, and research-based interventions aimed at enhancing productivity and reducing rural poverty (Barrett, 2011). When we are talking about agricultural development, we cannot ignore the role of women for decades. Globally 43 percent of agricultural labour work is done by women (Doss, & Sofa, 2011). As women share half of the sky in a nation it is necessary to discuss about their wants and requirements for the development of a nation.

The feminization of agriculture refers to the growing involvement of women in all areas of agricultural work. Women often get neglected in the process of policy formulation. But Feminization allows women to control their labour and their own decision and engage with the decision-making process, and when it comes to agricultural activities it can be interpreted as three-way in increasing the percentage of women who are economically actively participating in agricultural work. Increasing the percentages of women labour in agricultural work and increasing the percentages of women who control and enact the agricultural activities (Kelkar, 2007). Rural women have been engaged in agricultural activities since the dawn of agriculture.

This participation is varied from region to region. It is seen that Neo-liberal market policy and commercialization of agriculture both are the most important factor to increasing factors increasing women's participation (Ghosh, 2018). Across the geographical region, it is seen that women work longer hours compare to men. Especially the above sentence is more justified for rural areas.

The United Nations report on the Sustainable Development Goals highlights the vital contributions women make daily, from earning income as wage workers to creating employment opportunities as entrepreneurs, and caring for their families and elders. However, women in agriculture face unique challenges. For example, a female farmer may face challenges in reaching the same level of agricultural productivity as her male peers due to restricted access to vital resources like seeds, credit, technology, and extension services.

Furthermore, land ownership among women remains disproportionately low, with only 20percent of landowners worldwide being women. (UN, 2018). Women play the multifunction role as daughter, mother, wife, and sister, and their activities are mainly confined within the boundary of four walls. Especially in rural areas, women take responsibility of all the household activities as well as she is responsible for maximum farm activities from sowing to harvest. In the word of Shakuntala Narasimhan, rural women carry triple handicaps first as a woman, second as a rural person, and third to be a Schedule caste and Schedule tribe person (Ahmed, 2016).

In developing nations, it is practically seen that women make essential contributions to the rural economy. But in respect of every index of well-being - education, health, income, employment, and ownership rural women are lack behind. Globally 94percent of women in rural area work in unorganized sector, making it difficult to enforce the legal provision in practice (Prasad, 2017). Women's involvement in agriculture differs significantly over different areas and even within a single area, based on ecological sub-zones, agricultural systems, castes, and social classes. Despite these differences, women actively participate in almost all aspects of agricultural production, with the exception of ploughing. In reality, they form the biggest group of landless farmers, as the majority do not own farmland. Even though women contribute extensively by working in fields, managing households, engaging in off-farm activities, and participating in markets, decision-making across these sectors often remains dominated by their male counterparts. (Agarwal, 2019). To ensure the sustainable development of agriculture, it is essential to recognize the vital role of women in the field and work towards reducing the challenges they encounter. Due to gender discrimination, women farmer is neglected and they do not

get what they deserve, which affect their socioeconomic status and also affect their decision-making power. Despite the very important role played by women workers, they fill inferior to their male counterparts. So, from the very grass-root level, the government should notice and realize their problem and try to fix it.

Achieving gender equality is essential for the progress of society because 50 per cent of the human resources are under development and this 50 percent of the population could not get an equal share because it comes from the group called women. If the better half of the society could not get its due share properly it is impossible for a society to grow (Agrawal,2009).

Achieving gender equality is particularly crucial for a country like India, where women constitute nearly half of the population but continue to face widespread social, economic, and political disparities. Despite significant strides in education, employment, and political representation, a large section of Indian women remains marginalized due to deep-rooted patriarchal norms and structural inequalities. When such a vital segment of the population is denied equal opportunities and resources, the nation's full potential remains untapped. For India to progress holistically and sustainably, it must ensure that women are not just passive beneficiaries but active participants in development. Empowering women through equitable access to education, healthcare, employment, and decision-making roles is not merely a social obligation it is a strategic imperative for national growth and prosperity.

In the state of Odisha, gender equality remains a critical concern, especially in rural and tribal regions where traditional norms and socio-economic challenges hinder women's progress. While the state has made notable efforts through various schemes and programs to promote women's education, health, and empowerment, disparities still persist. In many parts of Odisha, women continue to face restricted access to resources, low participation in decision-making processes, and limited economic independence. These challenges are further compounded by poverty and lack of infrastructure, particularly in backward areas. Empowering women in Odisha is essential not only for improving their individual well-being but also for fostering inclusive and sustainable development across the state.

The KBK(Kalahandi, Bolangir, and Koraput) districts refer to a cluster of eight backward districts in the southwestern region of Odisha, namely Kalahandi, Bolangir, Nuapada, Sonepur, Koraput, Nabarangpur, Malkangiri, and Rayagada. The term "KBK" originally stood for Kalahandi, Bolangir, and Koraput, but it was later expanded to include the adjacent undivided districts for planning and developmental purposes.

These districts are predominantly tribal and rural, marked by chronic poverty, low literacy rates, poor health infrastructure, and frequent droughts and food insecurity. Despite being rich in natural resources, the region has long remained economically and socially marginalized. To address the persistent underdevelopment, the Government of India and the Government of Odisha have launched several special development packages and programs targeting the KBK region, with a focus on livelihood enhancement, women empowerment, education, healthcare, and infrastructure development. In these districts, the condition of women is even more precarious due to the intersection of tribal identity, economic marginalization, and gender discrimination. Women here are often engaged in subsistence agriculture and wage labor, yet their contributions go largely unrecognized and unrewarded. Access to education, healthcare, and government welfare schemes remains limited. Without targeted interventions aimed at uplifting women in the KBK region such as skill development, SHG participation, and better access to basic services true gender equality and regional development will remain out of reach. Further detail discussion about the KBK district has been incorporated in Chapter II.

1.2 Theories on Agricultural Development

This segment explores prominent theories of agricultural development as proposed by scholars such as Mellor, Lewis, and Schultz. These theories primarily address the structural constraints faced by economies characterized by surplus labour. Lewis's dual-sector model argues that in underdeveloped countries, excess labour exists in the agricultural sector where its marginal productivity is close to zero. He proposes that transferring this surplus labour to the industrial sector can drive economic development. Mellor's theory emphasizes the need for transforming traditional

agriculture through improved technology, infrastructure, and market access, aiming to enhance productivity and reduce rural poverty. Schultz, on the other hand, focuses on the concept of human capital in agricultural development. He argues that investment in education, health, and skills training for farmers is essential to increase efficiency and support modernization in agriculture. Together, these theories provide valuable insights into the transition from subsistence-based agriculture to a more productive and diversified rural economy.

Mellors Model of Traditional Agriculture

Mellor describes traditional agriculture as the initial phase characterized by primitive, labor-intensive practices. This phase is technically stagnant, where increases in production are achieved by using traditional inputs more extensively. He proposed systematic and pragmatic strategies to transition traditional agriculture into a modernized form. Addressing regional disparities requires deliberate and well-structured efforts, particularly for the development of the KBK districts. Development goes beyond economic progress, encompassing an ongoing process of enhancing people's quality of life. The development's focus has changed from merely boosting GNP to generating employment and meeting fundamental needs such as social, cultural, and welfare requirements (Mellor, 1974). In less developed areas, the primary challenge is to uncover and harness latent development potential, which includes natural and human resources, physical infrastructure, technology, and institutional as well as social assets (Mellor, 1966).

According to Mellor (1966), agriculture within an economy can be categorized into three distinct phases:

1. Traditional Agriculture or Pre-conditions for Agricultural Development
2. Increasing Agricultural Production with Low Capital- and Labor-Intensive Technology
3. Increasing Agricultural Production with High Capital and Labor-Saving Technology

In the second phase, agriculture plays a critical role in driving overall economic growth. The introduction of new inputs with high marginal productivity enhances the efficiency of traditional inputs by raising their marginal productivity. Essentially, the adoption of modern inputs elevates the production capacity of traditional inputs. These modern inputs involve the development of supportive institutions that incentivize technological advancements, establish infrastructure, and promote research initiatives. For the smooth progression, Mellor highlights several essential elements, i. Implementing institutional reforms. ii. Promoting research efforts. iii. Providing new and enhanced inputs. iv. Strengthening institutions to support agricultural production. v. Improving communication systems. vi. Establishing educational institutes for training purposes (Viner, 1953).

Mellor's definition of traditional agriculture is pragmatic, describing it as a backward system reliant primarily on labour as the main production factor. He contends that withdrawing labor from such agriculture would lead to a decline in agricultural output. However, he does not deny the existence of disguised unemployment in the agricultural sector. Mellor's transformation suggestions for agriculture prioritize institutional changes such as land reforms and improved marketing and credit facilities. He advocates for government intervention to foster the development of agriculture (Mellor, 1974).

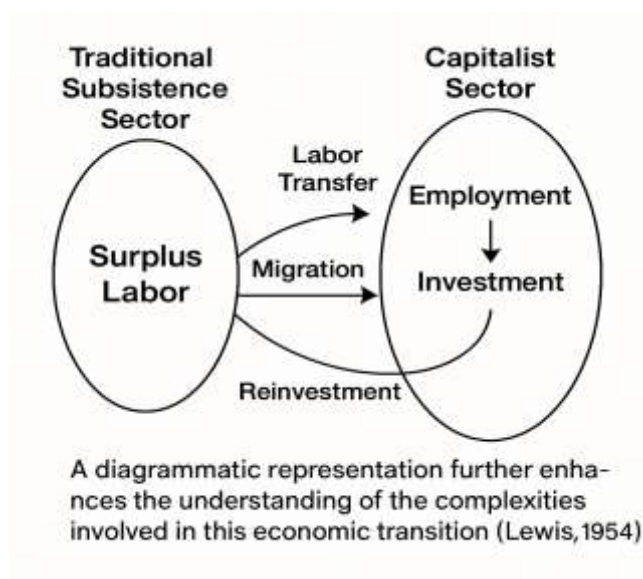
Administrators are responsible for allocating resources efficiently to rural areas, planning land reforms, and promoting market access to boost productivity. Government programs designed to promote innovation and education in agriculture rely on strong administrative frameworks to reach small and marginal farmers. Public administration plays a pivotal role in this transformation, particularly by creating policies and systems that are inclusive of women, who form the backbone of traditional agriculture. Integrating gender concerns into agricultural strategies is crucial for equitable and sustainable growth.

Lewis Model of Dualistic Economy

Nobel laureate W. Arthur Lewis introduced the Lewis model in 1954, aiming to explore how economies transition from a survival stage to modern industrialization by utilizing surplus labour. This model focuses on the structural transformation of underdeveloped economies, particularly the shift from agriculture to industry. In Lewis's framework, the underdeveloped economy is characterized by a surplus of unproductive labour in agriculture. The model suggests that profits generated by charging prices above fixed wage rates are reinvested into the business as fixed capital, driving economic growth. Lewis categorizes the economy of a developing nation into two primary sectors: the capitalist sector and the subsistence sector. He argues that in less developed countries, there exists a surplus labour force that is willing to work for minimal wages to meet basic needs. According to Lewis, economic development occurs through capital accumulation, which is facilitated by the withdrawal of surplus labour from the subsistence sector and their employment in the capitalist sector. This transition of labour from agriculture to industry is seen as crucial for driving economic progress. In the Lewis model, the agricultural sector encounters a fundamental limitation: the finite amount of cultivable land results in zero marginal productivity for additional farmers due to the fixed input of land. Consequently, a significant portion of agricultural labour contributes negligibly to overall agricultural output, hence labelled as surplus labour. This surplus labour pool can transition to alternative sectors without detrimental effects on agricultural productivity. Driven by wage disparities between the capitalist and subsistence sectors, labour gradually shifts from agriculture to manufacturing over time in pursuit of higher wages. Although these migrating workers may have low individual productivity, they still benefit from the overall output and receive wages that correspond to the average productivity level.

As labour migrates, agricultural wages rise owing to increased marginal productivity, while manufacturing wages decline due to diminishing productivity in the face of increasing labour supply. Eventually, equilibrium is reached where wages in both sectors equalize, and the marginal productivity of labour becomes uniform. This phenomenon signifies the point at which there is no further monetary incentive for

labour migration, leading to a halt in the expansion of the manufacturing sector. The Lewis model elucidates these dynamics, demonstrating the process of labour migration and its consequential impact on sectoral wages and productivity. Diagrammatic representation further aids in understanding the intricacies of this economic transition (Lewis,1954).



Source: Leeson, P. F. (1979). *The Lewis model and development theory. The Manchester School*, 47(3), 196-210.

The diagram illustrates Lewis's Dual Sector Model, which explains the structural transformation of an economy through the movement of surplus labor from the traditional subsistence sector to the capitalist or modern industrial sector. As labor migrates and is absorbed into modern industries, the capitalist sector expands through reinvestment of profits, facilitating continued labor absorption. This process persists until surplus labor is exhausted, resulting in equilibrium where wages and productivity equalize across both sectors—signifying a pivotal stage in economic development.

Administrators and policymakers utilize the Lewis model to formulate strategies aimed at addressing rural poverty and underemployment. Public administration plays a critical role in this transition by supporting infrastructure development, modernizing agriculture, and enhancing service delivery in rural areas, thereby

narrowing the gap between the traditional and modern sectors. Government initiatives such as rural development programs, employment generation schemes, and public budgeting are instrumental in reducing dependency on the subsistence sector and promoting modern sector expansion.

Within this context, women constitute a substantial portion of the labor force in the traditional agricultural sector, particularly in countries like India. The Lewis model identifies this sector as labor-surplus, where women's contributions are often undervalued or unpaid. However, their transition to the modern sector is impeded by barriers such as limited education, restricted mobility, lack of land ownership, and inadequate access to technology. Public administration can facilitate women's economic advancement through gender-sensitive policy interventions, vocational training, access to credit, and land reform measures—thereby promoting inclusive and equitable development.

Schultz's Theory: Theory of Human Capital

In his depiction of traditional agriculture as the oldest form of societal production, Schultz described it as being inherently conservative, largely due to farmers having maximized the profitability of available production techniques. Only those with access to and the knowledge of implementing science and new technology can increase productivity, even on marginal land with limited labour resources.

Schultz (1960:571) offers a thorough and insightful analysis of this issue in his book "Transformation of Traditional Agriculture". Describing traditional agriculture as the oldest form of societal production, Schultz suggests that its inherent conservatism is not solely due to specific preferences related to work and thrift. Rather, he argues that this conservatism primarily stems from farmers having maximized the profitability of the available production techniques. He outlines two policy approaches for encouraging farmers to adopt new factors: There are two primary approaches: the market approach and the command approach. In the market approach, farmers have the autonomy to decide whether to adopt new inputs based on their potential profitability. The government's role is primarily to support the development and distribution of these inputs, improve farmers' skills, raise

awareness, and provide accessible credit. On the other hand, the command approach entails direct state intervention, where the government mandates the use of specific inputs. Under this system, the state supplies the necessary inputs, and farmers are obligated to utilize them. In exchange, they must allocate a portion of their agricultural output to the state.

He supports the market-driven approach to agricultural transformation while overlooking the economic challenges faced by underdeveloped nations. In these economies, markets are often inefficient and poorly structured, requiring state intervention and regulation, especially in the early stages of development. Schultz's analysis primarily emphasizes economic factors in the transition of traditional agriculture, neglecting crucial non-economic barriers such as cultural beliefs, resistance to change, and fatalistic attitudes among farmers. These social and psychological factors play a significant role in hindering the adoption of new agricultural inputs but have not been sufficiently addressed in his framework.

NPM focuses on measuring performance and regulating behaviour through external targets, results, and efficiency (Andrews, 2016). In contrast, Alfred Schutz highlights the importance of personal experience, meaning, and social context in understanding human actions (Muzzetto, 2006). This difference becomes important in areas like welfare, education, or rural development, where people's real experiences such as those of frontline workers or community members often do not match the targets and expectations set by NPM. Relying only on a managerial approach can ignore these complex realities, which Schutz's perspective helps us to better understand.

In the context of this study which focuses on the lived experiences and roles of women in agriculture and rural development this contradiction becomes especially significant. While policy reforms may promote efficiency and output (as per NPM), the actual participation and empowerment of women in self-help groups, agricultural labour, or village governance must also be understood through their subjective experiences, cultural roles, and social meanings, as Schutz would advocate.

Within the broader theoretical framework of development and governance, New Public Management (NPM) offers a practical approach to achieving inclusive and

efficient public service delivery. Following economic theories such as Human Capital Theory and models like Lewis's Dual Sector and Mellor's Agricultural Transformation, NPM introduces administrative reforms that emphasize efficiency, decentralization, and accountability in addressing rural and gender disparities.

1.3 Review of Literature

Before commencing any study, it is essential to conduct a comprehensive review of existing research on the topic to ensure conceptual clarity and enhance the methodology of the intended research. A literature review is a study involving scholarly materials to have a thorough knowledge about the research topic and the field of research. Against this background, previous studies related to the present research have been reviewed under various thematic categories, including gender dynamics, women's role in agriculture, women and rural development, rural women's participation in agriculture, gender-based agricultural wage preferences, the impact of technology on female farmers, Self-Help Groups (SHGs) and women's employment, policies supporting women's involvement in agriculture, and the challenges faced by women in agricultural activities.

Gender role in agriculture

Food and Agriculture Organization (2008), in the report, "Agriculture and Rural Development", suggests that the role of women is crucial for agricultural development and achieving the Millennium Development Goals (MDGs). The report defines gender as encompassing the economic, social, political, and cultural attributes and opportunities associated with being male or female. Women encounter significant gender-specific challenges and vulnerabilities in comparison to men, primarily due to prevailing structures within households and societies. A frequently mentioned barrier to effectively addressing gender issues is the lack of resources, knowledge, and effective practices among practitioners to incorporate gender perspectives into their work, particularly at a time when the sector is experiencing significant transformation.

World Bank (2009), in the report, “Gender in Agriculture Sourcebook”, refers to the relationships between men and women, encompassing both social perceptions and material aspects. Unlike biological distinctions based on physical traits, gender is a socially constructed concept that plays a fundamental role in shaping societal structures. It influences various processes, including production, reproduction, consumption, and distribution. However, despite this broader definition, gender is often misunderstood as being solely concerned with women's advancement.

Razavi (2012), in the report, “Gender equality and development-A commentary”, defines gender as the socially constructed traits of women, men, girls, and boy. These characteristics encompass the norms, behaviours, and roles linked to being female or male, as well as their interactions with each other. Since gender is a social construct, it differs across societies and can evolve over time.

Sharma (1984), in the article, "Caste, Class, and Gender: Women's Role in Agricultural Production in North India", highlighted that women's participation in agricultural production was influenced by caste and class structures. The study pointed out that capitalist development policy negatively impacted Indian women, pushing them towards casual and unskilled labour. While the proportion of women in agricultural workforces increased, the number of women cultivators declined, leading to their marginalization in decision-making roles within the sector.

Buvinic et al. (1990), in their book, "Women in Agriculture: What Development Can Do?", analysed women's roles in agriculture in developing countries before 1970. The study provided an in-depth examination of women's participation in agricultural activities and linked farming system evolution to technological advancements, population growth, and women's involvement in the labour force. The research highlighted the significant yet often overlooked contributions of women to agriculture

Good (2002), in the book, "Routinized Injustice: The Situation of the San in Botswana," emphasized that while women play a crucial role in economic growth and national development, they face numerous barriers to accessing essential agricultural resources. These challenges include social and religious constraints, limited land ownership rights, lack of literacy and awareness, inadequate financial resources, and insufficient training in modern agricultural practices.

Nain et al. (2010), in the article, "A Study of Women Participation and Decision Making in Farm Management," found that women played a crucial role in nearly half of the twelve primary farm management activities. Their participation rates were particularly high in tasks like weeding and harvesting (96.66%), transplanting (93.33%), and storage (71.66%). However, their involvement was lower in field preparation (38.33%), marketing (23.33%), sowing and irrigation (20%), and fertilizer application (11.66%), as these activities were predominantly handled by men.

Oladejo, et al., (2011), in their article, "Analysis of Women Participation in Agricultural Production in Egbe Dore Local Government Area of Osun State, Nigeria," discovered that a majority of women involved in farming had little or no formal education. It was observed that women with higher education levels were more likely to seek employment outside agriculture. Factors such as household size, marital status, and cultural traditions significantly impacted women's participation in farming activities. However, years of experience in agriculture had little influence on the level of women's engagement in the sector.

Sharma et al. (2012), in the article, "Women Empowerment in Agriculture and Its Dimensions," explored the multifaceted nature of women's empowerment in agriculture. Various studies associated empowerment with autonomy and freedom, emphasizing its complexity and multidimensional aspects. The study suggested that improving women's access to agricultural resources and decision-making opportunities could contribute to sustainable development by enhancing livelihoods and reducing food insecurity.

Singh (2013), in the article, "Gender Participation in Indian Agriculture: An Ergonomic Evaluation of Occupational Hazards in Farm and Allied Activities," underscored the vital role of female labour in agriculture. Despite their extensive involvement in activities such as sowing, transplanting, and post-harvest processes, women's contributions often remained unrecognized. The study highlighted the need for greater acknowledgment of women's labour in the agricultural sector.

Slathia (2015), in the article, "Participation of Women in Agricultural Production: Agriculture towards a New Paradigm of Sustainability," examined women's significant role in agriculture, covering primary crop production, livestock management, horticulture, and post-harvest processes. The study noted that women were responsible for approximately 70 percent of farm work but faced challenges such as unequal access to productive resources, which hindered their ability to enhance agricultural productivity.

Nayak et al. (2015), in the article, "Developing Social Capital through Self-Help Groups", explored the impact of Self-Help Groups (SHGs) on social capital accumulation among women. The study examined how an individual's socio-economic status before joining an SHG influenced their ability to build social capital. It also highlighted the reciprocal relationship between social capital growth and the effectiveness of SHGs in promoting economic, social, and political empowerment.

Patil et al. (2018), in their book, "Role of Women in Agriculture Sector of India", discussed the significance of women in agriculture, particularly in developing countries where agriculture serves as a driver of economic growth and poverty reduction. The study pointed out that women, despite being primary food producers, often lacked equal access to productive resources, which limited their ability to maximize agricultural output.

Maheshwari, et al. (2018), in the book, "The Role of Women in the Indian Agriculture Sector", analysed gender disparities in agricultural wages and employment. The study highlighted that, despite increasing female employment, significant wage gaps persisted between men and women in the sector. Additionally, lower education levels often restricted women to subsistence agriculture. The research emphasized the importance of studying the impacts of globalization and liberalization on women in agriculture and suggested that well- designed policy interventions could help women benefit from economic openness in the sector.

Hasan et.al. (2021), in their book, "Global Initiatives in Agricultural, Forestry and Applied Sciences", is divided into five chapters, with each chapter focusing on different aspects of organic farming. The first chapter, "Improving Water Productivity in Conservation Agriculture," explores the principles of conservation agriculture. Here, the authors emphasize techniques such as minimal mechanical soil disturbance and the establishment of permanent organic soil cover as key strategies. Throughout the book, the authors provide a systematic examination of the objectives, principles, effects, and various components of organic farming. Their comprehensive approach not only educates readers but also underscores the importance of organic farming in promoting a healthier nation. The increasing demand for organic products further underscores the relevance and potential for growth in this sector. By emphasizing sustainable practices and the benefits of organic farming, the authors contribute to the discourse surrounding agriculture and environmental stewardship. Overall, the book serves as a valuable resource for understanding and implementing organic farming methods, offering insights into how such practices can contribute to improving agricultural productivity, environmental sustainability, and public health.

Rural Agricultural Women and Access to Technology

Nelasco (2010), in the book, "Status of Women in India", describe about multiple roles play by women but still she has under recognition. She describes that in rural area women has the responsibilities of collecting fuel wood, fetching drinking water,

and as well as take part in agricultural activities from sowing to harvest. In this she gives brief information about women Empowerment, empowerment is all about balance of power. Women empowerment is influenced by multiple factors, including physical, socio-economic, political, and psychological aspects. It can be defined as a process through which women gain control over resources, enabling them to make independent decisions and enhance their overall well-being. Also, she describes why women's empowerment is necessary. According to her 50 percent of the human resources is under development and these 50 percent of the population could not get the equal share because it comes from the group called women.

Bettina (2017), in the article, "Gender and Rural Globalization: International Perspectives on Gender and Rural Development", examines the evolving dynamics of rural gender relations on a global scale. The article explores how these relationships are shaped by increasing interconnectedness and mobility, influencing various regions differently. It integrates global experiences by discussing themes such as migration, agriculture, gender identities, and international development.

Calicioglu (2019), in the report, "Women's Access to Rural Finance: Challenges and Opportunities", highlights the financial barriers women face in rural areas. This technical paper reviews key constraints on both the demand and supply sides that limit women's access to agricultural and rural financing. It also proposes strategies to overcome these barriers, showcases best practices, and provides policy recommendations aimed at improving women's financial inclusion.

Wijewardhana et al., (2021), in their report, "Enhancing Rural Women Empowerment", emphasize the crucial role of women in the rural economy as farmers, wage earners, and entrepreneurs. The report highlights that rural women contribute significantly to household well-being by ensuring food security and caring for dependents. Additionally, women from indigenous and grassroots communities play a key role in preserving traditional knowledge essential for livelihoods, resilience, and cultural identity. However, rural women often encounter social and economic barriers, including gender discrimination, a disproportionate share of

unpaid labour, and restricted access to economic opportunities. Promoting gender equality and empowering rural women through productive employment contributes to sustainable economic growth, poverty reduction, food security, and climate resilience. The International Labour Organization (ILO) advocates for a comprehensive approach to rural women's empowerment through international labour standards, social dialogue, and the recognition of their role in climate action.

De (2021), in her article, "Gender and Agriculture: Case of Women Participation in Rural Odisha", examines the challenges women face in the agricultural sector in rural Odisha. The study highlights how the gender-based division of labour in agriculture assigns women a subordinate role due to prevailing social norms. The research compares women's participation in irrigated and non-irrigated villages, revealing disparities based on caste and tribal status. Tribal women are often employed as agricultural labourers at lower wages, whereas higher-caste women primarily assist in family farms without direct decision-making power. Women had little said in farm-related financial decisions, such as crop selection and fertilizer purchases. Additionally, both working and non-working women expressed aspirations for greater workforce participation. The study underscores how gender disparities create systemic obstacles for women in agriculture, reinforcing discrimination across various aspects of their lives.

Devi (1988), in her book, "Rural Women Management in Farm and Home", discusses rural women who manage both farm activities and household chores simultaneously. It highlights that the majority of working women in India are engaged in agriculture, either as cultivators or as agricultural labourers. Through this book she highlights the point that now the present situation of rural women has been critically manifestation of the growing imbalance, which not only create threat for the development of rural women but also create threat for socio-economic development of a nation. Because the rural women play an important role in rural economy of the country. This study also categories the role of women based upon their role performance. She also described that rural woman earns less but work hard and have little knowledge about technology so they are unable to take advantages of the

facilities available for them. She also describes those cultural barriers and taboos are some main huddles for rural women to take part of certain farm activities also. Economically also they are not self-sufficient to deal with own agricultural issues.

Hossain et al. (2002), in their article, “women's participation in agriculture and related activities in the Kalahandi district of Odisha”, found that five key factors significantly influenced women's involvement in agricultural production. These factors included age, household size, education level, method of land acquisition, and type of agricultural enterprise. The study revealed that age, education level, and land acquisition methods had a statistically significant impact on women's participation in agriculture at a 1 percent significance level. This indicates that a woman's age, the level of education she attained, and the way land was acquired in her community played a crucial role in determining her level of involvement in agricultural activities.

Das (2006), in his article, “Technology and Women in India”, examine the impact of technology on women in rural India, highlighting that despite impressive economic growth and technological advancement, rural women remain marginalized. The study points out that technology, markets, and development are often considered gender-neutral, but in reality, there is a clear urban bias and rural neglect. Women in villages face a rigid gender division of labour, entrenched in cultural norms, and remain oppressed by social patriarchy. Economic growth has not improved their situation; instead, it has reinforced their confinement to domestic roles, leading to "housewifisation" rather than the "feminization of jobs." Despite gender empowerment being a popular concept in development discourse, it often remains vague and is overshadowed by male-dominated bureaucracies. Women are still viewed as a disadvantaged group needing welfare measures, rather than being seen as integral to the development process.

Dash (2007), in his book, “Development and poverty in an Indian state, A study of KBK districts Odisha”, describe about gender gap in rural areas of KBK districts of Odisha. in this book the author highlights about many areas such as health, education,

labour ratio of rural women. In this book he found that particularly in KBK district the rural women facing a lot of difficulties to accessing primary education. Because most of the house are located in the hill area which create problem in accessing education especially for women. Due to lack of awareness tribal children are go to work with their parents rather than going to school. Because most of the parents are staying below the poverty line. In this book, he also found that strong agricultural growth reduce poverty. He also highlights though the state of Odisha is full of natural resources the rural poverty is quite high compare to other places. According to him the development of poor backward state like Odisha depends upon the development of socio- economic transmission of rural areas. Also, the self-help group and due to the spread of education and favorable government policies toward rural development especially it changes the attitude of women towards non-traditional activities.”

Shetty (2009), in her book, “Women in agriculture and rural development”, explains how gender inequality in agriculture plays an important role. Particularly they talk about the role of women’s status in agricultural participation in India. They describe research and education as are two most important factors necessary for the prosperity of the country and as well as the agro-based economy. They divide the role of women in two types based on agricultural participation one type is the women scientist those who are developing technology for increasing agricultural productivity and another type is those who are receiving the technology. Also, they are pointing out some issues which create hurdles in the way of rural development these are bias in wages, economic deprivation, inability to use income generated by farm activities. They said gender differences exist in both works carried out by rural women as well as in wages they are paid. Farm women are also categorising into three types namely small farm labour, landless marginal labour, farm. But unfortunates the contribution of women in agricultural production has not been given its due status due to lack of interest, information and equally by negate.”

Munmun et al. (2015), in his book, “Women's participation in agricultural activities at forest land areas of Bangladesh”, define various socioeconomic factors play a significant role in determining women's participation in agriculture. Key influences include age, education level, landholding size, family size, family structure, and the

number of adult males in the household. Studies indicate that age and tenancy status positively impact women's involvement in agriculture, whereas higher household income, education level, and the presence of more adult males tend to reduce their participation. Additionally, landholding size emerges as a critical factor, affecting nearly all agricultural activities, including women's engagement in the sector. While age and tenancy status encourage greater involvement, economic stability, educational attainment, and male presence within the household appear to limit women's agricultural participation.

Gandhi (2016), in his book, “Role of Rural Women in Agriculture”, highlights the crucial role that rural women play in agricultural development. It details their involvement in various stages of farming, from soil preparation to harvesting and food production in rural India. The research emphasizes that women in subsistence farming ensure the survival of millions worldwide. Additionally, it points out the social and religious norms that relegate women to secondary roles, making them vulnerable and dependent, leading to their exploitation as agricultural workers and farmers. Despite their significant contributions, most rural women do not own land or have access to essential agricultural resources. This article underscores the importance of women in agriculture while stressing the persistent inequalities they face.

Giroud (2019), in the report, “Investment in Agriculture and Gender Equality in Developing Countries”, discusses the impact of agricultural investments on rural women's empowerment and productivity. This report highlights the FAO's ongoing commitment to gender equality and women's empowerment as key strategies for combating hunger, malnutrition, and rural poverty. The FAO acknowledges the vital role of both rural women and men in achieving food security and improving nutrition and works toward eliminating gender inequalities that hinder agricultural sector performance.

Milovanovic (2019), in his book, “Population Aging in Rural India: Implications for Agriculture and Smallholder Farmers”, examines how education and age influence the type of agricultural tasks performed by women. Educated women are more likely

to seek higher-paying jobs outside farm labour, whereas middle-aged women contribute more significantly to agricultural work than younger women. With an aging agricultural workforce in India, the study suggests that younger women's participation in farming is expected to decline over time.

Kumar (2019), in his article, "Status of Women in Agriculture in the Coastal Districts of Odisha", provides an overview of women's participation in agriculture across seven coastal districts. The study reveals a gender gap in literacy, with female literacy rates above 60 percent but still lagging behind men by 14.5 percentage points. Despite their crucial role in agricultural production, women remain marginalized in various aspects. They have limited access to agricultural inputs such as fertilizers, advanced technologies, and modern farming techniques. Additionally, they often lack the necessary capacity to utilize these resources effectively. Social barriers, limited human capital, and restricted decision-making power further hinder their empowerment. The study highlights the need for structural changes to improve women's access to resources and opportunities in agriculture.

Paramasivam (2022), in his book, "Socio-Economic Characteristics and Empowerment of Women's Self-Help and Non-Self-Help Groups in Tamil Nadu", explores gender issues affecting women in agriculture. He notes that women perform approximately 70-80 percent of all fieldwork, with post-harvest tasks being primarily their responsibility. However, a strict gender-based division of labour exists, where men dominate activities involving machinery and draught animals. The author emphasizes the transformative power of education in empowering women and promoting rural development. He argues that empowering rural women is essential for the overall development of tribal and rural communities, as progress in these areas is unattainable without the upliftment of women.

Gender-wise variation in agricultural wage preferences

Mrunalini (2010), in her article, "Drudgery Experience of Gender in Crop Production Activities", explores the gender gap in agricultural development and emphasizes the need for equal distribution of benefits. The term "drudgery" refers to the physical and mental strain that negatively impacts work efficiency. The study highlights that a large

proportion of rural women in India are engaged in agricultural activities. The research aims to analyse gender-based drudgery experiences in crop production and suggests the adoption of appropriate technologies to alleviate such burdens. The findings serve as a guide for selecting technologies that can reduce work-related hardships for women in agriculture.

Das (2012), in her article, “Farmers’ Educational Level and Agricultural Productivity: A Study of Tribals of KBK Districts of Odisha”, examines the low awareness and adoption of modern farming techniques among Scheduled Tribes (STs) in the KBK region. The study indicates that while tribal farmers are aware of specific practices such as seed replacement (9%), summer ploughing (6%), balanced fertilizer use (12%), soil testing, seed sowing techniques (2%), and organic farming (7%), their adoption rates remain low. Additionally, non- ST farmers tend to exhibit slightly higher awareness and implementation of modern agricultural methods. The research underscores the importance of education in improving awareness and promoting the adoption of contemporary farming practices in tribal communities.

Das (2015), in her article, “Work Participation of Women in Agriculture in Odisha”, highlights the significant contribution of rural women in Odisha to agricultural activities. Women actively engage in every stage of farming, from cultivation to harvest, while also managing household responsibilities. Despite their crucial role, their contributions remain largely unrecognized. The study calls for better treatment of rural women and suggests policy measures to enhance their status and participation in agriculture.

Das (2015), in her article, “Work Participation of Women in Agriculture in Odisha”, observes that women in agriculture face numerous obstacles that hinder their progress and limit their social and economic mobility. These challenges often confine them to subsistence living, preventing them from advancing beyond traditional roles. The study also highlights women's exclusion from decision-making processes, both at the household level and in broader agricultural policies.

Mahajan (2017), in her article, “Rainfall Shocks and the Gender Wage Gap: Evidence from Indian Agriculture”, examines the wage disparity in India's agricultural labour market. The study attributes this gap to cultural constraints that limit women's participation in the workforce and the availability of non-farm job opportunities for men. A significant 55percent of wage gap was observed between the northern and southern regions of India, with 45percent of the variation remaining unexplained.

Mahata et al. (2017), in her article “Female Workforce Participation and Women Empowerment in Haryana”, analyse regional disparities in literacy rates, sex ratios, and women's workforce involvement in Haryana. Their study highlights the need for social and governmental interventions to enhance women's empowerment. They stress the importance of improving women's educational and social standing to bridge gender gaps and promote greater participation in the workforce.

Kundu (2019), in her article, “Gender Wage Gap in the Agricultural Labour Market of India: An Empirical Analysis”, examine wage disparities between men and women in India's agricultural sector. Despite the implementation of the Equal Remuneration Act of 1976, female wages remain lower than those of their male counterparts. Sengupta and Puri (2022) further emphasize that educational attainment significantly impacts wage differences across various industries. Factors such as limited education, family responsibilities, and career interruptions contribute to the gender wage gap. After controlling for various factors, the study finds that men still earn 4.29 percent more per day than women. The research suggests that government intervention, including revisions to minimum wage policies and stricter enforcement of equal pay regulations, could help address this disparity.

Swain et al. (2019), in her article, “Gender Disparity in Employment and Wages in the Rural Labour Market in Odisha: Some Survey Findings and Empirical Analysis”, identify a significant gender gap in employment opportunities in the Kalahandi district, particularly in farm-related activities. The study suggests that empowering women requires fostering collective organization and strengthening their rights to resources and decision-making.

Kaizer (2021), in his article, “Rural Women at Work: Bridging the Gaps”, examines the contributions of rural women, who constitute one-third of the global population, as wage earners, farmers, and entrepreneurs. Despite their essential role in the agricultural workforce, their contributions are often undervalued. Rural women are predominantly engaged in low- productivity, low-skill, and unpaid labour with long working hours. Released ahead of International Women’s Day 2018, this study outlines the challenges faced by rural women and proposes strategies to bridge the gender gap in agricultural employment.

Das (2022), in her article, “Livelihood Analysis of Women Agricultural Labourers in Cuttack District of Odisha”, investigate the challenges faced by female agricultural labourers in Cuttack, Odisha. The study highlights issues such as low wages, job scarcity, unemployment, and a lack of non-agricultural employment opportunities. The high cost of living further exacerbates their economic struggles, affecting both their work conditions and family life. Patel, (2023), in his article, “Rural Women: Key to New India’s Agrarian Revolution”, emphasize the critical role of financial empowerment in strengthening women's participation in agriculture. Their study focuses on the need for skill development and capacity-building initiatives to drive an agricultural revolution in India. By prioritizing financial inclusion and equipping women with essential resources, they advocate for a transformative approach that enhances agricultural productivity while fostering gender equality and socioeconomic progress in rural areas.

SHG and women's employment

Rath (2007), in his article, “Post evaluation study of the scheme of microcredit help to women self-help group (WSHG) in KBK districts of Orissa”, the study highlights that the WSHGs have significantly contributed to the empowerment of tribal and Scheduled Caste (SC) women by providing opportunities for income generation and promoting long-term economic activities. Access to microcredit has strengthened

women's financial services and livelihood support systems, enhancing their collective bargaining power. Being part of these groups has enhanced members' quality of life while also promoting self-sufficiency, dignity, and collaboration among women. This, in turn, has played a crucial role in their social and economic empowerment within this underdeveloped region.

Reji (2012), in her article, "Social Mobilisation, Savings Habit, and Access to Credit for the Poor through SHGs in Odisha", examines the role and impact of Self-Help Groups (SHGs) in improving financial access for the poor in Odisha. The study focuses on a total of 15,339 SHGs across the Ganjam, Gajapati, and Puri districts. It highlights that the SHG movement in Odisha has gained significant momentum, particularly with the introduction of the Mission Shakti programme, which has facilitated the formation of numerous SHGs, primarily involving women from Below Poverty Line (BPL) households. The research reveals that SHGs have played a crucial role in encouraging a savings habit among these women and enabling their access to credit from formal financial institutions. Despite these positive developments, the study points out that the levels of savings and access to credit among SHG members remain relatively low, indicating a need for further support. Author concludes that for the SHG movement to have a sustainable and long-term impact on its members, there is a need for continuous handholding support to strengthen the internal systems of these groups. This support will be essential in helping SHGs become self-sustainable and more effective in addressing the financial needs of their members.

Panda (2013), in his article, "SHG a change agent for rural women empowerment and entrepreneurship development in western Odisha", described about the crucial role of rural organization like SHG in development of women empowerment in western Odisha. SHG has become almost synonymous with economic empowerment of future. This paper is described about the financial improvement of a woman. It is important because through this SHG the women get a chance to deal with the financial matter. The SHG movement in Orissa has become almost synonymous with empowerment of villagers with an understanding of their legal, judicial and social rights and entitlements. SHGs can be a local platform through which a woman

becomes active in financial matters, stand for local elections, or address social or community issues.

Paramasivan (2013), in his article, "Conceptual Framework of Women Empowerment through SHG", emphasizes the crucial role of women's empowerment in third-world countries. He argues that empowering women is not only beneficial to the women themselves but also has far-reaching positive effects on their households, communities, and societies as a whole. Women's empowerment in developing countries can lead to improved family well-being, enhanced decision-making, and increased economic stability, which collectively contribute to societal progress. Paramasivan highlights that achieving this empowerment requires a more enlightened and comprehensive approach, acknowledging the cultural, social, and economic challenges that women face. He suggests that initiatives such as Self-Help Groups (SHGs) can be instrumental in fostering women's empowerment by providing them with opportunities for financial independence, education, and social support. Through SHGs, women can gain greater confidence, skills, and access to resources, enabling them to participate more actively in decision-making processes within their families and communities. The author further emphasizes the importance of understanding the concept of women's empowerment through a chronological arrangement, suggesting that its development should be analysed over time to appreciate the progress and challenges in this area.

Misra (2024), in his article, "Role of SHGs in Political Participation and Community Mobilisation in Manchar, Maharashtra: A Multifocal Approach", described about Self-Help Groups (SHGs) have played a significant role in empowering women in India. While numerous studies have examined the connection between SHGs and political awareness or participation, there is a noticeable gap in research focused on Maharashtra's SHG ecosystem. Specifically, limited attention has been given to understanding the individual and community-level effects of SHG membership in this region. Moreover, existing research has primarily emphasized political participation as a key dimension. This study employs surveys and focuses group discussions to explore a broad range of factors linked to political participation within the census town of Manchar in Maharashtra. Analysed to evaluate the influence of

SHG membership on political engagement and community organization. The findings highlight that SHG involvement significantly impacts areas such as grievance resolution and electoral decision-making.

Women Specific Problems in Agricultural Operations

Siva (1988), in her book, "Staying Alive: Women, Ecology and Survival in India: "Development, Ecology and Women", the author delves into Rosa Luxemburg's critique of development as capital accumulation, focusing on the early industrial development in European nations. Shiva highlights two types of poverty in this context. Moving to the second chapter, "Science Nature and Gender," she discusses modern science as a project of patriarchy, emphasizing the violence of reductionism and its ties to profit-seeking. Shiva contrasts two kinds of facts and rationality within this framework, exploring the implications of modern science for ecological crises. Within this discussion, she examines the concept of "women in nature," portraying nature as embodying feminine principles and women as crucial producers of life. Shiva juxtaposes gender ideology with the idea of reclaiming the feminine principle, challenging the natural-unnatural divide perpetuated by patriarchal perspectives. In the fourth chapter, titled "Women in the Forest," Vandana Shiva explores the concept of Aranyani, portraying the forest as a representation of the feminine principle. She examines the impact of colonialism on forestry, highlighting the evolution of masculinist approaches. Shiva discusses the role of women in the Chipko movement and critiques afforestation projects for their reductionist perspectives. She addresses the tragedy of the commons and advocates for the protection of common resources, emphasizing the importance of diversity in ecosystems. The fifth chapter, "Women in the Food Chain," critiques the Western paradigm of the Green Revolution and its displacement of women from food production. Shiva challenges the myth of miracle seeds and high yields, highlighting the ecological consequences of industrial agriculture. She advocates for soil-building strategies and non-violent pest control methods rooted in traditional knowledge. Shiva also explores the impact of dams on water resources and the expertise of women in water management. Finally, she discusses the violence of the white revolution and the fragmentation of nature

through market integration.

Rane (2007), in his book, “Economics of agriculture”, module elucidates theories pertinent to agricultural development, followed by discussions on Sustainable Agricultural Development and Food Security, and Competitiveness of Agricultural Products and Marketing. The final chapter explores the History & Policies for Agricultural Development in India, where the authors dissect the waste system of Indian agricultural products, providing a comparative analysis between rural and urban waste systems, as well as gender-based disparities. Their analysis reveals that in 2011, the agricultural sector employed over a million individuals, with the majority engaged in two occupations directly linked to the sector's primary economic activities. This underscores the sector's significant contribution to employment and highlights its vital role in the economy. Through their examination of historical contexts and policy frameworks, the authors provide valuable insights into the complexities of agricultural development in India, shedding light on key challenges and opportunities for sustainable growth and food security.

Mills (2010), in his book, “Gender issue: the role of women in agriculture sector”, highlights the significant role of agriculture in generating employment opportunities for women in the agricultural sector. These jobs provide resources to numerous households managed by women, ultimately leading to increased family earnings. However, despite the rising employment of women, they still face limited access to productive resources, particularly in developing countries. Additionally, professional women continue to experience discrimination in hiring and promotion processes.

Kaur (2010), in his article, “Contribution of Working Women in Indian Economy and Problems Faced by Women”, described that the era of globalization, the roles of Indian women has emerged as a dual side role both at home and in the workforce have evolved significantly. As India continues to experience rapid economic growth, women's contributions to the economy are steadily increasing. However, many women primarily engage in "productive work" out of economic necessity rather than choice. A significant portion of women are employed in agricultural activities and the informal sector, where they often undertake roles such as part-time

household helpers, workers in construction sites, tanneries, and matchbox production. One of the key drivers of economic progress in recent times has been the greater involvement of women. This empowerment is evident in multiple ways, including increased female labour force participation, a decline in discrimination and wage gaps leading to greater motivation among women and improved workplace policies that support the growth of skilled women into leadership and managerial roles. Additionally, the author identifies five key challenges faced by working women in India: malnutrition, workplace discrimination, recognition as professionals, balancing work and family life, and lack of dignity and ownership over their earnings. It is crucial to acknowledge their contributions and provide a secure work environment. The primary barriers to access and opportunity stem from low literacy rates and a lack of awareness, often resulting in self-exclusion from mainstream economic participation.

Sanghi et al. (2015), observed a significant increase in the gender gap in labour force participation rates (LFPR) in rural India. While the gap was moderate in 2004–2005, it widened considerably by 2011–2012, with variations across states—ranging from an 11percent point increase in Odisha to a 16 percent point rise in Karnataka. Overall, the difference in labour force participation between men and women in rural India stood at 25 percent points, with a median value of 55 percent for men and 30 percent for women.

Eswari (2019), in her article, “A Study on Role of Women in Economic Development in India”, addresses the pressing issue of empowering women in developing nations, recognizing their indispensable role within society despite their limited involvement in economic decision-making processes. She emphasizes the intricate relationship between women's empowerment and economic development, suggesting that progress in one domain can significantly impact the other. Eswari's research delves into the specific contributions of women to the workforce across various regions of India, shedding light on the diverse ways in which they participate in and contribute to economic activities. Her research concludes with a set of recommendations designed to enhance women's empowerment. However, Eswari acknowledges the formidable challenge inherent in changing entrenched cultural norms that often

disrespect and marginalize women. She emphasizes the gradual nature of societal reform, noting that transformative change cannot occur overnight but requires sustained effort and commitment. Central to Eswari's argument is the idea that as women gain economic agency, they concurrently gain visibility and a stronger voice in societal decision-making processes. She underscores the importance of women's direct participation in both economic endeavors and decision-making capacities, as these avenues hold the potential to significantly contribute to women's empowerment. Moreover, Eswari highlights entrepreneurship and gainful employment as key pathways through which women can enhance their economic status, leading to tangible improvements in their overall social standing within their communities and beyond.

Singh (2019), in his article "Present Status and Future Prospects of Organic Farming in India", predominantly traces the evolution of organic farming in India, shedding light on its historical roots. It emphasizes that India has long practiced organic farming, albeit under different names, with its ancient traditions aligning closely with contemporary organic principles. By analyzing ancient texts such as the Ramayana, Mahabharata, Kautilya's Artha Shastra, and the Rig Veda, the chapter underscores how these sources advocate for sustainable agricultural practices and highlight the positive impact of organic farming on both society and the environment. Through these narratives, the chapter demonstrates the enduring relevance of organic farming in India and its intrinsic connection to traditional wisdom and values.

Chatterjee (2020), in his article, "Organic Farming in India: A Vision Towards a Healthy Nation," outline the fundamentals of organic farming and its impact on public health. The authors highlight challenges such as insufficient biomass, low awareness, limited financial backing, and inadequate farming infrastructure hindering the development of organic agriculture in India. These issues pose significant obstacles for farmers striving to establish organic infrastructure in the country. Through their analysis, the authors underscore the pressing need to address these challenges to promote the growth of organic farming practices and foster a healthier nation.

Sunaratiya et al. (2021), in their article "Organic Farming: Key of Sustainable Agriculture", delve into the necessity, foundational aspects, and components of organic farming in India. The authors stress that organic farming can offer high-quality food while safeguarding soil health and the environment. They advocate for the identification of region- specific crops and products with international market demand to promote organic production effectively. Acknowledging the challenges, they suggest a gradual transition to organic farming to ensure food and nutritional security. Emphasizing the potential for employment generation and prosperity, the authors underscore the transformative impact of organic farming in fostering regional development and harmony.

Soni, et al. (2022), in their article, "Organic Farming: A Sustainable Agricultural Practice", give a brief introduction about organic farming later on the chapter develop with the benefits of organic farming in environment friendly and sustainability. Here author describe about four principles of organic farming: health, ecology, fairness and care. Later on, author describe the present status of organic farming. According to APEDA (Agricultural and Processed Food Products Export Development Authority) India scored eighth in terms of organic agricultural land by 2020. Chapter goes on with Socio- economic implication and challenges faced by the farmer for organic farming in India. In summary, the authors highlight that organic farming is a cost-effective and environmentally sustainable approach with significant potential to prevent environmental degradation while enhancing socioeconomic conditions. They emphasize the importance of promoting traditional organic farming methods, improving market access for organic products, providing financial support, and offering training, education, and awareness programs. These measures would help expand land under organic cultivation, leading to a more profitable, healthier, and sustainable agricultural system.

1.4 Research Gap

This section outlines the key areas where research remains inadequate, especially concerning women agricultural labourers and farm workers in the tribal and rural regions of Odisha, such as Koraput and Malkangiri. Although women make significant contributions to the agricultural sector, their roles and challenges are often

overlooked or insufficiently addressed in existing studies. The following research gaps have been identified:

Many studies agree that women are vital to agricultural production, especially in developing regions. However, their contributions often go unnoticed and unsupported, both in literature and practice. Women perform a significant share of farm labour, yet they rarely receive equal recognition, benefits, or support. Research lacks detailed evaluations of their actual workload and the value they bring to agricultural productivity.

Women in the agricultural sector, particularly in the KBK districts, face unstable employment conditions. They are often engaged in seasonal, casual, or temporary work without any form of job security or benefits. Wage disparities are clear women are typically paid less than men for similar tasks. However, few studies have specifically focused on the patterns of gender-based discrimination in agricultural wages and employment terms in Odisha's tribal regions.

Due to irregular employment and low wages, women agricultural workers struggle to access healthcare services and other social protections. Existing research does not adequately link women's economic instability with their health outcomes and access to essential welfare schemes.

SHGs have played a significant role in promoting financial independence and social empowerment among rural women. However, there is a lack of focused studies on how SHGs impact agricultural productivity, skill development, credit access, and entrepreneurship among women in tribal areas. This gap is especially relevant in the context of Koraput and Malkangiri, where SHGs could serve as a critical support system.

Modern agricultural technologies can improve efficiency and reduce manual labour, but many women in rural Odisha remain excluded from these advancements. Barriers such as illiteracy, lack of training, and socio-cultural restrictions hinder women from accessing and using agricultural tools. Research is limited on how this technology gap affects women's productivity and inclusion in the agricultural economy.

Although several government policies aim to improve the status of women—such as the reservation of seats in local governance after the 73rd Constitutional Amendment Act, these measures often fail to bring real change. Systemic barriers and patriarchal norms continue to restrict women's participation and leadership, making policy impact minimal. There is insufficient research evaluating how effectively these policies are implemented at the grassroots level.

Most existing literature provides a general overview of rural women's issues without focusing on specific regions like Koraput and Malkangiri. There is a need for in-depth, field-based research to understand the lived experiences of women farmers, particularly in relation to land ownership, irrigation access, market participation, and gender discrimination.

From the review of existing literature, it is clear that while many challenges faced by women in agriculture are known, they remain underexplored in the real-life context of Odisha's tribal regions. The conditions of women farmers and labourers, the impact of SHGs, and access to technology and welfare benefits need to be studied more closely. Addressing these gaps through focused, region-specific research is essential for creating inclusive agricultural and rural development policies.

1.5 Statement of the Problem

Women in Odisha's KBK region have historically faced discrimination across various sectors. Despite the implementation of a 50 percent reservation policy for women in grassroots political institutions like Panchayats, the deeply rooted patriarchal societal structure often prevents them from fully exercising their authority. Female literacy in the KBK region remains alarmingly low, with only 29.1 percent of women being literate significantly below the state average of 50.5 percent and the overall literacy rate of 63.1 percent in Odisha as per the 2011 census (Mishra, 2020).

The region's high maternal mortality rate further highlights the challenges women face in accessing adequate healthcare. Additionally, there is a pronounced gender wage gap, with female workers earning considerably less than their male counterparts (Mishra, 2002). Employment opportunities for women in the KBK

districts are predominantly irregular, seasonal, and casual, with most women lacking access to social security or employment benefits.

Under these conditions, it becomes crucial to assess the working conditions of women employed as farm labourers to gain insight into their role in agriculture and the challenges they encounter. Studies conducted in Odisha and other developing areas have repeatedly highlighted the significant contributions of women to agricultural production. Despite their vital role, their efforts often remain overlooked and underappreciated, emphasizing the importance of greater recognition and acknowledgment of their contributions.

1.6 Scope of the Study

This study examines the involvement of women from rural areas in agricultural development. Given the vast scope of the subject, the research focuses on the state of Odisha, specifically selecting Koraput and Malkangiri districts among the eight KBK districts. Kalahandi known for its backwardness despite rich natural resources. Agriculture is rain-fed and prone to drought. Malnutrition and poverty levels are high. Women play a major role in agricultural labor, especially in weeding, harvesting, and post-harvest tasks. However, they lack land ownership, face seasonal unemployment, and have limited access to irrigation and credit. Wage discrimination is also prevalent. Nuapada carved out of Kalahandi, it shares similar issues like drought, migration, and poor infrastructure. High dependency on seasonal migration for livelihood. High rate of distress migration affects both men and women. Women are involved in agriculture but often shift to wage labor or migrate. Traditional agricultural roles continue with limited mechanization, increasing their physical burden. Balangir chronic drought-prone and one of the major sources of distress migration. Agriculture is the mainstay but highly dependent on monsoon. Koraput, tribal-dominated district with high forest cover. Agriculture is dominant but mostly subsistence-based. Rich in minerals but underutilized. Tribal women are deeply engaged in shifting cultivation and forest-based agriculture. They have more involvement in decision-making in tribal settings, but remain excluded from formal agricultural support schemes and markets. Nabarangpur one of the poorest districts.

Women work extensively in agriculture and allied activities, often without pay. Malnutrition, lack of health care, and time poverty affect their productivity. Literacy and access to schemes are very low. Malkangiri extremely remote and conflict-affected. Tribal women are central to agriculture and forest produce collection. Despite their contribution, development programs seldom reach them. Poor mobility and infrastructure limit their growth. Rayagada women engage in subsistence agriculture and minor forest produce collection. While they play a crucial role in food security, they face barriers in accessing markets, credit, and agricultural inputs. Skill training and support are minimal.

The KBK region is among the most underdeveloped and poverty-stricken areas, predominantly inhabited by Scheduled Castes and Scheduled Tribes. Additionally, the KBK districts have a largely rural demographic, with over 90 percent of the population residing in villages. A significant portion of the population in these districts is directly engaged in agricultural activities for their livelihood. This study also aims to shed light on the various challenges and difficulties faced by rural women in agriculture.

Despite numerous studies on rural development and gender in agriculture, there remains a significant gap in understanding the specific socio-economic conditions and lived experiences of women agricultural labourers and farm workers in the tribal-dominated regions of Koraput and Malkangiri districts of Odisha. Koraput and Malkangiri were chosen from among the KBK districts due to their high concentration of tribal populations, persistent poverty levels, and dependence on agriculture as the primary livelihood source. While broader data may be available at the state or national level, district-level insights into gender wage disparities, women's dual roles as labourers and cultivators, and their access to agricultural resources and schemes remain limited and underexplored. Furthermore, although Self-Help Groups (SHGs) have been widely promoted as instruments of women's empowerment, there is insufficient evidence on their actual impact on the agricultural and economic development of women in these specific backward and remote areas. Most existing literature tends to generalize women's roles in

agriculture without capturing local socio-cultural dynamics, tribal practices, and the region-specific challenges that rural women face. Hence, this study attempts to fill these critical gaps by offering an in-depth, field-based analysis of the status, contributions, and challenges of women farm workers in Koraput and Malkangiri, and evaluating the role of SHGs in transforming their livelihoods.

1.7 Relevance of the Study

Firstly, this study is significant in highlighting the crucial role women play in all aspects of life, emphasizing the necessity of their development for overall human progress. Effectively managing and nurturing women's resources including their talents, interests, skills, and potential is essential for the advancement and utilization of human resources. Therefore, it is imperative to recognize and harness women's contributions to ensure their full participation in development efforts. Development of each citizen will result into sustainable development. The empowered citizen ensures better administration and governance. Development of women in rural area leads to a better society and we can also achieve the 5th goal of Sustainable Development goal (SDGs) which is “Achieve gender equality and empower all women and girls”. Women's overall and mostly economic empowerment helps reducing poverty for everyone. In fact, to achieve it, we need to first fix the current broken economic model which causes economic inequality by undermining gender equality. Secondly to promote rural development, there needs to be a shift in mindset that enables women to engage in economic activities on equal terms with men.

It is important for women to move beyond traditional roles focused primarily on homemaking and child-rearing, and instead take on more forward roles where their economic contributions to society are valued and encouraged. Thirdly, a growing number of rural women are gradually breaking free from the systems of oppression and exploitation that have existed for centuries. Today, they are making strides in nearly every sector of national activity. However, in many villages, most women continue to face severe inequalities, despite ongoing focus from both planners and policymakers. Their daily lives, both at home and in the field, remain challenging and demanding. This underscores the need for a renewed and intensified approach to developmental efforts. Fourthly, an important step towards building confidence in

women and raising awareness of their development potential, as well as their rights and privileges, is the creation of various beneficiary-oriented programs across different development sectors. Fifthly exploring the specific hardships faced by women in agriculture, the study supports broader efforts toward gender equality.

Highlighting the unique contributions and struggles of women in this field can drive efforts to secure equal rights, opportunities, and recognition for women in rural areas. These programs offer direct benefits to women who participate in them. Once involved in the development process, rural women can make significant contributions to both rural and national development.

1.8 Objectives of the Study

The major objectives of the study accomplished in consonance with the approved research proposal are:

1. To study the profile of women agricultural labourer and farm worker in Koraput and Malkangiri districts of Odisha.
2. To assess the socio-economic conditions of women agricultural labourer through the gender wage gap in Koraput and Malkangiri districts of Odisha
3. To study the contribution of women's work involvement as labourer and farmers in agriculture.
4. To analyse the role of Self-Help Groups in the development of the farm women of the study area and
5. To find out the problems and challenges of rural women farm worker and suggest remedial measures.

1.9 Research Questions:

The major Questions of the study raised are:

1. What is the study profile of women agricultural farm workers in Koraput and Malkangiri districts of Odisha?
2. What are the socio-economic conditions of women farm workers of KBK district?

3. What is the magnitude of work involvement of women as labourer and farmers in agriculture?
4. How SHGs play an important role in farm-women development?
5. What are the problems and challenges faced by the rural women in agricultural sector?

1.10 Methodology

This segment of the chapter deals with various methods and procedures used for the selection of the area, variables, their empirical measurements, and statistical methods employed for the analysis of the data.

The Research Design

A research design is a technique and framework for conducting the research (Dubey, U. K. B., & Kothari, D. P. (2022)). It provides the roadmap for the scholar to collect and analyses the data (Manheim, 1977). This study employs descriptive research design to delve into the unexplored dimensions in consonance with the objectives of the study. The study compile both the qualitative and quantitative research methods. Semi -structured interview schedule were used to conduct an interview to collect the primary data from the officials of the different Departments of Agriculture Officials & Farmers' Empowerment, Government of Odisha. A personal interview was conducted with 15 officials to collect the data to know about the implementation of policies and programmes in Odisha. Field study, observation, survey and case study method were adopted to collect the data. Questionnaire were distributed to the officials of the Department of Agriculture & Farmers' Empowerment, Government of Odisha and block level Assistant Agriculture Officials of both the districts. Semi structured interview schedule was used to conduct interview with practitioner regarding the role and socio- economic status of agriculture of Odisha.

A detailed questionnaire was administered to Ten Assistant Agriculture Officers across five blocks, Boipariguda, Koraput, and Laxmipur in Koraput district, and Mathili and Malkangiri in Malkangiri district. These officers were asked about rural

women's participation in various agricultural activities, their contribution to agricultural development, and the effectiveness of government schemes aimed at empowering women farmers. Discussions also explored challenges faced in implementing these schemes, the role of Self-Help Groups (SHGs), and socio-economic barriers limiting women's involvement in farming. Additionally, five officials from the Department of Women and Child Development were interviewed to understand their interventions in supporting rural women through welfare programs. The questionnaire also gathered insights on how policies, technology, and digital tools could be improved to strengthen the role of rural women in Odisha's agriculture sector.

Sampling Design

A sample refers to a subset of individuals selected from a larger population for study, allowing researchers to draw conclusions about the entire group (Manheim, 1977). Conducting research on an entire population is often impractical due to time constraints and financial limitations, especially when the population is widely dispersed. To address this challenge, a purposive sampling method was employed. A five-tier area sampling design was specifically implemented to carefully select a representative sample. A multi-stage sampling method was employed for this study. A total of 370 agricultural practitioners comprising 142 men and 228 women were surveyed from the districts of Koraput and Malkangiri in Odisha, including individuals engaged as both farmers and agricultural labourers. Throughout the study, the terms "farmer" and "cultivator" are used interchangeably. Of the total sample, 189 respondents (76 men and 113 women) were from Koraput, while 181 respondents (66 men and 115 women) were from Malkangiri. Within the female respondents from Koraput, 90 were agricultural labourers and 23 were farmers while among the 76 male respondents, 26 were farmers and 50 were labourers. In Malkangiri, 86 of the female respondents were labourers and 29 were farmers whereas the 66 male respondents included 28 farmers and 38 labourers.. The study included both male and female agricultural practitioners to enable a comparative analysis of gender roles, wage disparities, and work participation patterns in agriculture. This approach helps in understanding how socio-economic conditions,

access to resources, and challenges differ between men and women in the agricultural sector. Including both genders provides a more comprehensive and balanced perspective on the dynamics of rural farm labour, highlights the gender wage gap, and helps identify gender-specific needs and policy recommendations.

The data for the study was gathered encompassing participants from tribal communities of both the districts. In Koraput district, the sample included women from the Praja, Bhumia, and Durua tribes, while in Malkangiri district, participants were drawn from the Koya and Bonda tribes. The inclusion of these diverse tribal groups aimed to capture their unique socio-economic conditions, agricultural practices, and challenges, ensuring that both tribal and non-tribal women's experiences were represented in the study.

Stage 1: Selection of the State

The first stage involved selecting a state from India's 28 states (Census ,2011). The state of Odisha has been selected for this study due to its high concentration of female agricultural labourers and the significant role women play in the rural economy and the comparatively lower participation of rural women in agricultural activities as cultivators. Women play a crucial role in Odisha's agricultural sector, with over 50 percent of rural women engaged in agriculture and allied activities. The percentage of female workers in agriculture increased from 43.8 percent in 2018-19 to 57.2 percent in 2019-20, before stabilizing at 54.2 percent in 2020-21. However, despite this increase, only 13.9 percent of women in Odisha are classified as cultivators, which is significantly lower than the national average of 33 percent (Census, 2011). In rural Odisha, 29.7 percent of women are part of the workforce, aligning closely with the national rural women workforce participation rate of 30 percent.

According to the National Sample Survey Office (NSSO, 2012) 68th Round Report, show, 65.9 percent of rural women in Odisha are self-employed, a figure that surpasses the national average of 59.3 percent. The feminization of agriculture has been on the rise due to the migration of men to non-farm jobs, leaving women to manage agricultural activities. However, due to limited land rights, many female agricultural

labourers, tenant farmers, and widows of farmers lack formal recognition as farmers, restricting their access to various entitlements (Kundu & Das, 2019).

MAP 1 Odisha State



Source: <https://odishaassembly.nic.in/maptonavigate.aspx?DCod=02>, access on 22.05.2022

Odisha Districts, KBK districts

The KBK region of Odisha, comprising the districts of Kalahandi, Bolangir, and Koraput, along with their subdivided districts (such as Malkangiri, Nabarangpur, Nuapada, Sonapur, and Rayagada), is considered one of the most underdeveloped and vulnerable areas in the state. Characterized by hilly terrain, poor infrastructure, and frequent natural calamities like droughts, the region struggles with chronic poverty, food insecurity, and high rates of malnutrition, particularly among tribal and rural populations.

Agriculture is the primary occupation, but productivity remains low due to traditional practices, lack of irrigation facilities, and limited access to modern technology. Recognizing the critical development needs of this region, the Government of India and the Government of Odisha have implemented targeted development programs, including the Revised Long-Term Action Plan for the KBK districts, focusing on

livelihood promotion, rural connectivity, education, healthcare, and women's empowerment. Special attention is also given to tribal development and the promotion of Self-Help Groups (SHGs) to strengthen rural livelihoods. Despite ongoing interventions, the KBK region continues to require sustained efforts for inclusive growth and social development.

Stage 2: Selection of Districts

Odisha consists of 30 districts, from which Koraput and Malkangiri were purposively selected due to their heavy reliance on agriculture. In Koraput, more than 80 percent of the population depends on agriculture for their livelihood. The proportion of female agricultural labourers is significantly higher than that of males, with 59 percent of women and 27 percent of men engaged in agricultural work. Additionally, female literacy in Koraput stands at only 25 percent, significantly below Odisha's overall literacy rate of 64 percent (census, 2011).

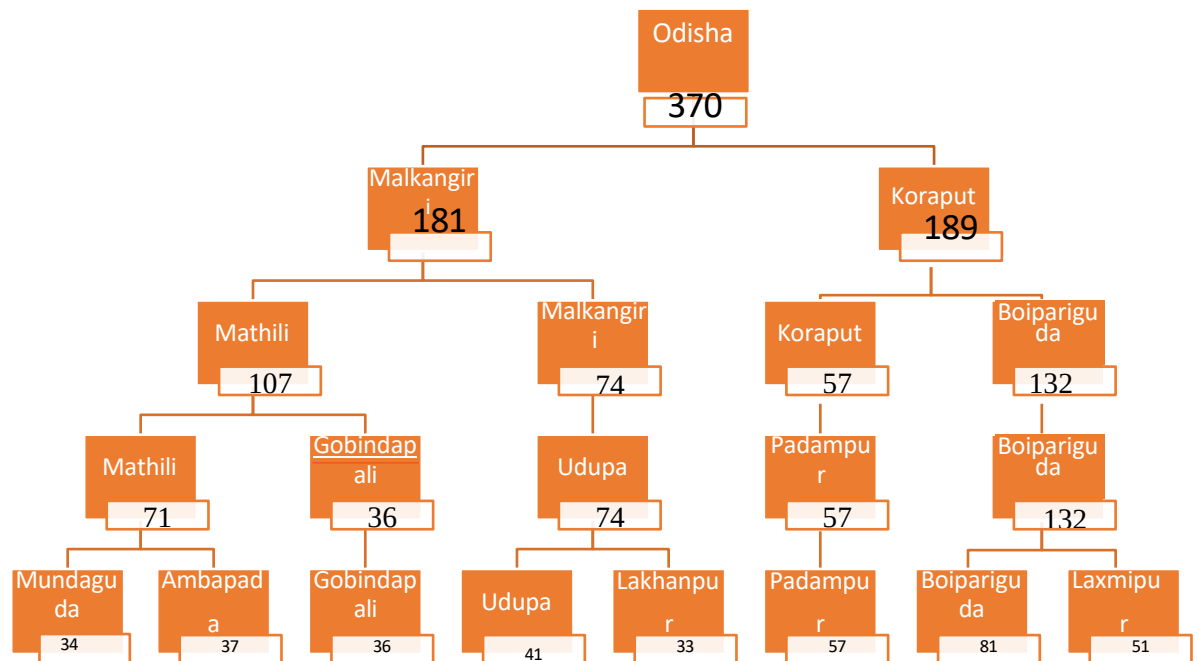
Similarly, in Malkangiri, 53 percent of women and 18 percent of men work as agricultural labourers. The female literacy rate in Malkangiri is also 26 percent, much lower than Odisha's statewide literacy rate. These factors made Koraput and Malkangiri ideal choices for the study.

The third stage of sampling involves selecting four blocks out of 21 from the two chosen districts. Boipariguda and Koraput, both blocks have been selected due to their notable female literacy rates, with Boipariguda ranking second and Koraput fourth within their respective districts. The number of female cultivators is the third lowest in Koraput block, while Boipariguda has the fourth highest number. Additionally, Koraput block has the lowest number of women agricultural labourers, whereas Boipariguda ranks third highest in this category. Mathili, in the Malkangiri block, has the second lowest female cultivator rate but holds the second highest number of female agricultural labourers. Moreover, the percentage of women cultivators and labourers in Malkangiri block is comparatively high, making it a significant block for consideration. This sampling approach ensures a diverse representation based on key

indicators such as female literacy, number of female cultivators, and women

agricultural labourers, which are crucial for a comprehensive analysis.

Chart 1 District wise disaggregated data



Sources of data

The selected villages for this study are situated within two districts: Koraput and Malkangiri. From Koraput district, the Koraput and Boipariguda blocks were chosen. In Koraput block, one Gram Panchayat (GP) was selected-Padampur GP-and within it, Padampur village was chosen for data collection. In Boipariguda block, Boipariguda GP was selected, and from it, Boipariguda village and Laxmipur village were included in the study.

From Padampur village, 38 female and 19 male respondents were selected; from Boipariguda village, 52 women and 29 men were chosen; and from Laxmipur village, 23 female and 28 male respondents were selected.

Similarly, from Malkangiri district, the blocks of Mathili and Malkangiri were selected. In Mathili block, two Gram Panchayats were chosen Mathili GP and

Gobindapali GP. From Mathili GP, two villages, Mundaguda and Ambapada, were selected, while from Gobindapali GP, the village of Gobindapali was chosen for data collection. This selection process ensures a comprehensive representation of the villages for the study. Lakhanpur village selected which comes under Udupa GP above it Malkangiri block.

From Malkangiri district, data was collected from five villages. In Mundaguda village, 23 female and 11 male respondents were selected. In Ambapada village, the sample included 22 female and 15 male respondents. Gobindapali village contributed 25 female and 11 male respondents, while Udupa village had 27 female and 14 male participants. Lastly, from Lakhanpur village, 18 female and 15 male respondents were selected for the study.

Even distribution of sample size in Malkangiri district as against uneven distribution at Koraput district go on to imply the effect of purposive sampling used in this study and as such the principle of randomization has not been followed.

The study incorporates both primary and secondary data. Secondary data, including statistics on total population, male and female population, total workforce, male and female workers, number of cultivators (both male and female), and agricultural labourers (categorized by gender), were obtained from Census reports of 2001 and 2011, as well as the District Statistical Handbook (2021) for Koraput and Malkangiri districts. The primary data have been collected through direct in – field enquiries from 370 farm personnel including both men and women by following pre-tested interview schedule during the month of September- December 2022. And in second phase on March- July2023.

Pre-Testing

Testing the interview before the final survey, the researcher carried out a pilot study on a small sample of the population to assess the feasibility and effectiveness of the research methodology. The pre- testing makes the interview more reliable and valid. A pilot survey was conducted in the 30 respondents of the three villages of the Koraput and Malkangiri district on dated April-June 2022. After the pilot survey researcher finds that some question should be removed and some question will be

added for the final questionnaire. An interview schedule was developed by the researcher to collect relevant information from the respondents of the study. After the finalization of validation of tools, the researcher administers the same in 30 participants. Before going to the field, the interview schedule was translated into Odia to ensure better understanding for the respondents. Initially, some respondents struggled to comprehend the questions. In certain cases, they hesitated to provide answers, and some women felt uncomfortable responding in the presence of their husbands.

Tools for Data Collection

An interview or questionnaire serves as a vital communication tool between the researcher and the respondent, allowing the researcher to pose specific questions aimed at uncovering desired information (Brace, 2018). The interview schedule designed for this research is systematically structured to ensure comprehensive data collection.

The questionnaire focuses on gathering the personal profiles of the respondents. It includes questions about their name, age, gender, education level, and marital status, providing a demographic snapshot that can be crucial for understanding the background of each participant. It delves into the socio-economic status of the respondents. This explores various aspects such as whether they possess a bank account and a mobile phone, and the duration of their involvement in farming. It also assesses the condition of their housing and their primary sources of income. By collecting this information, the researcher can gain insights into the economic standing and living conditions of the respondents, which is essential for analysing how these factors influence their responses and behaviours.

Then the interview addresses the various policies implemented by the governments, such as the Minimum Support Price (MSP) and the Kalia Yojana. It seeks to understand the respondents' awareness and utilization of these policies, as well as any challenges they face in accessing or benefiting from them. Additionally, this highlights the crop insurance system, probing into the respondents' experiences with it, including any difficulties encountered in obtaining insurance or claiming benefits.

After that some questions are specifically designed for women respondents and is divided into two sub- heads: women labourers, and landowning farmer. This aims to gather detailed information about the working conditions of female respondents. It explores various aspects such as the distance they travel from home for work, the modes of transportation they use, and the types of work they perform. By focusing on these areas, the interview seeks to understand the unique challenges and opportunities faced by women in the agricultural sector, providing a nuanced view of their labour conditions.

In the end the interview concludes with some basic open-ended questions. These questions invite respondents to share the difficulties they experience in their farming activities and offer suggestions for improvement. This open-ended format allows respondents to express their views freely, providing valuable qualitative data that can help in identifying specific issues and potential solutions from the perspective of the farmers themselves. By capturing these insights, the research aims to develop a comprehensive understanding of the challenges faced by the agricultural community and gather practical suggestions for enhancing their livelihoods.

Data Processing and Analysis

On Using tables and processed data, pie charts and multiple bar diagrams were created to illustrate the socio-economic characteristics of women agricultural workers in Koraput and Malkangiri districts. Additionally, age and sex pyramids were constructed to depict the distribution of women agricultural workers across different age groups. To ensure clarity and ease of interpretation, these diagrams were generated using MS Excel 2007, and with the help of statistical package for social science software (SPSS). The data was analysed and explained based on these visual representations. All the research objectives have been thoroughly addressed in Chapter IV through in-depth analysis of the collected data. The chapter provides a comprehensive interpretation of the findings, ensuring each objective is clearly reflected in the results.

Research Ethics followed

All ethical standards were followed by the researcher to conduct research right from the conceptualization stage to the conclusion of the research. The research ethics are based on the research ethics norms that have been observed and followed in most social science research. They are listed below.

1. The study is made purely for academics and the researcher tried his level best to adhere to it as well.
2. Since the field work was conducted in tribal area comprising women, due care was given to all sensitivities, their will or did not, in any way, make them say things against their will.
3. All the respondents are made to give their responses voluntarily and are treated with utmost care.
4. Prior to being interviewed, the respondents are fully made aware of the purpose of the interview, and the consent of each respondent and their family members is taken beforehand.
5. The respondents and their families are greeted with humility and respect.
6. The date, time and place of availability of the respondents were made clear and adhered to according to the convenience of the respondents.
7. The respondents and their families cooperated and are thanked for their cooperation after every interaction.
8. The respondents are made aware of the confidentiality that is to be maintained throughout this research and fieldwork process and the privacy of all the respondents is strictly maintained as they were tribal women.
9. The researcher displayed an empathetic attitude during the interview sessions.
10. The work of authors and scholars used in this research was duly acknowledged.
11. The researcher avoided any type of misleading or false information and

also abstained from any type of bias while collecting primary.

12. The researcher tried the best to avoid exaggerating the aims and objectives of this research study.

1.11 Chapter Plan

Chapter one is an introduction. This chapter provides a comprehensive introduction to the study, beginning with a general overview of the research context. It explores various theories on agricultural development, including Mellor's Model of Traditional Agriculture, Schultz's Theory of Human Capital, and Lewis's Model of Dualistic Economy, to establish a theoretical foundation. A review of relevant literature follows, covering key themes such as women's role in agriculture, their contributions to rural development, the impact of technology on rural women, gender disparities in agricultural wages, the role of Self-Help Groups (SHGs) in women's employment, and the specific challenges women face in agricultural operations. The chapter then identifies the research gap, articulates the statement of the problem, and discusses the scope and relevance of the study. It outlines the objectives and research questions guiding the study, followed by a detailed discussion on the methodology, including research design, sampling framework, data sources, pre-testing, data collection tools, processing and analysis techniques, and ethical considerations. Finally, the chapter concludes with an outline of the overall chapter plan, providing a structured approach to the study.

Chapter two "Participation of Women in Agriculture and Rural Development" explores the role of women in agriculture and rural development, beginning with an outline of agricultural development in India and Odisha. It examines the significance of rural development and highlights the crucial role women play in this process at both national and state levels. The discussion then shifts to the feminization of agriculture, analyzing women's participation in agricultural activities across India and specifically in Odisha. Furthermore, the chapter reviews various policies, programs, and schemes aimed at empowering women in agriculture, covering both national and state-level initiatives. The role of Self-Help Groups (SHGs) in enhancing women's

economic empowerment is also discussed. Lastly, the chapter addresses key issues and challenges faced by women in agriculture and rural development, concluding with an overall summary that integrates the key insights from the discussion.

Chapter Three, Profile of the Study Area, provides an overview of the study area, focusing on the districts of Koraput and Malkangiri, focusing on the districts of Koraput and Malkangiri. It begins with an introduction to the geographical, socio-economic, and cultural context of the region. A detailed district-wise profile follows, outlining key demographic features, economic activities, and agricultural practices in Koraput and Malkangiri. The chapter further examines the trends in agricultural growth within these districts, highlighting the role of women in agricultural development and the challenges they face. This contextual understanding lays the foundation for analysing the participation of women in agriculture and rural development in the subsequent chapters.

Chapter Four, Analysis of Data and Interpretation, presents the analysis and interpretation of data collected for the study. All the research objectives have been addressed and fulfilled in Chapter IV through detailed data analysis. It begins with an introduction, followed by an examination of the socio-economic profile of the respondents. A comparative analysis of women labourers and farmers is conducted to understand their roles and challenges. The chapter further explores the gender gap in agriculture and its implications. The relationship between women's empowerment and agricultural development is discussed, along with the significant role women play in this sector. The empowerment of women in agriculture is analysed, with a focus on Self-Help Groups (SHGs) and their impact on farm women. Additionally, the challenges faced by farm women are highlighted. A case study is included to provide deeper insights, and the chapter concludes with an overall assessment of the findings.

Chapter Five, Summary, Findings, Conclusion, And Policy Needs, provides a comprehensive overview of the study, beginning with an introduction. It presents a summary of the key aspects covered in the research, followed by a discussion of the major findings. The conclusion highlights the key insights drawn from the study. The chapter also identifies the problem dimensions and emphasizes the need for policy

interventions to address them. Additionally, it outlines the limitations of the study and suggests potential areas for further research.

CHAPTER- II
PARTICIPATION OF WOMEN IN AGRICULTURE AND RURAL
DEVELOPMENT

2.1 Agricultural Development in India

2.2 Agricultural Development in Odisha

2.3 Rural Development and Role of Women

Role of Women in Rural Development in India

Role of Women in Rural Development in Odisha

2.4 Feminization of Agriculture and Participation of Women

Participation of Women in Agriculture in India

Participation and Role of Women in Agriculture in Odisha

2.5 Policies Transforming Women Empowerment in Agriculture

Policies, programme and scheme of India

Policies, programme and scheme of Odisha

2.6 Self Help Groups and women empowerment

2.7 Issues and Challenges

2.8 An overview

CHAPTER- II

PARTICIPATION OF WOMEN IN AGRICULTURE AND RURAL DEVELOPMENT

2.1 Agricultural Development in India

Reflecting on the development history, agriculture has been a recurrent topic in global debates since the 1950s, marking the inception of global development cooperation. Initially, in the 1950s and early 1960s, manufacturing industries were prioritized in development efforts, relegating agriculture to a secondary role. However, the narrative shifted soon after, placing agriculture at the forefront when addressing issues related to population growth and a global food crisis. In the 1960s and 1970s, within the classical paradigm to promote economics, agriculture was viewed as a tool for driving industrialization. This era also marked the onset of the Green Revolution, which averted mass famine and saved countless lives. However, the downsides of this approach would only emerge later. Agriculture continued to hold move slowly on the political agenda until the 1980s. However, by the late 1970s and early 1980s, there was a transformation took place towards anti-agricultural policies and the promotion of import substitution industrialization. As the sustainability concept gained traction around the 1990s, agriculture for development began to be viewed beyond purely economic terms. Henceforth, ecological and social considerations had to be given equal importance alongside the economic dimension in development of agriculture (Herger, 2020).

Since the publication of the World Development Report 2007(world bank,2007) titled “Agriculture for Development,” agriculture has once again been thrust into the limelight as a major factor in addressing the global challenge of poverty alleviation and economic growth. Many developing countries had previously overlooked agriculture in their development strategies, particularly since the advent of the Washington Consensus and the implementation of import substitution industrialization following the debt crisis. It's apparent that low-income agrarian economies often neglect the needs of food producers (Herger, 2020).

India is predominantly an agricultural nation, with agriculture serving as the

primary occupation for many Indian families and still playing a vital role in the nation's overall economic landscape. In 1918, the per capita availability of food grains was 200 kg; however, this was affected by the colonial system and British domination on Indian farmers, the food grain availability fell to 150kg per head by 1947. During the time of independence 70 percent of the Indian population lived in its village and agriculture was their prime source of income (Kumar, 2012). At that time the domestic farmer mostly did traditional farming. In traditional farming, the farmer directly depends upon the environmental status of the area, the Production is less, low share of irrigated areas, using traditional seeds, and using traditional equipment was facilitating the agricultural status of that time. After independence landlordism was also affecting the agrarian scenario of the nation because at that time most of the Indian farmers were marginal in nature (Flint, E. P.1994). Agricultural development refers to the process of creating favorable conditions to maximize the productive potential of the agricultural sector. Improvements in farming practices have historically contributed to increased incomes, better health outcomes, and overall economic growth. In recent years, global attention has shifted back toward agriculture in response to rising food prices and concerns over rapid population growth. As a result, many international organizations have renewed their support for agricultural development initiatives. In the Indian context, post-independence trends have shown a significant rise in the number of agricultural labourers compared to farmers. This shift reflects deeper structural issues in the agrarian economy, including the limited success of land reforms, which largely failed to achieve equitable land distribution, secure land tenure for the landless, and effective modernization of the rural agricultural structure (Desai & Namboodiri, 1992).

Agriculture has been perceived as a "bargain sector," where production can be boosted with minimal additional investment (Ramakumar, 2009,). Between 1966 and 1967, intensive agriculture was expanded nationwide. This led to the introduction of the New Agricultural Strategy (NAS), commonly known as the Green Revolution. The NAS was a technology-driven initiative primarily cantered on four key forms of economic assistance: price support, credit support, input subsidies, and marketing

support. During the period of the green revolution, a lot of experiment was conducted in the field of agriculture. Not only experiments but also new policies were introduced by the Indian government. In 1965, the Food Corporation of India (FCI) was established. That same year, the Agricultural Prices Commission (APC) was formed to advise the government on price policies that would promote the adoption of new technologies and ensure the efficient utilization of land and other resources. Furthermore, various states implemented the Agricultural Produce and Marketing Committee (APMC) Act and the Essential Commodities Act to regulate agricultural markets and reduce trade distortions. From 1980-81 onward, a period referred to as the late Green Revolution, agricultural growth witnessed a significant slowdown.

In 1991, India began its journey toward globalization amidst a severe economic crisis. Seeking financial aid from the IMF (International Monetary Fund), India was required to implement structural reforms. In 1994, India joined 124 countries in signing the Dunkel Proposal, leading to the establishment of the WTO (World Trade Organization) in 1995, further integrating member nations into globalization. These reforms, categorized as Liberalization, Privatization, and Globalization (LPG), aimed to reduce government control, privatize public sectors, open domestic markets to international competition, and promote free trade by lowering export subsidies and import barriers.

The LPG reforms significantly impacted India's agricultural sector, which is closely linked to industrial growth and national income. The government estimated that a 1percent increase in agricultural growth could lead to a 0.5percent rise in industrial output and a 0.7percent rise in national income. Consequently, the introduction of LPG was expected to accelerate agricultural growth. Despite holding a prominent position in the global trade of agricultural products, India's overall agricultural exports only make up slightly more than 2.5 percent of the world's agricultural trade. The primary countries to which India exports its agricultural products are the USA, Saudi Arabia, Iran, Nepal, and Bangladesh. As the other sectors expanded, the overall share of agriculture on GDP has decreased.

During the time of independent 70 percent of the Indian population lived in its

village and agriculture was their prime source of income (Kumar, 2012). At that time the domestic farmer mostly did traditional farming. In traditional farming, the farmer directly depends upon the environmental status of the area, the Production is less, low share of irrigated areas, using traditional seeds, and using traditional equipment was facilitating the agricultural status of that time. In the year 1918, the food grain availability per head is 200 kg but due to the colonial complex and British domination on Indian farmers, the food grain availability fell to 150kg per head by 1947. After independence landlordism was also affecting the agrarian scenario of the nation because at that time most of the Indian farmers were marginal in nature. Creating the conditions for the fulfilment of agricultural potential is called as agricultural development. As farming improved, so did incomes, health, and economies. Over the past year, the attention on agriculture has been refocused globally to face the rising food price and concern about population growth.

Globalization refers to international organizations, which reduce barriers for opening up world trade, develop advanced communication, internationalization of domestic and financial markets, growing importance of MNCs, population migrating to urban areas, capitalization of industries, development in goods, capital, services, and data ideas. It is the process that converts the diverse world into a global village liberalization in India indicates the continuity of economic reform. It grants businesses more independence in decision-making while reducing government intervention, making the economy largely market-driven and increasing opportunities for foreign investment.

Liberalization has facilitated the unrestricted movement of capital within India, enabling companies to easily access funds from investors. Before liberalization, pursuing profitable projects was challenging due to a lack of available capital. However, the reforms initiated in 1991 addressed this issue, leading to higher growth rates.

Privatization is the process of shifting ownership, assets, or businesses from the government to the private sector, reducing or eliminating government control over the entity. It can also involve a publicly-listed company being acquired by a small group of individuals.

The introduction of LPG in the Indian market has brought several benefits, including-

Advance use of technology, after the economic reform, the main factor which developed the most is the use of technique and technology in the field of agriculture. pesticides, herbicides, and fertilizers, new breeds of high yield crop all these things come under technological development at the same time introducing modern irrigation methods, implementations of pesticides, synthetic nitrogen fertilizer in a modern way, and, the use of High Yielding Varieties (HYVs) like IR8 a semidwarf rice variety crops all these come under the technical development of agriculture.

Increasing production and productivity, after the use of technique and technology in the field of agriculture the level of production and productivity gradually increase by using High Yielding Varieties (HYVs) like IR8, a semidwarf rice variety. Not only the rice but also the white production was increasing in a rapid manner.

Growth of National Income, adopting globalization gives the opportunity of receiving an international market for Indian products. Indian farmers learn advanced technology and get new seeds and new equipment and it ultimately helps them in increasing the production level. When the production level increase automatically it impacts the growth of national income.

New areas of employment, the introduction of LPG (Liberalization, Privatization, and Globalization) has significantly contributed to the growth of agriculture-related industries, leading to job creation in areas such as packaging, exporting, and cold storage facilities. Since the agricultural sector relies heavily on its workforce, the expansion of these industries has directly boosted employment opportunities. Currently, agriculture accounts for 52.1percent of total employment in India.

Agriculture as a prime moving force, in 2004, the Government of India recognized agriculture as the primary driving force of the nation's economy. After introducing LPG our domestic crops get an international market. It directly impacts the economic growth of the nation.

Reduction in poverty and Agricultural export increase, agriculture is the primary source of economy in India at the same time due to LPG the agricultural industries

are increasing and according to that the employment opportunity also increasing so automatically the poverty level will decrease also it has been seen that the poverty range decreasing from 36 percent in 1993-94 to 21.9 percent in 2011-12. When the agriculture industries were increasing through using new technology and technique production and productivity were increasing automatically. When the production increases so there will be an increase in the export. Agricultural products contribute 10.23 percent to the nation's total export earnings, with agricultural exports amounting to \$33.54 billion (Amin, S. 1987).

Growing trends of investment in agriculture, due to the high production range of food grain many people investing in agricultural land. Not only the food grain due to LPG the non-food crops are also in demand. so, agriculture itself dived into ¾th varieties in which investors can invest.

But with these benefits it gives us many burdens also, these are,

Fall in agricultural employment, because of the increasing population the pressure on agricultural production increased in India but Indian farmers mostly were marginal landholders so Indian farmers face high production costs, while the quality and standardization of agricultural produce receive little attention. Additionally, subsidies and grants have contributed to the weakening of the agricultural sector in India. These things demotivate farmers to continue its interest on agricultural production.

Unusual hike in fertilizers and pesticide prices, with the advent of LPG, Indian farmers have increasingly adopted high-yield seeds, which demand greater quantities of pesticides, fertilizers, and water compared to traditional crops. This trend has led to a significant rise in the cost of fertilizers and pesticides, with prices escalating by 300 percent. (U. R. Shinde, 2015).

Impact of rising electricity tariffs on farmers, domestic farmers they were doing agriculture in accordance with their environment so in minimum cases they depend upon the government. Due to s farmers are using high-yield seeds which need more water so farmers need to buy more water pumps and for working the pump, high power electricity was needed which is again a masur problem for the farmer.

Lower income of rural farmers and migration, most Indian farmers are marginal farmers so they lack in using modern equipment for cultivating high-yield seeds. Sometimes natural calamities and other outside sources destroyed the crops. It will become a substantial loss for the farmer. Even sometimes the farmers were attempting suicide. Also, rural farm labour cannot compete with the international market so they sifted their interest from farm to non- farm industries.

After independence, India, influenced by its then Prime Minister Jawaharlal Nehru started its First Five-Year Plan in 1951. This began with setting up the Planning Commission in March 1950. The commission aimed to quickly improve living standards by using the country's resources efficiently, increasing production, and creating jobs for everyone. It was responsible for assessing resources, boosting deficient ones, planning their best use, and setting priorities.

First Five-Year Plan (1951-56), with a strong focus on agriculture, the plan emphasized increasing agricultural production and developing infrastructure. Key initiatives included launching the Community Development Program and abolishing the Zamindari system (Prabha, 2015). During this time, several significant irrigation projects were developed, such as the National Extension Service Programme, Mettur Dam, Hirakud Dam, and Bhakra Nangal Dam (GOI, 1952). By the conclusion of the First Plan period in 1955-56, agricultural production had risen by 17 percent compared to the base year of 1949-50 (Karve, 1961).

Second Five-Year Plan (1956-61), during this period, only around 21percent of the total planned expenditure was dedicated to agricultural development. It was anticipated that food grain production would reach between 76 and 78 million tons by 1960-61. This plan represented a notable transition in priorities, shifting emphasis from agriculture to industrial growth.

Third Five-Year Plan (1961-66), this plan allocated a higher priority to agriculture and farming (20.5%) compared to the industrial development (20.1%). During this time, the government established the Agricultural Prices Commission to ensure minimum support price (Alagh, Y. K. 2018). Mixed cropping was prioritized for the first time, encouraging farmers to diversify with horticulture, dairying, animal

husbandry, and poultry alongside crop cultivation (Narasimham, M.1962). To maximize agricultural resources and enhance productivity, various outlets were explored. The Third Five-Year Plan included provisions to ensure that all physical and organizational aids for farmers were effectively utilized. Additionally, regular research, training, and extension programs were conducted, supported by intensive educational campaigns and necessary guidance and supplies for every new initiative. These efforts were fully employed in areas selected for intensive agricultural development.

Fourth Five-Year Plan (1969-74), The agricultural sector focused on two primary objectives: achieving consistent annual growth in food production and encouraging active participation from rural communities and agricultural workers in the development process. To support these goals, The Small Farmers Development Agency (SFDA) and the Marginal Farmers and Agricultural Labourers Development Agency (MFALDA) were founded to support farmers. Additionally, the Tribal Area Development Programme (TADP) was launched in 1970-71 to promote development in tribal regions across Andhra Pradesh, Bihar, Madhya Pradesh, and Odisha.

Fifth Five-Year Plan (1974-1979), During the Fifth Plan, an allocation of Rs. 8,080 crores was made for agricultural development. The plan focused on expanding high-yielding variety (HYV) cultivation, along with the increased use of fertilizers, pesticides, and insecticides to enhance agricultural output. Special attention was given to supporting small and marginal farmers, adopting dry farming techniques, developing HYV seeds for crops such as paddy, and implementing soil conservation strategies for saline and alkaline soils, as well as reclaiming desert land. Consequently, food grain production saw a substantial rise, reaching 232.5 million tons.

Sixth Five-Year Plan (1980-1985), The Sixth Plan acknowledged the vital importance of accelerating agricultural and rural development for India's economic growth. It was considered highly successful, especially in achieving progress in agriculture. On July 12, 1982, NABARD was established by taking over the agricultural credit responsibilities of the Reserve Bank of India (RBI) and the

refinancing functions of the former Agricultural Refinance and Development Corporation (ARDC)

Seventh Five-Year Plan of 1985-1990, this Plan targeted an average annual increase of 4 percent production in agriculture. Major programs introduced during this plan included a special program in rice production in the eastern part, the national watershed program for rain-fed agriculture, the national oilseed development project, and social forestry initiatives.

Eighth Five-Year Plan (1992-1997), the main goals were to build on the increases in agricultural output and productivity over the previous forty years, The Pradhan Mantri Rojgar Yojana and Indira Mahila Scheme was introduced.

Ninth Five-Year Plan (1997-2002), the 9th Plan emphasized improving women's health through initiatives aimed at reducing maternal and child mortality, promoting reproductive health, and addressing malnutrition. The objective was to enhance the living standards of women, especially in rural and disadvantaged regions, by improving access to healthcare, nutrition, and family welfare initiatives. The focuses were on enhancing women's economic independence by improving their access to credit, skill development, and employment opportunities. Programs like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) started gaining momentum in later years, helping rural women secure employment. This was highlighted through initiatives like the Reservation for Women in Panchayats, where women were given a 33 percent reservation in local governance. Additionally, legal reforms were encouraged to secure the protection of women's rights, particularly concerning domestic violence and harassment.

Tenth Five-Year Plan (2002-2007), during this Plan, the SJGSY (Swarna Jayanti Gram Swarozgar Yojana) aimed to build 1.25 lakh Self-Help Groups (SHGs), benefiting 25 lakh women (Prabha, 2015). The Gender Budgeting initiative was introduced to ensure that resources were allocated effectively towards women-centric programs.

Eleventh Five-Year Plan (2007-2012), this plan included flagship programs like the NREGP (National Rural Employment Guarantee Programme). Although there was a

significant growth in high-value agriculture sectors such as horticulture, fisheries, dairy, and meat, the overall agricultural growth rate during the Eleventh Plan was likely to be around 3.2 percent per year (Karve, Plans of Agricultural Development in India, 2024). This was more than the Tenth Plan's growth rate but fell short of the 4 percent target.

Twelfth Five-Year Plan (2012-2017), this plan set a target of 4 percent growth in the agricultural sector, with food grains expected to grow at about 2 percent and the non- food grains sector at about 5-6 percent. Achieving an average growth rate of 4-4.5 percent in the agricultural sector during the Twelfth Plan would require significant efforts from the government. Given the importance of these issues, it is crucial to critically examine recent trends in agriculture and the factors contributing to the slow growth, to reorient programs and policies effectively in the Twelfth Plan. Agriculture plays a vital role in rural life, and programs for agricultural and rural development should be tailored to address the needs of rural communities. In the next five-year plan, emphasis should be placed on bridging the gap between science, technology, and farmers to optimize resource utilization, enhance land productivity, and ensure gender equality in agricultural development.

In 2015, the Government of India replaced the Planning Commission with NITI Aayog (National Institution for Transforming India) to adopt a more decentralized, participatory, and flexible planning system. Unlike the rigid framework of Five-Year Plans, NITI Aayog emphasizes cooperative federalism, involving states in decision-making and focusing on long- term policy strategies, innovation, and sustainable development. This shift reflects India's evolving economic and governance priorities, moving from a top-down approach to a more dynamic, real-time policy formulation process.

Gender inequality is one of the major challenges faced by Indian policy maker to achieve faster sustainable growth especially in the area of agriculture (Women, U. N., 2014). The majority of Indians rely on agriculture for their livelihood and increasing population demand variety of food for which India focuses to bring new technic in the area of agriculture. Women play a crucial role in the country's agricultural

development; therefore, the government should implement new policies to enhance their participation across all sectors of agriculture (Beniwal, 2019). According to Sudha Narayan and Sarada Srinivasan “women should priorities more in the process of agricultural activities especially in India because after green revolution the participation of women farmer gradually increase in almost every state of India and limited access to land to women is an important issue on which not only the government but also the society should think carefully.”

Agriculture is no doubt the largest livelihood provider in India, especially in rural India. It is considered the backbone of the Indian economic system and continues as the major occupation of the people of India (Arjun, 2013). In India, 70 percent of the population stays in a rural area, and 60 percent of the overall population engages in agricultural activities as their primary source of income. Agricultural development is given importance through the establishment of the Agricultural Administration committee in 1958 (Johnston, 1961). For the first time, this organization gave more importance to the administrative factor of agricultural development. And it is often stated that the challenge of increasing agricultural production in India is more of an administrative issue than a technical one. Additionally, the role of gender in agriculture remains limited in the country. The international development community acknowledges

agriculture as a key driver of economic growth and poverty reduction, particularly in developing nations where it serves as the primary livelihood for the poor. However, in many of these countries, agriculture is underperforming. A significant reason for this is the crucial role women play in agriculture as farmers, labourers, and entrepreneurs yet they lack proper recognition and access to essential resources (Doss, 2011).

Due to the economic liberalization of market, the male partner of the rural India engaged more in non-farm activities. Gradually this number is increasing, in 1991, 39.1 percent males worked in the farm field which became 50.1 percent in 2001. At the same time, the percentages of women’s participation in agricultural work increase rapidly. Till the year of 2011, 65 percent of rural women directly depend upon agricultural activities (Mohanty, 2014). India is much behind in achieving the

targets of SDGs 5 compared to all the other SDGs. Much more progress remains, especially toward women leadership and labour participation rate. These demands framing sound and target-oriented policies to fill the gaps (UN, 2014). As women play an essential role in agricultural industry in India. Women involved in agricultural activities can be classified into different categories based on their roles, including female agricultural labourers, farmers, co-farmers, female family labourers, farm managers, and agricultural entrepreneurs (Raney, T., et.al.,2011).

In India, 80 percent of economically active women are engaged in the agricultural sector, with 48 percent working as self-employed farmers and 33 percent as part of the agricultural labour force. Despite 85 percent of rural women participating in various farming activities, only around 13 percent have land ownership (Agarwal, 2019). The Economic Survey of India 2017- 18 highlights that with increasing rural-to-urban migration of men, women are progressively taking on greater responsibilities in agriculture, working as farmers, entrepreneurs, and labourers.

The National Policy of Farmers 2007 emphasized the need to acknowledge and integrate women's contributions to agriculture while addressing gender-related challenges in the sector. Additionally, the government observes Rashtriya Mahila Kisan Divas (Women Farmers' Day) on October 15 each year to promote gender equality in Indian agriculture.

Gender, as a socially constructed concept, defines the norms, behaviors, and roles associated with men, women, boys, and girls. These roles can differ across societies and evolve over time, influencing women's participation in agriculture. The ongoing trends in agricultural market liberalization, restructuring of farm work, and growing concerns over environmental sustainability continue to reshape the relationship between gender and agricultural development (Ramachandran, 2009).

2.2 Agricultural Development in Odisha

In the Indian state of Odisha, agriculture serves as the primary source of livelihood, with 60 percent of the workforce dependent on this sector. A significant portion of the

agricultural labor force comprises women. With more than two-thirds of its population engaged in farming, Odisha relies heavily on agriculture.

The state follows three major cropping patterns: Kharif, Rabi, and Zaid. Based on factors such as climate, soil type, rainfall, and cropping patterns, Odisha is categorized into ten distinct agro- climatic zones: the north-western plateau, north-central plateau, north-eastern coastal plain, east and south-eastern coastal plain, north-eastern ghat, eastern ghat highland, south-eastern ghat, western undulating zone, western central tableland, and mid-central tableland (Hoda, A., et al., 2021). Odisha is primarily known for rice cultivation.

Table 1.1 Types of crops produced in Odisha

	Kharif	Rabi	Summer
Time	They are sown in April-May and Harvesting is done in September-October.	sown in (September to October). Harvesting is done in June-July	March to June
Condition	Require wet and hot conditions to grow	Require cold and relatively dry conditions to grow	
Crop Examples	Paddy (Rice), Maize, Groundnuts, Cotton, Soybeans, Pigeon Peas	Wheat, Chickpeas, Mustard, Linseed, Oats, Barley, Sesame, Peas,	Cucumber, Watermelon, Muskmelon, Bitter
	(Arhar), Mung Beans, Red Chillies, Sugarcane, Turmeric, and Millets such as Ragi, Jowar, and Bajra.	Sunflowers, Coriander, Onions, Potatoes, Tomatoes, Alfalfa, Cumin, Fenugreek, Fennel.	Gourd, Pumpkin, Ridge Gourd.

Source Odisha agricultural statistics, 2020

Table 1.1 reveals that Kharif crops, also referred to as monsoon crops, are sown at the onset of the rainy season, typically between April and May, and are harvested during September and October. Rabi crops, also known as winter crops, are planted at the end of the winter season, around September and October, and harvested between June and July. Summer crops, grown during the brief period between the Rabi and Kharif seasons, are cultivated from March to June.

More than half of Odisha's arable land is rain fed; the success of Kharif crops largely depends on the monsoon's timing and intensity. Delayed or insufficient rainfall often leads to crop losses or reduced yields. Frequent natural disasters like cyclones, floods, and erratic monsoons affect crop productivity in the Kharif season. These events can damage crops and disrupt the agricultural cycle.

Rabi crops are heavily dependent on irrigation systems, including canals, wells, and tube wells. The state's irrigation infrastructure is crucial for ensuring good yields during this period, particularly in regions with inadequate rainfall during the Kharif season. The major obstacles during the Rabi season include inadequate soil degradation. Areas with limited access to irrigation tend to leave lands fallow or underperform in terms of crop yields. Additionally, erratic weather patterns and cold spells can sometimes impact crop growth (Economic Survey, 2018). The state typically receives an average annual rainfall of 1451.2 mm, with 84 percent of this rainfall occurring between June and September. Odisha has a total cultivated area of 6.5 million hectares, with rice being the main crop, accounting for 60.55 percent of the cultivated land.

In recent years, there has been a focus on diversifying crop cultivation to reduce dependency on rice and increase the production of pulses, oilseeds, and vegetables. The state government is also promoting improved irrigation methods, such as drip and sprinkler irrigation, to enhance productivity during the Rabi season. Overall, while the Kharif season remains dominant in Odisha's agricultural landscape, the Rabi season is gaining importance as the state works towards improving its irrigation coverage and encouraging crop diversification. Odisha is predominantly

characterized by small and marginal farm holdings. Of the state's total 4.87 million farm holdings, 93 percent fall under the small and marginal category, with each holding covering less than 2 hectares of land and collectively making up approximately 75 percent of the total agricultural land. Between 2010-11 and 2015-16, the share of small and marginal farmers increased by 5.6 percent. According to NABARD's Financial Inclusion Survey for 2015-16, the average monthly income of an agricultural household in Odisha was Rs. 7,731, compared to the all-India average of Rs. 8,931, making it one of the lowest in the country (NABARD, 2018).

Over the past two decades, Odisha's land use patterns have undergone significant changes. While agricultural land has declined, there has been a noticeable increase in fallow lands. The Gross Cropped Area (GCA) decreased from 9.6 million hectares in 1992–93 to 8.5 million hectares by 2016–17. Likewise, the Net Sown Area (NSA) fell from 41 percent to 36 percent of the state's total geographical area of 15.6 million hectares during the same period. Several factors, including rising soil salinity due to frequent flooding, soil erosion, and insufficient irrigation during the Rabi season, have contributed to the shrinking cultivable land. By 2016–17, fallow land, comprising both other fallows and current fallows, had increased to 5.3 percent of the total geographical area. Additionally, significant amounts of agricultural land have been converted for industrial and residential development. Although Odisha remains a major rice-producing state, its cropping pattern is undergoing transformation (Hoda, et.al. 2021). Looking at the 2001 census, in Odisha among total female workers the female cultivators were 20.11 per cent whereas agricultural labourers were 53.90 percent. But in 2011 census, of the total female workers the percentage of female cultivators reduced to 13 per cent whereas agricultural labourers increased to 57.8 percent.

It is noticeable that both India and Odisha have encountered an increasing trend in the percentage of women in agricultural labour. One of the major factors is that most of these women are marginal workers which is the main reason behind not getting regular employment or any kind of financial and social security (Multani, 2017). After adopting the social reform in Odisha women's status remain the same compared to the male member. Estimations as that in Orissa 9.15 percent of the total

number of households are headed by females (Pandey,2008). Around 57.78 percent of women are agricultural labour, and 12.92 percent are cultivators (Bureau, 2009). This study will provide insights into the significance of women farmers and labourers in the agricultural sector, highlighting their contributions to family income.

2.3 Rural Development and Role of Women

Development is commonly understood as a key mechanism for driving progressive change within any society. The term has evolved to encompass a broader range of meanings, including concepts such as 'change,' 'progress,' 'evolution,' and 'transformation.' Typically, Development is a progressive process that enhances both the economic and social structures of a society, evaluated in terms of both qualitative and quantitative improvements. Additionally, it seeks to foster a more harmonious relationship between nature and living beings (Mensah, 2019).

As we entered the twenty-first century, development has increasingly been recognized as a fundamental right. This issue has garnered global attention, especially in Third World countries, where a significant share of the population lives in rural regions with restricted access to employment opportunities and social protection. Consequently, the development of the rural sector is particularly important in the broader context of national development, as it is essential for realizing and implementing policies that aim to achieve comprehensive progress at the national level. The very term 'rural development' has been defined with different connotations. Rural development emphasizes all round improvement of the rural masses which are submerged under abject poverty and chronic unemployment. The Royal Commission of Agriculture (1928) defines rural development as a process that fosters sustainable improvements in the living standards of rural communities, particularly those facing poverty. It encompasses both economic and social initiatives aimed at promoting sustainability, progress, and growth in non-urban areas. These efforts focus on enhancing the overall quality of life for rural populations through various interventions and activities (Coppock, 1956).

Rural development involves a comprehensive approach to advancing rural regions, with the primary objective of improving the well-being of those residing in these

areas. It is a broad and multifaceted concept that includes the development of agriculture, related industries, village and cottage enterprises, handicrafts, socio-economic infrastructure, community services, and, most importantly, human resources.

As a phenomenon, rural development emerges from the interaction of multiple factors, including physical, technological, economic, socio-cultural, and institutional elements. As a strategic approach, it is specifically designed to uplift the socio-economic conditions of the rural poor (Singh, 2009). As an academic field, rural development is inherently interdisciplinary, integrating knowledge from agriculture, social sciences, behavioural studies, engineering, and management.

Ultimately, rural development is a transformative process that seeks to create lasting improvements in the quality of life for rural populations, ensuring that marginalized and underserved communities are integrated into the broader framework of development (Singh, 2009).

In the Indian context, rural development can be defined as the effort to maximize agricultural production and related activities in rural areas, including the promotion of rural industries with a focus on village and agriculture industries. It also involves creating as many employment opportunities as possible in rural regions, particularly for the weaker sections of society, to help them enhance their standard of living. Additionally, rural development aims to provide essential amenities such as drinking water, electricity, roads connecting villages to market centres, and access to health and education facilities (Kapur, 2019).

Rural women play a vital role in driving development, actively contributing to transformative economic, environmental, and social advancements that are essential for sustainable progress. With women making up nearly 50 percent of the global population and constituting one-third of the total labour force, it is imperative to address the challenges faced by many women in rural areas, including poverty, unemployment, and underemployment.

Historically, women's hard work has been integral to the economic structures of rural communities. In recent years, there has been growing recognition of the importance of

"Women and Development," particularly in relation to rural women, and this attention is well-justified (Momsen, 2008).

Economic empowerment for women involves ensuring that both women and men can actively engage in, contribute to, and benefit from economic growth. This includes acknowledging their contributions, preserving their dignity, and promoting a fairer distribution of development benefits. Strengthening women's economic empowerment enhances their access to employment, financial services, property rights, productive assets, skill development, and market knowledge. Increased economic participation empowers women by reinforcing their rights, enabling them to take control of their lives, and increasing their influence within society (Thomas, 2019).

Gender discrimination continues to be a significant barrier to women's participation in development. Throughout the development process, gender bias remains prevalent, often marginalizing women and preventing them from fully integrating into mainstream society. Despite their substantial contributions to societal progress, women frequently receive little to no recognition or benefits. This disparity not only hinders women's advancement but also poses a challenge to national development. Compared to men, women are often denied equal rights and opportunities, limiting their ability to contribute to and benefit from economic and social growth (Mittal, 2019).

Rural women spend a disproportionate amount of time on household and reproductive tasks compared to both urban women and men. These duties include collecting water and fuel, caring for children and the sick, and processing food. This imbalance is primarily due to inadequate infrastructure and public services in rural areas, as well as cultural norms that restrict women's participation in the workforce. According to the International Labour Organization (ILO), rural women make up approximately 25 percent of the global population and contribute significantly to agricultural labour. Women constitute 41 percent of the global agricultural workforce, with this figure rising to 49 percent in low-income nations. In many countries across Southeast Asia and sub-Saharan Africa, more than 60 percent of employed women work in agriculture (Ahmad, 1985).

Worldwide, women and girls perform nearly two-thirds of all work but earn only one-tenth of global income. Despite comprising half of the world's population, they account for just 40% of the paid workforce and own a mere 1 percent of global property. The situation is even more dire for women in rural India, where they face worsening conditions across various aspects of life. Rural women are paid significantly less than men, often earning only half to three-quarters of male wages for performing the same tasks (Walter, 2004). Even though women contribute nearly half of all agricultural labour, their efforts often go unrecognized. On average, rural women work between 15 to 16 hours a day. In India, women earn approximately 25 percent less than men, highlighting the persistent gender wage gap (Kapur, 2019).

The International Labour Organization (ILO) adopts a comprehensive approach to advancing gender equality and women's empowerment in rural economies. This strategy is built on four key objectives: promoting employment opportunities, upholding fundamental labour rights and international labour standards, ensuring social and labour protections, and fostering social dialogue (Dixon, 2013). Within this framework, the ILO works to create more job opportunities for rural women, including young women, while strengthening protections against exploitative labour. It also assists governments in implementing social protection measures, such as maternity benefits, and encourages women's participation in social dialogue and policy discussions.

A crucial step in empowering women in rural economies is supporting their transition from informal to formal employment. The ILO's initiatives aimed at promoting gender equality and economic empowerment for women in rural areas significantly contribute to achieving the United Nations Sustainable Development Goals (SDGs) by 2030 (Fernández, 2021). These include

SDG 1, focusing on poverty reduction.

SDG 2, emphasizing the achievement of food security.

SDG 5, aimed at attaining gender equality and empowering all women and girls.

SDG 8, which seeks to promote sustainable, inclusive, and robust economic growth, full and productive employment, and decent work for all.

SDG 13, which addresses the urgent need to combat climate change and its impacts.

SDG 14, dedicated to conserving and sustainably utilizing oceans, seas, and marine resources for sustainable development.

Role of Women in Rural Development in India

The ancient lawgiver, Saint Manu, emphasized the role of women in society through his scripture Manu Smriti, stating, "Yatra pujiyante naryastu tatra ramante devata", which means that where women are honoured, the gods find joy. Similarly, Swami Vivekananda highlighted the importance of improving women's status, asserting that the progress of the world is impossible without their upliftment, as "a bird cannot fly with only one wing."

Indian scholars argue that historically, Indian culture granted women unparalleled respect and honour. However, during the medieval period, a combination of historical, cultural, religious, and social influences led to a significant decline in their status. Women were increasingly perceived as subordinate, primarily confined to domestic responsibilities and childbearing (Kaur, 1991).

In present day society, Rural India, women bear the brunt of poverty and deprivation, particularly in agrarian, male-dominated communities where the feminization of poverty is a stark reality. Despite numerous government initiatives and anti-poverty programs introduced since independence, significant reductions in rural poverty have not been achieved. A key reason for this ineffectiveness is the lack of participation by the rural population, especially women, in decision-making and the implementation of these programs at the grassroots level. The prevailing male dominance has historically limited women's involvement in local governance and community development, leading to a culture of self-denial among women regarding their role in these processes. However, recent shifts in development strategies have emphasized people's participation and community mobilization, with a particular

focus on empowering rural women. This shift has encouraged women to step out of their traditional roles as passive recipients of aid and become active contributors to household and community income. The expansion of Self-Help Groups (SHGs) has played a crucial role in this transformation, enabling women to engage in savings, loan disbursement, capacity-building, skill development, and income-generating activities (Manjunatha, 2013). As a result, rural women are now increasingly recognized as vital contributors to both family and community development.

Women often face greater challenges in accessing economic opportunities compared to men due to the additional workload they bear. In many societies, women shoulder the majority of household and childcare responsibilities, including the rearing of small livestock, although cultural norms and practices may vary. This unpaid workload places limitations on women's ability to engage in income-generating activities, especially those that require a significant time investment before becoming profitable. Additionally, tasks such as caring for children and elderly household members require women to remain close to home, further restricting their options for wage-based employment (Negash, 2012).

The concept of women's triple role encompasses three distinct categories of responsibilities: productive, reproductive, and community activities. Productive activities involve tasks that contribute to the economic well-being and advancement of both the household and the community. However, these tasks are often divided along gender roles, leading to different types of work for men and women. In rural areas, women play a significant role in productive activities such as farming, livestock and aquaculture, off-farm income generation, wage labour, and home gardening, surpassing men's participation in these areas (Sridhara, 2009).

Reproductive work is centred around essential tasks related to the care and maintenance of the household and its members. Unfortunately, reproductive roles, as noted by (Berhanu ,2006) tend to be overlooked and do not generate income within household activities. In rural settings, women bear the primary responsibility for a wide range of domestic tasks, including cooking, firewood collection, family care, cleaning, and washing. Additionally, they take on additional responsibilities such as water collection, shopping, repairs, and the care of disabled, elderly, or ill family

members. While these responsibilities are typically assigned to women, it is important to acknowledge that men also play significant roles in various cultural contexts. Moreover, women's reproductive roles encompass the crucial aspects of pregnancy, childbirth, and breastfeeding, which are vital for the survival and well-being of the entire family unit. Despite the lack of recognition, reproductive roles serve as the foundation of a household and are indispensable for human sustenance (Berhanu, 2006).

Community work involves collaborative efforts to organize social events, provide services, host ceremonies and celebrations, participate in community development initiatives, engage in various groups and organizations, and actively contribute to local political activities. Gender-based community management roles encompass activities that contribute to the well-being and progress of the community, highlighting the importance of gender-specific contributions to community development (Negash, 2012).

Our customs and traditions continue to dictate women's clothing choices and prescribe specific norms for widows to follow. This indicates that women often lack autonomy in decision-making. *Purdah*, a practice of seclusion or veiling, remains common in many regions, creating barriers to women's participation in areas where men hold important roles. Although many men express disapproval of dowry, they oppose equal sharing of parental property between themselves and their sisters.

The deeply rooted inequalities within our traditional social structure—shaped by caste, community, and class play a crucial role in determining women's status across various aspects of life. The rights granted to women, their expected roles, societal norms governing their behaviour, and the ways they are treated differ across groups and regions. These variations are further influenced by the stage of development and the social standing of each group within the hierarchy. As a result, the complexity of these factors makes it impractical to draw broad generalizations about women's status (Gowda, 2018). In many rural societies in India, gender-based social differentiation is prevalent. Within various employment settings, employers hold the belief that women are not as capable of performing manual labour compared to men. This

viewpoint is a significant contributor to the discriminatory treatment women face. Although there has been some progress in assigning legal equality to women in recent times, it is often more symbolic than actual. This indicates that women's status is still considered subordinate to men. Despite their significant contributions, such as inventing 50 percent of the world's food, women are primarily seen as reproducers. However, there is growing recognition of their role as producers, which has gained significance within society (Kapur, 2019).

The policies and programs designed to promote women's development often prioritize improving the status of male members. In rural areas, males are commonly seen as the primary drivers of enhancing family status. People hold the belief that if males are enrolled in schools or sent to urban areas to acquire higher education, they will make significant contributions to the well-being of their families and communities. Unfortunately, this viewpoint neglects the potential of women to equally contribute to the betterment of their families and communities.

In rural households, it is often observed that due to poverty or other factors, parents are unable to provide education for their children. However, they tend to send their male children to urban areas in search of better livelihood opportunities. On the other hand, girls typically remain in the villages and receive training in various household responsibilities. They learn skills related to producing handicrafts, food items, embroideries, knitting, crochet, and similar activities (Butt, 2010). Meanwhile, girls are trained in various household responsibilities such as cleaning, washing, livestock care, water collection, meal preparation, and taking care of siblings and elderly family members, particularly when parents are away for work. Nowadays, rural communities have recognized the importance of education and are increasingly enrolling their girls in educational institutions.

In rural areas, limited resources often lead to a preference for educating male children over females. Among individuals aged seven and above, the literacy rate was observed to be 83 percent for males and 67 percent for females. Additionally, a smaller proportion of rural males (approximately 4.5 %) and females (approximately 2.2 %) were found to have completed their education to the graduation level and

beyond (Beevi, 2011).

Employers often hold the perception that men are more suitable for manual labour tasks such as lifting and loading. However, both women and men participate in manual jobs in rural and urban areas. For example, in the construction industry, both genders are involved in manual labour. Unfortunately, one negative aspect women face is unequal pay compared to men, even when performing the same job duties. This pay disparity serves as a significant indicator of discriminatory treatment against women.

Role of Women in Rural Development in Odisha

Women in Odisha play a key role in the agricultural sector, participating in almost every aspect of farming, from sowing and weeding to harvesting and post-harvest activities. However, despite their extensive involvement, the contributions of women in agriculture are often undervalued and underrecognized, both socially and economically. According to the 2001 Census, 34.15 percent of the male workforce were cultivators, and 26.39 percent were agricultural labourers. In contrast, 20.11 percent of the female workforce were cultivators, while a significant 53.90 percent were agricultural labourers. By the 2011 Census, the percentage of female cultivators had decreased to 13 percent, while the percentage of female agricultural labourers had increased to 57.8 percent. This trend of increasing female participation in the agricultural labour force is observed both in Odisha and across India. Women work on huge industrial farms and plantations, as well as small and medium-sized farms. A notable characteristic of women agricultural labourers is that many are marginal workers, meaning they are employed for less than six months a year and often lack regular employment. The majority of these women work on a seasonal, casual, or temporary basis, with little to no access to social security or unemployment benefits (Panda, 2015).

In Odisha, over half of rural women are engaged in the agricultural sector. Despite the increasing participation of women in agriculture and related activities, they continue to earn significantly less than men, with the wage gap widening over time. This issue is particularly concerning as Odisha already has lower wage rates

compared to the national average, resulting in women being overworked and undercompensated.

Overall, agriculture and allied activities employ 55 percent of Odisha's rural workforce, equating to two out of every five workers, and contribute 26 percent to the state's economy. While the agricultural sector in Odisha experienced a growth rate of 6.3 percent in 2020-21, nearly twice the national average the state still lags behind in terms of overall agricultural wages (Mishra, 2014). Additionally, like the rest of India, Odisha is undergoing a transition from agriculture to industry and services, despite the sector's continued significance to the state's economy.

Women's participation in agriculture plays a vital role in ensuring food security and fostering economic growth in Odisha. Providing them with adequate resources, training, and recognition is not just a step toward gender equality but also a crucial factor in strengthening the long-term sustainability and resilience of the agricultural sector. As Odisha progresses, it is essential to acknowledge and support the contributions of women in agriculture to achieve inclusive growth and overall prosperity.

With Odisha's economy being predominantly agro-based, a large segment of the workforce, particularly women, is engaged in agricultural activities. More than 60 percent of the state's total workforce depends directly on agriculture for their livelihood, highlighting the sector's significance in sustaining both the economy and rural communities.

2.4 Trends and Patterns in the Feminization of Agriculture

Authentic democracy, as Abraham Lincoln described it, is a form of governance that is created and operated by the people, with the ultimate goal of serving the people. While many democracies have established systems where governments are elected by all segments of society, the persistent issue of low women's participation poses a significant challenge. Without addressing this concern, true democracy cannot be fully realized. The limited representation of women in development processes underscores the urgent need to promote gender equality in governance. Gender

mainstreaming is not merely about incorporating a distinct "women's" component into existing initiatives; it involves integrating the experiences, perspectives, and needs of both men and women to drive the development agenda forward. This approach ensures that policies, planning, implementation, and resource distribution reflect gender-inclusive perspectives.

The feminization of agriculture refers to the increasing involvement of women in agricultural activities, a trend observed across many developing regions, including India. This shift is largely driven by male outmigration, changing rural labour dynamics, and the growing reliance on women to sustain household agricultural production. Women are now taking on diverse roles—not only as labourers but also as cultivators and decision-makers. However, despite their growing participation, gender disparities in access to resources, land, credit, and extension services persist. Understanding these evolving patterns is crucial for designing gender-responsive agricultural policies and interventions that recognize and support the critical contributions of women in this sector. In India, men predominantly hold power and influence across economic, political, religious, social, and cultural institutions. Over centuries, patriarchal structures have shaped and controlled women's choices, particularly in matters of livelihood and personal autonomy. These inequalities are reinforced through societal norms rooted in family, caste, community, and religion, leading to the persistent stereotyping of women in both public and private spheres (Shukla, 2015).

Equal participation of men and women in governance is essential for multiple reasons. Firstly, it enables a fair and efficient allocation of resources. Secondly, it contributes to improving living conditions and advancing women's interests. Thirdly, it shifts political priorities towards issues that affect both genders, ensuring equitable access to economic opportunities. Additionally, increased female participation in governance highlights the significance of reproductive roles in policymaking and strengthens women's involvement in political decision-making (Gaventa, 2004).

The aspirations, awareness, and behaviour of women both personally and professionally—are influenced by several factors, including family background and

personal experiences. Traditional expectations surrounding domestic responsibilities, marriage, childcare, and respect for elders often take precedence over career ambitions (Raut, 2021).

Women's workforce participation in India remains alarmingly low, with only 25 percent of women currently employed and less than 0.5 percent actively seeking work. The overall labour force participation rate is just 25.3 percent, and this figure has seen a steady decline over the past decade. The situation is particularly concerning for Muslim women, with their workforce participation falling below 10 percent. In urban areas, only 15.5 percent of women are engaged in formal employment, while in rural areas, the rate is slightly higher at 30 percent (Shukla, 2015).

According to the 2011 Census, women make up 48.5 percent of India's population of 1.2 billion, yet their workforce participation is only 25.5 percent. In the public sector, women occupy just 20 percent of positions, and their representation in senior civil service roles within the government is less than 15 percent. Furthermore, out of 95 government departments and organizations, only 15 have women serving as secretaries or in leadership roles (Beniwal, 2019).

The ethics of domestication and seclusion have hindered women's ability to hold public office, as they were often lacking formal education, information, skills, and experience. The reliance on men within both households and local governance institutions has often led to the exploitation of women's lack of political experience for personal gain. Additionally, due to the widespread social perception that women are primarily homemakers, the efforts of many women elected representatives have gone largely unrecognized and undervalued. The inadequate representation of women in political decision-making has profound effects on public policy priorities, the promotion of women's interests, and the overall credibility of democratic institutions.

When discussing the pursuit of genuine gender equality, terms such as positive discrimination, affirmative action, quotas, and reservations are frequently used interchangeably. These concepts refer to policy measures designed to address systemic discrimination and inequities within both economic and political structures.

Positive discrimination is the most comprehensive term, encompassing measures that empower those who have historically faced discrimination (Pant, 2007). In the words of “Pant” the process of engendering has often been reduced to simply "adding women" without critically examining the fundamental assumptions, strategic goals, or methods employed to bring about institutional changes for achieving gender equality.

Participation of Women in Agriculture in India

From ancient times to the present day, women have played significant roles in various fields, including politics, arts, sciences, education, and more. Although progress has been made in reducing gender-related barriers and biases, the persistence of gender stereotypes hinders women career advancement. Gender stereotypes continue to hinder the availability of opportunities for women’s career progression, as they influence managerial behaviour and occupational perspectives in the workplace, often aligning with patriarchal expectations. The primary focus of our country's planners and policymakers is to address gender inequalities by empowering women.

In the 1950s and 1960s, governmental policies primarily targeted the welfare of women. However, during the 1970s, there was a notable shift towards fostering the development of women. Subsequently, from the 1980s onward, the emphasis has transitioned towards empowering women rather than merely focusing on their development (Mohapatra, 2016). In 1990 and 20s government focused more on policies formulations with women participation. Around 1960 the women’s movement took its first step in the name of gender equality throughout the western world. Feminist thinkers and developmental theorists realize that gender inequality is one measure of social progress and the nation-building process. In the period of 1950-60 poverty is playing a master role to bring the issues of gender inequality into the developmental approach. In the year of 1962, the United Nations General Assembly instructed a commission to make a report on women’s role in

development. In 1975 the first world conference on women was held in Mexico City which is again a major step bringing issues in the developmental approach, also this conference explains the women's condition in patriarchy and capitalist society.

The feminization of agriculture refers to the growing involvement of women in all aspects of agricultural work. Despite their significant contributions, women are often overlooked in policy-making processes. However, this shift enables women to gain greater control over their labour, make independent decisions, and actively participate in decision-making processes.

In the context of agriculture, feminization can be understood in three key ways: an increase in the proportion of women engaged in agricultural work, a rise in the number of female labourers within the sector, and a growing percentage of women managing and leading agricultural activities. This transformation has played a crucial role in shaping the gender and development approach, highlighting the need for inclusive policies that recognize and empower women in agriculture. Budgets indeed play a pivotal role in driving developmental processes. Budget serve as blueprints outlining the allocation of financial resources towards various sectors and initiatives essential for social, economic, and infrastructural progress. From budget, "Gender Budget" holds significant importance in India as it serves as a crucial tool for advancing gender equality and women's empowerment within the country's development framework. By integrating gender considerations into budgetary allocations and policies, gender budgeting aims to address disparities and inequities faced by women and marginalized communities. In India, where gender gaps persist across various sectors, including education, agriculture, healthcare, employment etc. The implementation of gender budgeting helps ensure that resources are allocated in a manner that promotes equal opportunities and outcomes for all genders. Moreover, gender budgeting enhances transparency and accountability in governance by tracking and analysing the impact of budgetary decisions on different gender groups Overall, gender budgeting plays a pivotal role in fostering inclusive and sustainable development in India, ultimately contributing to the nation's social and economic progress. The socio and economic progress will not be possible without the progress of agricultural development because agriculture being the major source of livelihood

of the majority of the population of India as well as Odisha.

Agriculture and its related sectors serve as the primary source of livelihood for rural communities, with nearly 80 percent of economically active women engaged in these fields. Among them, approximately 33 percent work as agricultural labourers, while 48 percent are self-employed farmers. Women in rural areas contribute significantly at various stages of the agricultural value chain, including production, pre-harvest activities, post-harvest processing, packaging, and marketing. Their participation plays a crucial role in improving productivity and efficiency within the agricultural sector. According to Pingali (2019), the proportion of women working in agriculture compared to men has been rising, leading to a notable impact on per capita GDP.

In developing countries, women are essential contributors to agricultural and rural economies. However, they face numerous challenges that limit their involvement and overall impact on agricultural development. These barriers include restricted access to financial resources and institutional credit, insufficient technical training and extension services, a heavy workload, limited access to irrigation facilities, modern agricultural inputs, and land ownership. Unfortunately, these constraints disproportionately affect women compared to men, further reducing their participation and productivity in rural and agricultural development (Negash, 2012).

In India's rural workforce, only a quarter of the primary workforce comprises women. However, a significant portion of rural female workers is categorized as marginal workers, highlighting the gender disparities in employment and economic opportunities within rural areas (Ferahtia, 2021).

Participation and Role of Women in Agriculture in Odisha

Women play a crucial role in Odisha's agricultural development, with 35.1 million women engaged as cultivators and 59.1 million working as agricultural labourers (Census, 2011). The feminization of agriculture refers to the increasing involvement of women in various capacities within the agricultural workforce, including as producers, unpaid family workers, and wage labourers. While the nature of this

feminization varies across different agricultural and livelihood systems, its fundamental essence lies in the rising contribution of women to the sector.

Advancing agricultural mechanization is essential for improving crop productivity by minimizing labour demands and reducing the time required for farming activities. Given that women are heavily involved in tasks such as sowing, transplanting, weeding, and harvesting, ensuring their access to farm machinery, tools, and equipment is critical. The introduction of gender-friendly equipment can ease their workload, lessen physical strain, and enhance their overall efficiency in agriculture.

Historically, women in Odisha have played a significant role in shaping the state's socio- cultural, political, and economic landscape. Despite numerous challenges, they continue to contribute to the state's development. However, issues related to their well-being and advancement persists. More than half of Odisha's rural women are engaged in agriculture and allied activities. The percentage of women in the agricultural workforce increased from 43.8 percent in 2018-19 to

57.2 percent in 2019-20 before settling at 54.2 percent in 2020-21 (Swain, 2018). Given the state's already low wage rates compared to the national average, women in the sector often experience excessive workloads while receiving inadequate compensation. Odisha has a relatively lower proportion of women cultivators compared to other states (Kundu, 2019). Only 13.9 percent of women in Odisha are cultivators, which is significantly below the national average of 33 percent (Census, 2011). However, 29.7 percent of rural women in Odisha participate in the workforce, aligning closely with the national rural women workforce participation rate of 30 percent (Census, 2011).

According to Rawal and Saha's 68th Round report, 65.9 percent of women in rural Odisha are self-employed, surpassing the national average of 59.3 percent. The feminization of agriculture has accelerated due to the migration of men to non-farm jobs, leaving women to take on greater responsibilities in agricultural work. However, without land ownership rights, female agricultural labourers, widows of farmers, and tenant farmers face a lack of recognition as farmers, denying them access to crucial entitlements and support systems (Rawal, 2015).

Employment availability empowers individuals and their families by providing the means to acquire both essential necessities and desired goods for comfort and leisure. The work participation rate offers insight into the level of involvement in economic activities within a particular population (Mohanty, 2013). However, women from affluent households may choose not to participate in available work opportunities due to the lack of economic necessity, as their households possess sufficient assets and opportunities. Hence, it's evident that a growing number of women are supplementing their domestic responsibilities with additional economic pursuits outside the home, endeavouring to reconcile societal expectations with their own economic goals or pressures. This dual workload for women is also a distinctive feature of developing nations. The size of the household plays a vital role, as women in larger families may feel pressured to work to support additional members. Conversely, if there are more adult male members in the family, women may not feel the same need to work. Thus, rather than just family size, factors such as the household dependency ratio and sex ratio are more significant. Women in families with a high dependency ratio or more female members are more likely to participate in the labour force compared to others (Azeez, 2019). When we are discussing about work participation rate of India, we cannot neglect rural India because Rural people dedicate a greater amount of time to reproductive country economy. Despite comprising nearly half of the total rural population, females represent only slightly more than one-third of the entire rural workforce, including both main and marginal workers, as of 2011.

2.5 Policies Transforming Women Empowerment in Agriculture

Since Independence, the government of India has launched numerous flagship schemes and programs aimed at improving the social standing of rural women by creating livelihood opportunities and facilitating their participation in paid employment. These initiatives include the PMEGP (Prime Minister's Employment Generation Program), National Livelihoods Mission, DDU-GKY (Deen Dayal Upadhyay Grameen Kaushalya Yojana), Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Beti Bachao Beti Padhao, and Pradhan Mantri Matru Vandana Yojana

(Patel, 2021). National Institute of Agricultural Extension Management (MANAGE), Kisan Credit Card (KCC) Scheme, Rashtriya Krishi Vikas Yojana (RKVY), Pradhan Mantri Fasal Bima Yojana (PMFBY), Mahila Kisan Sashaktikaran Pariyojana (MKSP), Deendayal Antyodaya Yojana – National Rural Livelihood Mission (DAY-NRLM), National Mission for Empowerment of Women (NMEW), Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) and SHGs programmes.

Policies, programme and scheme of India

Department of Agriculture and Farmers' Welfare (DAFW) – Focuses on policies, programs, and initiatives for crop production, agricultural extension, mechanization, and farmers' welfare schemes. Department of Agricultural Research and Education (DARE) – Oversees agricultural research and education through institutions like the Indian Council of Agricultural Research (ICAR). Down are some policies that empowered women farm personnel.

Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) is a skill development program launched by the Government of India under the Ministry of Rural Development. It aims to enhance the employability of rural youth, particularly from economically weaker sections, by providing them with industry-relevant skills. The scheme focuses on wage employment, offering training in various sectors such as healthcare, retail, construction, and hospitality.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) is a flagship skill development scheme launched by the Government of India under the Ministry of Skill Development and Entrepreneurship. It aims to provide free, industry-relevant skill training to youth, enhancing their employability and enabling them to secure better livelihoods. The scheme offers short- term training, recognition of prior learning, and placement support in various sectors such as manufacturing, healthcare, and retail. PMKVY operates through accredited training centers across the country and emphasizes certification, ensuring that trainees meet industry standards. By focusing on both urban and rural youth, the scheme contributes to workforce development and economic growth.

The National Institute of Agricultural Extension Management (MANAGE) is an autonomous organization under the Ministry of Agriculture and Farmers' Welfare, Government of India. Established in 1987, it serves as a premier institute for training, research, and consultancy in agricultural extension management. MANAGE focuses on enhancing the capacity of agricultural professionals, policymakers, and rural entrepreneurs by providing training in agribusiness, farm management, and rural development. It also supports initiatives like the Agri-Clinics and Agri-Business Centres scheme to promote self-employment among agricultural graduates. Through its innovative programs, MANAGE plays a crucial role in strengthening agricultural extension services and improving farm productivity in India.

Mahila Kisan Sashaktikaran Pariyojana (MKSP) is a sub-component of the National Rural Livelihoods Mission (NRLM) launched by the Government of India to empower women farmers. It aims to enhance the participation of women in agriculture by improving their access to resources, technology, and knowledge. The scheme focuses on sustainable agricultural practices, skill development, and promoting women-led enterprises in allied sectors like dairy, fisheries, and poultry. MKSP also encourages the formation of women's self-help groups (SHGs) and producer collectives to strengthen their role in decision-making and economic activities. By promoting gender mainstreaming in agriculture, the scheme seeks to improve livelihoods and ensure food security for rural women.

Policies, programmes and schemes of Odisha

Department of Agriculture & Farmers' Empowerment-This department focuses on enhancing the agricultural sector and empowering farmers in the state. Established in 1945 as the Directorate of Developments, it was later renamed the Directorate of Agriculture and Food Production. In 1977 and 1978, the Horticulture and Soil Conservation wings were separated into distinct directorates. The department's initiatives aim to boost agricultural productivity and support farmers' livelihoods.

Department of Women & Child Development- This department is committed to the welfare and empowerment of women and children in Odisha. Its vision is to achieve gender equality, promote maternal and child health, ensure access to education and

opportunities, and foster a safe and nurturing environment.

Mission Shakti

A flagship program by the Government of Odisha to empower women through self-help groups (SHGs). Mission Shakti is a significant initiative launched by the Government of Odisha on March 8, 2001, aimed at empowering women through the formation of Self-Help Groups (SHGs). This program focuses on promoting women's economic independence by providing them access to training, credit, market linkages, and business opportunities. Initially started with the objective of improving women's participation in socio-economic activities, it has evolved into a large-scale movement that now reaches around 70 lakh women across the state, making up 6 lakh SHGs. The program offers various benefits including training in diverse skills, facilitating loans, and encouraging entrepreneurship. Mission Shakti has played a crucial role in transforming women in rural Odisha into successful entrepreneurs. These women manage activities ranging from agriculture-related businesses to banking operations, thereby gaining financial security and boosting their communities' economic resilience (Govt of Odisha, 2018). The scheme has also been instrumental in breaking down gender barriers and enabling women to take on leadership roles in both economic and social spheres. It provides training, capacity building, and financial assistance, enabling women farmers to take part in agricultural activities effectively.

Krushak Assistance for Livelihood and Income Augmentation (KALIA)

Under the KALIA scheme, financial aid is provided to small and marginal farmers, including women farmers, for crop cultivation, livestock rearing, and agricultural diversification. The scheme is a flagship program launched by the Government of Odisha in 2018 to support small and marginal farmers, landless agricultural labourers, and vulnerable farming households. It focuses on providing financial assistance to enhance agricultural activities and ensure livelihood security. Enhance agricultural productivity and income, provide livelihood support to landless and marginalized farmers and reduce reliance on informal credit by offering financial

inclusion and support (Govt of Odisha, 2018).

Odisha Livelihood Mission (OLM)

The Odisha Livelihood Mission (OLM) is a major initiative by the Government of Odisha aimed at reducing poverty by promoting self-sustaining livelihoods and improving economic opportunities for rural populations. Launched in 2014, the mission focuses on empowering rural communities, especially women, through the formation and strengthening of Self-Help Groups (SHGs), which are pivotal to the program's success (Govt of Odisha, 2016).

Biju KBK Plan - Women's Welfare Component

Supports maternal and child healthcare, skill development for women, and small-scale entrepreneurship initiatives. The Biju KBK Plan was launched by the Odisha government to address the developmental challenges in the KBK (Koraput, Bolangir, Kalahandi) region, named after the late Chief Minister Biju Patnaik. It began in 2007 and aimed to improve the quality of life in these underdeveloped areas through focused investment in critical sectors (Govt of Odisha, 2006).

The Subhadra Yojana

It is a significant initiative launched by the Odisha government to empower women across the state. The Subhadra Yojana was initiated by the Odisha Government in 2020 with the aim of empowering women financially. The scheme provides financial assistance to women in rural areas, along with digital literacy training and rewards for digital transactions. Under this scheme, eligible women will receive Rs. 50,000 over five years, distributed in annual instalments of Rs. 10,000. This financial support aims to enhance the economic independence of women and improve their socio-economic status (Govt of Odisha, 2024).

Among all the programs, the researcher focuses exclusively on initiatives dedicated to women's empowerment. The study places particular emphasis on Self-Help Groups (SHGs), recognizing their vital role in promoting women's overall

development. SHGs contribute significantly to enhancing economic independence, improving social status, and fostering active participation in decision-making processes.

2.6 Self Help Groups and women empowerment

A Self-Help Group (SHGs) is a small, homogenous collective of poor rural women who come together to save money, engage in internal lending, and eventually connect with banks to access credit for both consumption and income-generating activities. The concept of Self-Help Groups (SHGs) was first introduced in Bangladesh by Dr. Mohammad Yunus, the visionary behind Grameen Bank. His groundbreaking microfinance model served as the cornerstone for building financial independence through collective effort. This idea gained traction, leading to the establishment of the first women-focused SHG in 1983. Over the years, SHGs have played a pivotal role in promoting financial inclusion, enhancing skills, and fostering community support, particularly in rural and marginalized regions. These groups provide a collaborative platform where members work together to access credit, improve their livelihoods, and tackle common challenges. As a result, SHGs have evolved into a global phenomenon, empowering individuals and contributing significantly to sustainable development and social transformation.

However, being informal and limited in size, these groups often face challenges in offering sustainable and viable services. As the group's fund size grows or the SHGs operates over an extended period, it becomes harder for the members to function effectively as an informal group. The promotion of Self-Help Groups (SHGs) in India gained significant traction in 1992 with the launch of the SHG-Bank Linkage Program by the National Bank for Agriculture and Rural Development (NABARD). This initiative was designed to improve access to formal credit for the rural poor in an affordable and sustainable manner. By leveraging SHGs, the program facilitated financial inclusion and supported a variety of income-generating activities, particularly in agriculture and allied sectors. According to NABARD, SHGs are voluntary, homogenous groups of rural poor who save a portion of their earnings and contribute to a common group fund, which is then used to meet the members'

productive and urgent credit needs. The aim to promote self-reliance, collective decision-making, and social empowerment within communities SHG play a pivotal role. The primary goals of Self-Help Groups (SHGs) are given bellow

1. To promote the habit of saving within the community.
2. To empower individuals to pool their savings and create a financially viable, sustainable revolving loan fund that meets their credit requirements.
3. To help SHGs evolve into institutions where members can discuss and solve common issues, while building confidence through the development of managerial skills for managing group funds.
4. To foster cooperation within the community.
5. To cultivate leadership within the group.
6. To enhance the socio-economic conditions of the rural poor.

Self-Help Groups (SHGs) are formed by individuals who voluntarily unite with a common purpose. These groups generally comprise members who are well-acquainted with each other and belong to the same community, village, or neighborhood (Bansode, 2013).

SHGs are typically small, with membership ranging from 10 to 20 individuals, who are often homogenous and share common factors that unite them. These groups begin with savings rather than credit, utilizing their pooled savings to provide loans to members for emergency and other needs. The group collectively determines the amount each member should save, the maximum loan size, and the mechanisms for loan guarantees. Regular meetings are held where savings are collected, loans are distributed, recoveries are made, and group decisions are discussed. All transactions are recorded in the group's account books. SHGs provide a simple and cost-effective way to manage small savings. They open a savings bank account at a nearby bank branch to deposit any surplus funds, and after six months of consistent saving and lending, they can apply for a loan from the bank (Gugerty, 2019).

Women's participation in Self-Help Groups (SHGs) has contributed significantly to

their empowerment, leading to greater social involvement and improvements in literacy, health, and overall living standards. Through SHGs, women have gained both financial independence and social recognition, enhancing their quality of life and societal status. Mukherjee, S. (2019), in his article "Group Lending and Financial Inclusion: The Role of NABARD," presents a framework highlighting the role of SHGs in empowering women, emphasizing that their empowerment is essential for achieving social equality. According to Sinha (2012), empowering women not only strengthens individuals but also positively impacts their families, communities, and society as a whole, fostering collective participation in development efforts.

The growth of the Self-Help Group (SHG) movement in Odisha has brought a transformative shift in the socio-economic development of its people, particularly rural women. This movement has played a crucial role in enhancing the socio-economic empowerment of women, especially in rural communities, by providing them with opportunities for financial independence and active participation in development initiatives. While the SHGs movement has been a direct outcome of efforts to empower women, there is still much progress to be made in improving women's overall well-being. One effective intervention that has addressed both poverty and women's empowerment, with promising results, is microfinance. Over the past decade, microfinance has grown rapidly in Odisha, becoming one of the most impactful approaches to reducing poverty and empowering women.

The entry of NABARD into Odisha in the mid-1990s to support SHGs activities provided a significant boost to banks and NGOs, encouraging them to strengthen their efforts in promoting SHGs (Jain, 2012). As NABARD's pilot project linking SHGs with banks gained momentum after 1992 in southern India, NGOs in Odisha recognized SHGs as a viable approach to promoting socio-economic development, particularly for rural women, and began encouraging SHGs formation in their areas. However, by 1998, only 1,043 SHGs in the state were linked with banks, with just 105 of those in the western districts of Odisha (Mansuri, 2010).

Mission Shakti was initiated on International Women's Day, March 8, 2001, with the objective of empowering women by establishing and promoting one lakh Women's

Self-Help Groups (WSHGs) within a four-year timeframe (2001–2005) while also reinforcing the existing groups. Between April 2001 and September 2003, a total of 96,661 WSHGs were established in Odisha, encompassing 12,42,313 members. Of these, 40,203 groups were linked to credit through banks, with over Rs. 68 crores disbursed as loans to these groups. Partnerships were formed with the Orissa Khadi and Village Industries Board, as well as the Orissa Khadi & Village Industries Commission, to engage Women's Self-Help Groups (WSHGs) in the Gramado Rojgar Yojana (REGP). Additionally, in collaboration with the Department of Horticulture, SHGs in the state are being encouraged to engage in banana cultivation, with 374 groups involved in cultivating bananas in irrigated areas. Efforts are also being made to prioritize the allocation of Gram Panchayat tanks to WSHGs for pisciculture activities.

The Department of Women and Child Development, leveraging its extensive infrastructure and state wide reach, plays a vital role in promoting the Self-Help Group (SHG) movement. Through Mission Shakti, the government has prioritized initiatives such as group formation, skill development, and expanding market access for women entrepreneurs to strengthen their income-generating opportunities. The mission aims to empower women by establishing and promoting over two lakh SHGs by 2008, while also strengthening the existing groups through capacity-building initiatives and credit linkages to support income-generating activities (Monika,2020).

The emphasis on Women's Self-Help Groups (SHGs) stems from their potential to foster participatory development in rural areas. People's active involvement is essential for unlocking development in these regions. Participation is a voluntary process where individuals, especially the disadvantaged whether due to income, gender, caste, or education can influence and control decisions that affect their lives. At its core, participation involves giving people a voice and the ability to make choices, as well as developing their organizational and management skills to address challenges and sustain improvements. By working as a collective, groups can develop the capacity to resist policies that may negatively impact their livelihoods and quality of life (Seeley, 2001).

Poverty and deprivation tend to be more severe in rural areas compared to urban areas, and within certain groups such as Scheduled caste, Scheduled Tribe households, as well as women- headed households. Women, especially those without ownership of land or assets, and particularly those in rural areas, often bear the brunt of poverty and deprivation. Financial empowerment, particularly access to savings and credit, remains limited for many rural women, especially those engaged in unpaid household activities.

Self-Help Groups have emerged as a powerful development strategy to promote the common interests of the vulnerable, particularly the rural poor. The Government of India is actively working to address the deficiencies in rural structures and is focusing on rural reconstruction by addressing the social, economic, and agricultural challenges faced by villages (Kaur, 2008). Self-Help Groups (SHGs) have emerged as an alternative development strategy to support the interests of vulnerable and marginalized sections of society. This self-help model fosters a human dimension of benefit-sharing within the group. Through collective efforts, women have gained the ability to secure loans and generate income within their own villages. This represents a crucial aspect of empowerment, enabling women to take charge of their financial well-being. The scarcity of resources can be addressed through a participatory approach to community development. Funding agencies, both government and international, should focus on creating self-sufficiency and self-reliance within communities by shifting the focus from welfare to development (Venkataraman, 2002).

Mission Shakti was launched in Odisha on International Women's Day in 2001 to improve rural women's livelihoods by empowering them through income-generating activities supported by microcredit and market linkages. The Odisha Livelihood Mission, formerly known as the Orissa Poverty Reduction Mission (OPRM), took a holistic approach to establishing and revitalizing Women's Self-Help Groups (WSHGs) across the state. These groups are formed at the village level, where economically disadvantaged women come together and are later integrated into Cluster Level Forums (CLFs) and Gram Panchayat Level Federations (GPLFs) at the local government level. To further support their efforts, the Odisha government

created a dedicated Directorate of Mission Shakti under the Department of Women and Child Development and Mission Shakti (WCDMS) to oversee and enhance WSHG activities statewide. By 2020-21, Mission Shakti had transformed into a massive grassroots movement, encompassing over six lakh WSHGs and engaging nearly 70 lakh women throughout Odisha.

The 73rd Constitutional Amendment Acts marked a crucial step toward decentralized planning and governance. Before these amendments, Article 40 of the Directive Principles of State Policy emphasized the need to establish village Panchayats with the authority to function as self-governing units. However, the mere empowerment of Panchayati Raj Institutions (PRIs) did not automatically ensure the participation of the rural poor. As of 2024, Odisha's Self-Help Group (SHG) movement has expanded significantly, with approximately 6.02 lakh SHGs actively functioning in the state. These SHGs have mobilized over 70 lakh rural women, providing them with financial independence and social support. Through programs like Mission Shakti, these groups have collectively saved around ₹7,000 crore and accessed ₹17,000 crore in credit through bank linkages. The state government continues to assist these groups through skill development, capacity building, and improved market access, enabling them to engage in income-generating activities across agriculture, horticulture, and pisciculture.

Gram Sabha in Odisha plays a crucial role in local governance, ensuring direct participation of villagers in decision-making. As the foundation of the Panchayati Raj system, it consists of all registered voters in a village and meets periodically to discuss development plans, social welfare programs, and resource allocation. In Odisha, Gram Sabha is particularly significant in tribal-dominated areas, where it safeguards community rights over land, forests, and local resources under the Panchayats (Extension to Scheduled Areas) Act (PESA). It also monitors government schemes, promotes transparency, and empowers rural communities to voice their concerns and influence governance at the grassroots level.

Between 2016-17 and 2020-21, Mission Shakti significantly contributed to the rise of Women Self-Help Groups (WSHGs) in Odisha, adding 2,87,367 new groups. The initiative gained considerable momentum among economically weaker sections in

rural Odisha over the past five years. By 2006-07, 2,48,689 WSHGs had been formed, which increased to 3,14,646 by 2016-17, showing an expansion of 65,957 groups over a decade. With the establishment of the Directorate under the Department of Women and Child Development and Mission Shakti (WCDMS) in 2017, an additional 2,87,367 WSHGs were created. By March 31, 2021, Odisha had 6.02 lakh SHGs with 70 lakh women members spanning both rural and urban areas.

Mission Shakti is a government-driven initiative that aims to empower women by engaging WSHGs in various socio-economic activities. The state has launched several programs to support women entrepreneurs, including fairs such as “Pallishree Melas” and “Sisir Saras,” organized by the Odisha Rural Development and Marketing Society (ORMAS) to promote SHG products. Additionally, the Mahila Vikas Samabay Nigam (MVSN) provides financial aid for training underprivileged women in traditional trades, helping them develop their skills and market their products. Through schemes like the Mukhya Mantri Mahila Sashaktikarana Yojana (MMMSY), Odisha continues to support women’s socio-economic empowerment by forming new WSHGs, offering skill development training, and creating livelihood opportunities within the Mission Shakti framework.

Mission Shakti has also introduced a Financial Inclusion initiative through the SHG Bank Linkage Programme, which ensures institutional financial access for Women Self-Help Groups (WSHGs). Since August 2018, the Directorate of Mission Shakti has served as the main interface for both rural and urban SHGs, facilitating bank linkages. A dedicated online portal has been developed to track bank loans, repayments, and interest subvention activities related to SHGs, aligning with the State Government’s 5T framework, which emphasizes technology, transparency, teamwork, time, and transformation.

This digital innovation has strengthened the implementation of the ‘Mission Shakti Loan’ by integrating modern online systems, improving efficiency and monitoring. Additionally, Mission Shakti has signed Memorandums of Understanding (MoUs) with multiple banks to facilitate data sharing through an advanced Management Information System (MIS), ensuring a streamlined and transparent credit linkage

2.7 Issues and Challenges

Despite such gains, agriculture faces many issues which force citizen to quit farming. Odisha is currently facing significant population pressure, with a substantial portion of its total population, approximately 70 percent of the population depends on agriculture, either directly or indirectly, for their livelihood. However, in recent years, the per capita availability of agricultural land has been steadily declining. The growing population, coupled with rapid industrialization and urban expansion, has placed immense pressure on the country's limited arable land resources.

Odisha has faced challenges in effectively managing the mixed cropping system. Currently, double and multiple cropping is practiced on only around one-third of the total cropped area in the state. Expanding the cultivation of multiple crops would necessitate substantial investments in the development of irrigation infrastructure such as canals and tube-wells. These investments are crucial for providing adequate water supply to support the growth of multiple crops throughout the year. However, developing this infrastructure demands meticulous planning and substantial financial investment to effectively implement and manage the mixed cropping system in Odisha.

Agriculture in Odisha is primarily dependent on human labour, with most of the farming activities such as ploughing, seeding, weeding, spraying, irrigation, harvesting, and threshing being carried out by manual labour. The use of machinery is still confined only to the rich farmers. In India farming is mostly intensive based farming. Rain-fed Agriculture: Rainfall, especially the summer monsoon, is crucial to agriculture across the majority (over 56 percent) of the nation. Unfortunately, the summer monsoon has very unpredictable behaviour. As a result, Goyal (2016) found that rainfall varies. Only around 40 percent of the Odisha land is irrigated, which gives farmers assurance about their agricultural profits even when the monsoon fails (Luke, 2018). After the implementation of the First Five Year Plan, the Indian government seemed to prioritize industrialization and urbanization over agriculture, leading to neglect of the farming community. This has resulted in a slow growth rate of about 3.9 percent in agriculture, while the country's overall growth rate is around 9

percent Odisha's overall growth rate is around 2.4 as of 2022-23. Unfortunately, the farmers are facing low prices for their crops, leading many to fall into debt and some even resorting to suicide. This unfortunate state of affairs is largely due to inadequate planning and management of agricultural land use. The agricultural sector and rural communities face a multitude of challenges that negatively impact their productivity and well-being. These challenges include unscientific farming practices, insufficient irrigation systems, limited use of chemical fertilizers and pesticides, low prices for agricultural products, poverty, hunger, and malnutrition among farmers, as well as a lack of infrastructure such as roads, water, electricity, banking, credit, and crop insurance. The practice of mixed cropping serves the primary purpose of maximizing agricultural yields. In the event of a favourable monsoon season, rice crops are expected to yield higher production. On the other hand, in cases where the monsoon season is insufficient, crops such as maize, millets, bajra, and pulses, which require less water, can still yield a good harvest. Mixed cropping is commonly observed in subsistence agriculture, where farmers aim to diversify their crops to mitigate risks and ensure a more reliable food supply.

A major challenge faced by women in Odisha's agricultural sector is the restricted access to land ownership. Traditionally, land rights have been predominantly held by men, leaving women with limited legal entitlement to inherit or manage agricultural land. Consequently, women farmers are often excluded from key decision-making processes regarding land use, crop selection, and financial planning, making them reliant on male family members. The absence of formal land ownership further hinders their ability to secure credit from financial institutions (Bhoi, 2023). As a result, many women depend on informal lending sources, which often come with high-interest rates. This restricted access to financial resources prevents them from investing in improved farming practices, high-quality seeds, fertilizers, and modern machinery, ultimately curbing their agricultural productivity. Additionally, agricultural training and extension services are predominantly directed toward men, creating a gender gap in knowledge and access to innovative farming techniques and technologies.

Women farmers in Odisha generally have limited exposure to improved farming

methods, modern irrigation techniques, and innovations in crop management, making it harder for them to increase productivity and adapt to changing agricultural practices. Most agricultural training programs and extension services in Odisha are male-centric, leaving women with limited knowledge about improved agricultural techniques, sustainable practices, and advanced technologies. As a result, they rely on traditional farming methods, which may not be as efficient or productive in the changing agricultural environment.

Another measure problem is Women in agriculture frequently receive lower wages than their male counterparts for similar work. In many cases, their labour goes unpaid, especially when working on family farms. Despite their critical contribution to agricultural productivity, their work is often undervalued and undercompensated, leading to economic inequality and financial insecurity.

Women in Odisha's agricultural households bear the dual burden of farm work and domestic responsibilities. They are involved in tasks such as sowing, weeding, harvesting, and processing crops, while also managing household duties like cooking, cleaning, and caregiving. This heavy workload leaves them with little time for rest, education, skill development, or social engagement, leading to physical exhaustion and limiting their potential for economic advancement (Behera2019). Women are often excluded from key decision-making processes related to agricultural planning, resource allocation, and income distribution. Male family members or community leaders typically dominate these decisions, leaving women with little voice in managing agricultural production or the household economy. This exclusion also limits their participation in farmer organizations, cooperatives, and government schemes. Many women in rural Odisha depend on rain-fed agriculture, and they have limited access to proper irrigation facilities.

The lack of infrastructure such as storage facilities, transport networks, and modern farming tools further hampers their productivity. Additionally, they are often excluded from training programs on using new technologies, leaving them behind in the adoption of mechanized farming techniques. Women in agriculture are often exposed to health risks, including prolonged exposure to harsh weather conditions,

heavy manual labour, and handling hazardous chemicals such as pesticides and fertilizers. With limited access to healthcare services and a lack of awareness about health and safety measures, they face a higher risk of illness, which can reduce their productivity and overall well-being. Additionally, malnutrition among women agricultural workers is a concern, as they often prioritize family members' food needs over their own.

Odisha faces significant risks from climate change and recurring natural disasters such as cyclones, floods, and droughts. These challenges have a particularly severe impact on women in agriculture, who depend on stable weather conditions for their livelihoods. Extreme weather events frequently result in crop failures, loss of income, and increased workloads, making it difficult for women to recover and sustain their farming activities. Additionally, entrenched cultural norms and gender stereotypes continue to hinder women's active participation in agricultural development. Despite their substantial contributions to the sector, they are often perceived merely as "assistants" rather than primary cultivators. These biases limit their access to essential resources and opportunities while reinforcing societal expectations that confine them to subordinate roles within families and communities. Furthermore, women in agriculture often lack access to social security schemes, pensions, insurance, and legal protections, exacerbating their vulnerabilities. Even when government initiatives exist to support farmers, women frequently face exclusion due to social barriers and a lack of awareness about available resources.

Women in agriculture often lack access to legal frameworks that could protect their rights and promote their inclusion in agricultural development programs. Many government schemes aimed at improving agricultural productivity do not adequately address the unique needs of women farmers, further marginalizing them from state support. In addition to their responsibilities in the agricultural fields, women in rural Odisha also handle household duties such as cooking, cleaning, fetching water, and caring for children and the elderly. This dual burden of agricultural and domestic work leaves them with little time for rest, personal development, or participation in community activities.

The lack of proper labour-saving tools or technologies further adds to their workload. Women often have limited participation in decision-making processes related to farm management, income allocation, and agricultural investments. Male family members usually take major decisions regarding crop selection, market sales, and resource allocation, sidelining the valuable insights and inputs women could contribute to the farm's success. While women are the backbone of Odisha's agricultural workforce, they face systemic challenges that restrict their potential. To overcome these challenges, it is essential to implement focused policies that enhance women's access to land ownership, financial resources, training, and modern agricultural technologies. Additionally, recognizing their contributions and addressing gender disparities in the agricultural sector is crucial. Empowering women in agriculture will not only improve their economic prospects but also drive the overall growth and sustainability of Odisha's rural economy.

2.8 An overview

In India, rural development is focused on maximizing agricultural production and related activities, as well as promoting rural industries, especially those based in villages and agriculture. In Odisha, rural women are key contributors to economic, environmental, and social transformations essential for sustainable development. Their responsibilities can be categorized into three roles: productive (engaging in income-generating activities), reproductive (caring for family and household needs), and community involvement (participating in social and developmental initiatives). This multifaceted engagement highlights their significant role in driving overall progress. The "feminization of agriculture" and the active participation of women in farming, both in India and specifically in Odisha. This phase emphasizes how women contribute significantly to agriculture, from tasks like sowing and weeding to harvesting and post-harvest work.

In Odisha, women are central to rural development through their extensive involvement in agriculture, handling almost every stage of farming. Implementing gender budgeting is crucial in this context, as it ensures resources are allocated to create equal opportunities and outcomes for all genders. Since women play such a vital role in agricultural operations including sowing, transplanting, weeding, and

harvesting it is essential they have access to farm machinery, tools, and equipment. Gender-friendly equipment, in particular, can reduce their physical strain and enhance both their productivity and engagement in agricultural work.

SHGs play a vital role in promoting participatory development in rural areas of India as well as Odisha, where active community involvement is crucial for progress. Through SHGs, women farm personnel, especially those disadvantaged by factors like income, gender, caste, or education gain a platform to influence and shape decisions affecting their lives. It is found that, SHGs have proven to be an effective strategy for supporting vulnerable and marginalized groups. By working together, women in SHGs can access loans and earn income within their communities, giving them financial independence and the ability to contribute to their households and communities. In the end this chapter examines the challenges faced by women in agriculture in Odisha.

Conclusion: This chapter has explored the critical role of women in rural development, with a specific focus on their contributions to agriculture in India and Odisha. It highlights how rural women undertake multiple roles productive, reproductive, and community-based making them essential drivers of sustainable development. The increasing feminization of agriculture in Odisha underscores the depth of women's involvement across all stages of farming, from sowing to post-harvest activities. The discussion also emphasizes the importance of gender-sensitive approaches, such as gender budgeting and access to farm-friendly tools, to reduce the physical burden on women and enhance their productivity. Furthermore, Self-Help Groups (SHGs) have emerged as powerful platforms for empowering rural women, promoting participatory development, and improving their socio-economic status.

CHAPTER- III
PROFILE OF THE STUDY AREA

3.1 Introduction

3.2 District Profile of Koraput

3.3 District Profile of Malkangiri

3.4 Agricultural Growth in Koraput and Malkangiri districts

CHAPTER- III

PROFILE OF THE STUDY AREA

3.1 Introduction

KBK districts of Odisha define the study universe. The KBK districts, initially three in number, Kalahandi, Bolangir and Koraput expanded to eight in 1992 following administrative changes by the Odisha Government. Consequently, the eight districts now include Kalahandi and Nuapada as a unified Kalahandi, Bolangir and Sonepur as a unified Bolangir, and Koraput, Malkangiri, Nabarangpur, and Rayagada as a unified Koraput. This study limits itself to Koraput and Malkangiri districts, which are the parts of KBK districts of Odisha and that of erstwhile Koraput district. The purpose of choosing this region is that it is more familiar to the researcher and further interest is shown to know the current trends of traditional and natural farming practices, and the participation of women in the study area. Interestingly these are the two districts which have majority of female agricultural workers than men with Koraput district with 59.49 percent females as against 27.75 percent males and Malkangiri district with 53.24 percent females as against 16.61 percent males.

3.2 District Profile of Koraput

The Koraput districts was officially established on April 1st, 1936. According to the 2011 census, Koraput District has a total area of 8807 square kilometres and a population of 13,79,647 people. The region boasts dense forests, cascading waterfalls, and picturesque terraced valleys, and the people of Koraput are intimately connected to the natural world, relying on it directly or indirectly for their survival. Koraput District is situated between 17.4° to 20.7° North latitude and 81.24° to 84.2° East longitude. It shares its borders with Rayagada in the east, Bastar District of Chhattisgarh in the west, and Malkangiri District in the south. The district's economy primarily relies on agriculture and forest resources, with shifting cultivation being a key agricultural practice. Most of the commodities used daily are derived from agricultural and forest products. In terms of education, Koraput District has a literacy rate of 49.21 percent, with 340,843 literate males and 227,247 literate females

(Census, 2011).

MAP 2 District Map of Koraput

KORAPUT DISTRICT



Source <https://koraput.odisha.gov.in>, Access on 11.04.2022

Koraput district, established on April 1st, 1936, is nestled amidst verdant valleys, characterized by pristine freshness. Its landscape is adorned with dense forests, cascading waterfalls, terraced valleys, and perennial springs, making it a haven for various indigenous communities like the Gadabas and Bondas, who find solace within its embrace. The district is bordered by Rayagada to the east, Chhattisgarh's Bastar

district to the west, Nabarangapur to the north, and Andhra Pradesh's Srikakulam and Malkangiri to the south. The name "Koraput" is derived from its headquarters, the town of Koraput. Historically, this region was part of the Atavika territory. In ancient times, it remained unconquered by Emperor Ashoka, who had conquered Kalinga in 261 B.C. During the 1st century B.C., under the reign of Kharavela, this area served as a significant source of strength for the Kalinga region, being a crucial recruitment ground for military forces. In the 2nd century A.D., Koraput was integrated into the vast empire of Goutamiputra-Satakarni, the Satavahana Emperor who ruled from 106 to 130 A.D(Rath, 2007).

The British gained control over the Northern Circars in 1765 AD, followed by the annexation of the Jaypur kingdom in 1775 AD. In 1839, under Act XXVI, a substantial portion of the Vizagapatam district was designated as an agency area, which was governed directly by a Governor's agent with extensive administrative powers. This system remained in place across the entire Koraput district until it was abolished in 1952. In 1870, the British administration shifted the headquarters of the Jaypur agency from Jayapur to Koraput. On April 1, 1936, Koraput was officially incorporated into the Odisha province.

The first District Magistrate and Collector of Koraput, Mr. R.C.S. Bell, noted that the town's name likely originated from "Koraputti" or "Hamlet of the Nux Vomica," referring to the prominent trees that once grew in the area. In 1958-59, the Dandakaranya Development Project was initiated to rehabilitate displaced individuals from East Pakistan. Several areas within the district were reclaimed and developed as part of this project.

On October 2, 1992, Koraput district was reorganized into four separate districts—Koraput, Malkangiri, Rayagada, and Nabarangapur—as per Government of Odisha notification No. DRC-36/92-49137/R dated October 1, 1992. The district experiences a predominantly tropical climate, influenced by the South-West monsoon and the retreating North-East monsoon. Given its location on the western edge of the Eastern Ghats, the district's climate is more similar to that of the Deccan Plateau than the coastal plains (Sharma, 2020).

Historical records indicate that Koraput District has a rich and ancient past, dating back to the 3rd century BC when it was inhabited by the Attavika people, who were known for their bravery and feared by others. Over time, the region was ruled by various dynasties, including the Ganga kings, Suryavanshi kings, Satavahans, Ikshvakus, and Nalas. Koraput, a district situated in the state of Odisha, is renowned for its verdant valleys and pristine landscapes. It was officially established on April 1st, 1936. The region boasts dense forests, cascading waterfalls, and picturesque terraced valleys, and the people of Koraput are intimately connected to the natural world, relying on it directly or indirectly for their survival. Koraput District is situated between 17.4° to 20.7° North latitude and 81.24° to 84.2° East longitude. It shares its borders with Rayagada to the east, Bastar District of Chhattisgarh to the west, and Malkangiri District to the south. The district, positioned within a segment of the Eastern Ghats, features an undulating topography with extensive mountain ranges and hill streams that eventually merge into major rivers such as Indravati, Kolab, and Machkund. The district's elevation reaches up to 1000 meters above mean sea level (MSL), with areas like Koraput, Semiliguda, Pottangi, Nandapur, Lamtaput, Dasmantapur, and Laxmipur Blocks exceeding 900 meters in altitude. Meanwhile, Narayanpatna and Bandhugam Blocks have altitudes ranging from 300 to 600 meters, while Jeypore Subdivision reaches up to 600 meters above MSL. The district falls under two agro-climatic zones: the Eastern Ghat High Land, which includes all blocks of the Koraput Sub-Division and Kotpad Block, and the South Eastern Ghat, covering the four blocks of Jeypore Sub-Division.

Established on April 1, 1936, Koraput District is renowned for its lush green valleys, pristine natural beauty, dense forests, waterfalls, terraced landscapes, and swift-flowing springs, making it an attractive destination for nature enthusiasts.

The climate of the district varies between a minimum temperature of 12°C and a maximum of 38°C. Koraput experiences three distinct seasons: summer (April to June), monsoon (June to October), and winter (November to March), with winter lasting longer compared to other regions of Odisha. The district receives an average annual rainfall of approximately 1505.8 mm.

Table 3.1 Population Features of Koraput District

Sl No	Features	Population
1	Population	13,79,647
	Male	6,78,809
	Female	7,00,838
1.1	Rural	11,53,478
	Male	5,63,771
	Female	5,89,707
1.2	Urban	2,26,169
	Male	1,15,038
	Female	1,11,131
1.3	Density of Population	157
1.4	Sex Ratio	1032
1.5	Literates	49.21%

	Male	60.32%
	Female	38.55%
	Urban	163,665
	Rural	404,425
1.6	Scheduled Castes	1,96,540(14.25%)
1.7	Scheduled Tribe	6,97,583(50.56%)
1.8	Total Workers	6,93,406(50.26%)
	Male	3,84,053(56.58%)
	Female	3,09,353(44.14%)
1.9	Main worker	28.74%
	Male	42.13%
	Female	15.76%
1.10	Marginal worker	21.52%
	Male	14.44%
	Female	28.38%
1.11	Cultivators	29.88%

	Male	37.37%
	Female	20.58%
1.12	Agricultural Labourers	41.91%
	Male	27.75%
	Female	59.49%

Source *District Statistical Handbook, Koraput 2021*

Table 3.1 of Population Features of Koraput District reveals Koraput district has a total population of 1,379,647, with a slightly higher number of females (700,838) than males (678,809), resulting in a sex ratio of 1,032 females per 1,000 males. The district is predominantly rural, with 83.6 percent (1,153,478) of the population living in rural areas, while only 16.4 percent (226,169) reside in urban regions. The population density is relatively low, at 157 persons per square kilometre. Literacy rates in the district stand at 49.21 percent, with a noticeable gender gap: 60.32 percent for males and 38.55 percent for females, indicating lower educational attainment among women, especially in rural areas. Scheduled Tribes form a significant part of the population, accounting for 50.56 percent, while Scheduled Castes make up 14.25 percent. Half of the population (50.26 %) is engaged in work, with males (56.58%) having a higher participation rate than females (44.14 %). A notable proportion of the workforce consists of marginal workers (21.52 percent), with more women (28.38 %) in this category compared to men (14.44 %), reflecting less stable employment opportunities for females. Agriculture is the primary occupation, with 29.88 percent of people working as cultivators and 41.91 percent as agricultural labourers.

Women are more commonly employed as agricultural labourers (59.49 %) than as cultivators (20.58 %), highlighting the reliance on agricultural activities for livelihood but often in less secure roles. Overall, Koraput district is characterized by its rural, tribal, and agricultural profile, with notable gender disparities in literacy and employment stability (Amaravati, 2023).

Table 3.2 Administrative divisions of Koraput District

Sl. No	Block	No of Panchayats	No of villages
1	Bandhugaon	16	104
2	Boipariguda	30	149
3	Boriguma	16	179
4	Dasmantpur	12	153
5	Jeypore	9	127
6	Koraput	14	106
7	Kotpad	16	99
8	Kundura	13	93
9	Lamtaput	22	125
10	Laxmipur	12	85
11	Nandapur	13	106
12	Narayanpatna	16	305
13	Potangi	15	188
14	Semiliguda	22	226
Total	14	226	2045

Source District Statistical Handbook, Koraput, 2021

According to table 3.2, in the 2011 census, Koraput District has a total area of 8807 square kilometres and, the district comprises of 14 tahsils, 14 blocks, 23 police stations, three municipalities, one NAC, and 226-gram panchayats, with two sub-divisions namely Koraput and Jeypore, and 2045 Revenue villages in the district.

The economy of Koraput District largely depends on agriculture and forestry, including shifting cultivation, with most locally consumed commodities originating from these sectors. The region is rich in natural resources, featuring semi-evergreen to deciduous vegetation and a variety of wild plant species. Its economic strengths include abundant perennial streams and underutilized groundwater, opportunities for eco-tourism, and active women's self-help groups engaged in initiatives such as the mid-day meal program, the Public Distribution System, and various economic

activities. Additionally, village and cottage industries contribute significantly to the district's economy (ROUT, 2018).

Agriculture serves as the backbone of Koraput's economy, with over 80 percent of the rural population directly reliant on it for their livelihood. Recognizing the vital role of agriculture in sustaining both the rural economy and the district as a whole, the state government has introduced various interventions to enhance agricultural productivity. Traditional farming methods are gradually being replaced with modern techniques to improve yields and efficiency. This shift has also increased the responsibilities of the agricultural department in supporting and empowering local farmers (Das & Sahoo, 2012).

The Deputy Director of Agriculture (DDA) is the key official overseeing agricultural development in the district, with the headquarters based in Jeypore for the Koraput Range. The DDA is responsible for planning, implementing, and monitoring all agricultural programs, supported by a team of specialists managing various agricultural activities. These include seed distribution, fiber crop promotion, agronomy, pest control, oilseed and pulse production, farmer training, departmental farm management, soil and water conservation, quality control of agricultural inputs, sugarcane cultivation, and training programs for women in agriculture (Mishra, 2020).

Table 3.3 Land Utilization Pattern of Different Blocks of Koraput District (Fig. in Ha.)

S.L No	Name of block	Forest area	Land put to non-agricultural uses	Cultivable area
1	Bandhugaon	5639	1990	191
2	Boipariguda	26188	5234	7644
3	Boriguma	11495	4618	4651
4	Dasmantpur	1710	6227	3794
5	Jeypore	6571	3858	2505
6	Koraput	3659	2287	4496
7	Kotpad	4292	4241	12543
8	Kundura	6801	2831	4451
9	Lamtaput	3523	5829	10186
10	Laxmipur	2618	1631	4468
11	Nandapur	2706	4403	7769
12	Narayanpatna	1440	1270	293
13	Potangi	4473	3060	1643
14	Semiliguda	10063	2122	396

Source District Statistical Handbook, Koraput, 2021

From the above table 3.3 show the land utilization pattern in Koraput District varies significantly across its blocks. Forest areas range widely, with Boipariguda (26,188 Ha) and Semiliguda (10,063 Ha) having extensive forest cover, while Dasmantpur (1,710 Ha) and Narayanpatna (1,440 Ha) have less. Non-agricultural land use is most prominent in Lamtaput (5,829 Ha) and Dasmantpur (6,227 Ha), whereas Bandhugaon and Narayanpatna have comparatively smaller non-agricultural areas. Cultivable land varies, with Kotpad (12,543 Ha) and Lamtaput (10,186 Ha) having the highest cultivable areas, while Bandhugaon (191 Ha) and Narayanpatna (293 Ha) have minimal cultivable land. This diverse utilization reflects the different agricultural and

developmental dynamics across Koraput's blocks. Koraput district is situated in the Eastern Ghat Highland Zone and is known for its undulating terrain. Hillside and terrace cultivation are traditional practices among the tribal communities here. On the sloping hillsides and highlands where waterlogging is absent, crops such as millets (RAGI, SUAN, KANGOO), Red gram (KANDUL), local pulses (DANGAR RANI), and oilseeds (NIGER, locally known as Alasi) are commonly cultivated. The predominant soil type in the district is red soil, with patches of Mixed Red, Brown, and Forest soils. The Red soil has a heavier texture compared to other types found in the area, and organic matter content is generally low but can be improved through compost and organic manure application. The soil in Koraput District is predominantly acidic, a condition that can be improved through the application of appropriate amendments such as PMS and gypsum. The region supports the cultivation of various crops, including rice, finger millet, minor millets, niger, potato, brinjal, assorted vegetables, and fruit-bearing trees like mango, jackfruit, guava, papaya, and sapota. Out of the district's total geographical area of 837,900 hectares, agricultural activities take place on approximately 296,000 hectares.

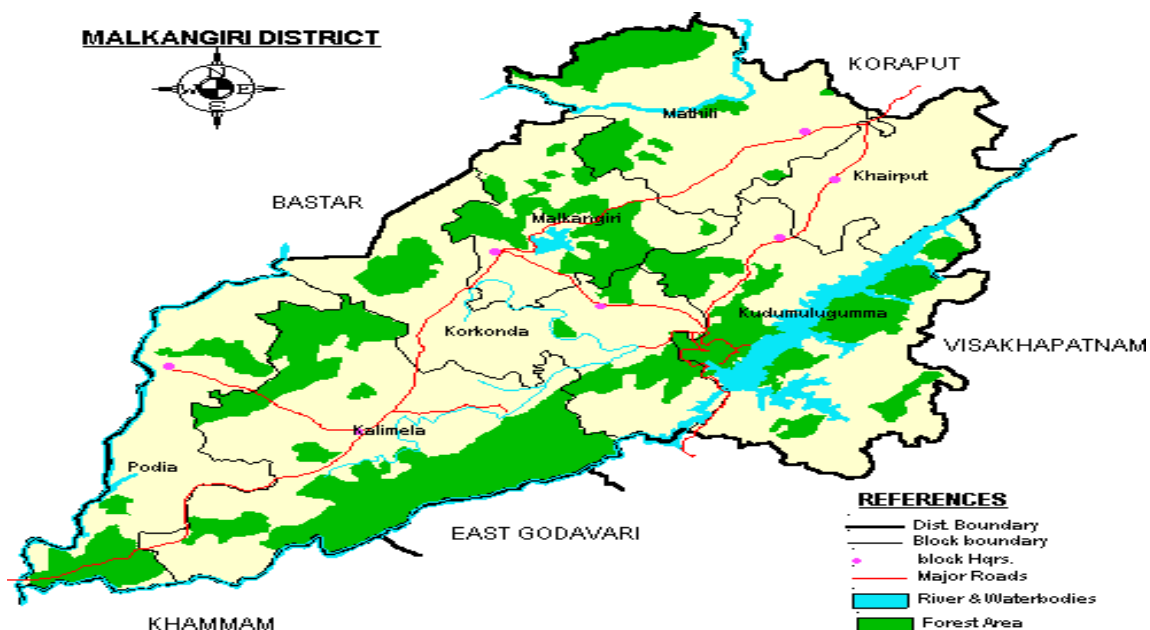
A distinctive agricultural feature of the district is Jholla land, which consists of narrow, moisture-retentive strips located between hills. This type of land is primarily found in the blocks of Koraput, Semiliguda, Dasmanthpur, Pottangi, Laxmipur, and Lamtaput, where about 15 percent of the paddy fields are cultivated on Jholla land. Smaller portions of such land are also present in Jeypore and Borigumma blocks.

Terrace cultivation is another prevalent farming practice in Koraput, made possible by the district's undulating terrain within the Eastern Ghat Highland Zone. The agricultural lands are classified into different categories: Dangar land (hill slopes used for shifting cultivation), upland (both bounded and unbounded), medium land (which can be either irrigated or rainfed), lowland, and Jholla land (natural terraces between hills). Different rice varieties are grown across these land types, selected based on local dietary preferences, cultural traditions, and taste (Jena, 2013).

3.3 District Profile of Malkangiri

Malkangiri District derives its name from its administrative headquarters, the town of Malkangiri. When Odisha became a separate province in 1936, Malkangiri functioned as a Taluk under the Nabarangpur subdivision of Koraput District. It was later elevated to the status of a subdivision in 1962.

The district gained its independent identity following the administrative reorganization of Odisha, as per a government notification issued on 1st October 1992, and officially came into existence on 2nd October 1992. Spanning an area of 5,791 square kilometres, Malkangiri has approximately 142,740 hectares of cultivated land, accounting for about 24.65 percent of its total geographical area, which measures 579,100 hectares. The net sown area constitutes approximately 23.83 percent of the district's geographical area. Despite numerous challenges, such as frequent natural calamities, erratic monsoons, and uneven rainfall distribution, agricultural production has been on the rise. In Malkangiri district, the overall literacy rate is 48.54 percent, with male literacy at 48.42 percent and female literacy at 31.56 percent (census, 2011). Agriculture is the backbone of the economies in both districts, with approximately 83 percent of Koraput's population relying on it. Common annual food crops in Koraput include paddy, millet, maize, and pulses. In Malkangiri, agriculture accounts for 46.35 percent of the district's income, according to the Economic Survey 2022-23 by the Government of Odisha (Economic Survey, 2022-23, govt of Odisha).



MAP 3 District Map of Malkangiri

Source <https://malkangiri.odisha.gov.in>, Access on 11.04.2022

Malkangiri district holds significant mythological importance. Located in the Dandakaranya region, it is historically noted as the residence of the sage 'Dandaka'. According to local legend, Lord Rama, along with Sita and Laxman, is believed to have spent several years in these forests during their 14-year exile. It is commonly thought that the name Malkangiri originates from a hill known as "Malyabanta Giri."

However, some historians offer a different perspective, suggesting that the district's name is derived from "Mallakimar Danagarh," a fort built by King Krishna Deo (1676-1681) of the Nandapur kingdom. Historical accounts state that after defeating Mallik, a commander from Golconda, Krishna Deo was honored with the title "Mallakimardana Krishna.". Malkangiri gained national attention due to Laxman Naiko, a freedom fighter who led tribal communities in a non-cooperation movement against British rule, advocating Gandhi's principles of non-violence.

In a notable event on August 21, 1942, Naiko organized a peaceful demonstration in

Mathili. Tragically, police opened fire on the crowd, resulting in the deaths of demonstrators Nakula Pujari, Samara Nayak, Narasingha Bhumia, and Linga Bhumia, along with forest guard G. Ramaya. Before 1936, Malkangiri was under the administration of the Madras Presidency. When Odisha Province was formed in 1936, Koraput District, which had previously been a part of the Madras Presidency, was integrated into Odisha, bringing Malkangiri Tehsil under Koraput District. The first English Collector of Koraput, Mr. R.C.S. Bell, documented the physical environment, climatic conditions, and tribal communities of Malkangiri Tehsil in the 1941 Gazetteer of Koraput. Initially, Malkangiri Tehsil was included in the Nawarangpur Sub-Division of Koraput District.

The district derives its name from Malkangiri town, which serves as its headquarters. In 1936, when Odisha became a separate province, Malkangiri was a taluk within the Nabarangpur sub-division of Koraput District. It was later upgraded to a subdivision in 1962. The district gained independent status following Odisha's district reorganization, formalized through a notification on October 1, 1992, and implemented on October 2, 1992.

Malkangiri spans 5,791 square kilometers, situated between 17°45'N to 18°40'N latitude and 81°10'E to 82°E longitude. The region is sparsely populated, with minimal variation in the male-to-female ratio. A significant portion of the district is covered by dense forests, with only a small percentage of the population residing in urban areas. The district is geographically divided into two distinct regions: the eastern part, characterized by steep ghats, plateaus, and valleys, is sparsely inhabited by indigenous tribes, including the Bondas, Koyas, Porajas, and Didayis.

The district's literacy rate is moderate, with male literacy significantly outpacing female literacy. Malkangiri experiences a climate with cold winters and hot summers, where temperatures range from 13°C to 47°C. The region receives an annual rainfall of approximately 1,700 mm, with high humidity levels, particularly during and after the monsoon season.

Heavy rainfall and frequent flooding often isolate parts of the district, making transportation difficult. Additionally, Malkangiri falls within a malaria-prone zone.

According to the 2011 Census, Malkangiri had a total population of 613,192, with 303,624 males and 309,568 females. The population density was 87 persons per square kilometer, and only 6.87 percent of the population resided in urban areas. The Scheduled Caste (SC) community comprised 21.35 percent, while Scheduled Tribes (ST) accounted for 57.43 percent of the total population. Among the tribal groups, the Koya (41.76%), Bhumiya (20.26%), and Paroja (10.11%) were the most prominent.

Religiously, the majority of the population identified as Hindu (98.29%), followed by Christians (1.25%) and Muslims (0.36%). The district has two major towns, Malkangiri (NAC) and Balimela (NAC), with populations of 23,114 and 11,502, respectively. In total, Malkangiri comprises 1,045 villages, of which 979 are inhabited. The sex ratio of the district stands at 997 females per 1,000 males, with a child (0-6 years) sex ratio of 981 females per 1,000 males. The age distribution indicates that 11.53 percent of the population falls within the 0-4 age group, while 27.01 percent belong to the 5-14 age group. The working-age population (15-59 years) constitutes 55.55 percent, while senior citizens and those with unspecified ages make up 5.91 percent.

The district has a literacy rate of 30.53 percent among individuals aged 7 years and above, with male literacy at 40.14 percent and female literacy at 20.91 percent. The overall demographic profile of the district reflects a low population growth rate, relatively balanced sex ratio, and low population density, with a high concentration of tribal communities. As per the 2011 Census, 8.08 percent of Malkangiri's population resided in urban areas, totaling 49,528 people (25,723 males and 23,805 females). The urban sex ratio stood at 925 females per 1,000 males. The literacy rate in urban areas was 74.53 percent, with male literacy at 83.40 percent and female literacy at 64.91 percent. Among the urban population, 31,825 people were literate (18,528 males and 13,297 females).

Meanwhile, 91.92 percent of Malkangiri's population lived in rural areas, totalling 563,664 people (277,901 males and 285,763 females). The rural sex ratio was 1,028 females per 1,000 males, while the child sex ratio stood at 995 females per 1,000 males. The child population (0-6 years) in rural areas was 102,265 (51,263 males and

51,002 females), comprising 18.45 percent of the total rural population. The rural literacy rate in Malkangiri was 46.14 percent, with male literacy at 56.69 percent and female literacy at 35.95 percent. The total number of literate individuals in rural areas was 212,881, with 128,473 males and 84,408 females. The Scheduled Caste (SC) population accounted for 21.8 percent, while the Scheduled Tribe (ST) population constituted 61.5% percent of the district's rural population (Census 2011).

Table 3.4 Population Features of Malkangiri District

SI No	Features	Population
1	Population	6,13,192
	Male	3,03,624
	Female	3,09,568
1.1	Rural	5,63,664
	Male	2,77,901
	Female	2,85,763
1.2	Urban	49,528
	Male	25,723
	Female	23,805
1.3	Density of Population	106
1.4	Sex Ratio	1,020
1.5	Literates	48.54%
	Male	59.07%
	Female	38.28%
1.6	Scheduled Castes	1,38,295(22.55%)
1.7	Scheduled Tribe	3,54,614 (57.83%)
1.8	Total Workers	3,10,666 (50.66%)
	Male	1,70,495 (56.15%)
	Female	1,40,171 (45.28%)
1.9	Main worker	29.20%
	Male	43.44%

	Female	15.22%
1.10	Marginal worker	21.47%
	Male	12.71%
1.11	Female	30.06%
	Cultivators	48.69%
	Male	62.40%
	Female	32.01%
1.12	Agri.Labourers	34.23%
	Male	18.61%
	Female	53.24%

Source District Statistical Handbook, Malkangiri, 2021

The above table 3.4 elaborate Malkangiri district has approximately 142,740 hectares of cultivated land, which accounts for 24.65 percent of its total geographical area of 579,100 hectares. The net sown area covers around 23.83 percent of the district's total land. Despite challenges such as frequent natural calamities, unpredictable monsoons, and uneven rainfall distribution, agricultural production has shown consistent growth.

Table 3.5 Administrative divisions of Malkangiri District

Sl. No	Block	No of Panchayats	No of villages
1	Malkangiri	19	87
2	Kalimela	23	146
3	Korukonda	12	271
4	Chitrakonda	18	93
5	Khairput	11	130
6	Mathili	20	141
7	Podia	8	36
Total	7	111	1016

Source: District Statistical Handbook, Malkangiri, 2021

The table 3.5 is discussing about the administrative divisions of Malkangiri district.

Malkangiri District comprises of one subdivision at district headquarters, seven blocks, one hundred eleven panchayats and one thousand sixteen villages.

Malkangiri district, with its abundant natural resources and diverse agro-climatic conditions, provides significant potential for agricultural development. The tropical climate of the region is marked by high temperatures, elevated humidity levels, moderate to heavy rainfall, and mild winters. The district receives an average annual rainfall of 1667.60 mm, spread across 79 rainy days. The South-West monsoon, occurring between June and September, contributes approximately 81.2 percent of the total annual rainfall, spanning 53 to 57 days.

The temperature in the district varies, with maximum annual temperatures ranging between 30°C and 44°C, while minimum temperatures fall between 15°C and 27°C. Geographically, Malkangiri falls under the South Eastern Ghat Agro-Climatic Zone. The district supports the cultivation of a variety of crops, including Kharif crops such as paddy, maize, jowar, bajra, and moong, as well as Rabi crops like wheat, gram, biri, cowpea, and groundnut.

**Table 3.6 Land Utilization Pattern of Different Blocks of Malkangiri District
(Fig. in Ha.)**

Sl. No	Name of block	Forest area	Land put to non-agricultural uses	Cultivable area
1	Malkangiri	38284	2624	20890
2	Korukonda	56768	7122	38540
3	Mathili	61458	2852	30064
4	Kalimela	40335	1285	28433
5	Podia	46273	3845	21985
6	Khairiput	32688	1526	10261
7	chitrakonda	59224	1829	12543
Total	7	335030	21083	162716

Source *District Statistical Handbook, Malkangiri, 2021*

Above table no 3.6 is describing about the land utilization pattern in Malkangiri district, which reveals a diverse distribution of forest, non-agricultural, and cultivable areas across its blocks. The district has a total forest area of 335,030 hectares, with Chitrakonda (59,224 ha), Mathili (61,458 ha), and Korukonda (56,768 ha) having the most extensive forest cover, while Khairiput has the least (32,688 ha). The total land allocated to non-agricultural uses is 21,083 hectares, with Korukonda (7,122 ha) leading in this category, indicating more infrastructural development, while Kalimela has the least non-agricultural land (1,285 ha). The cultivable area across the district totals 162,716 hectares, with Korukonda again having the highest cultivable land (38,540 ha), making it the most significant agricultural block, and Khairiput having the smallest cultivable area (10,261 ha). Overall, Malkangiri district is largely rural and forested, with significant agricultural activities, particularly in Korukonda, while blocks like Chitrakonda and Mathili are more forest-dominated.

3.4 Agricultural Growth in Koraput and Malkangiri Districts

The advent of the Green Revolution, combined with an innovative agricultural extension system that effectively disseminated research outcomes, brought a significant transformation to Indian agriculture. Although the technical knowledge associated with the Green Revolution arrived in Odisha somewhat later than in other regions, concerted efforts were made to compensate for the delay and harness its benefits. The Green Revolution's core elements, including the use of high-yielding seed varieties, increased application of chemical fertilizers and pesticides, and the mechanization of agriculture, are strongly linked to the expansion of irrigation facilities. In Odisha, the lack of sufficient irrigation infrastructure likely served as a significant barrier to adopting scientific farming practices associated with the Green Revolution. Moreover, the frequent occurrence of natural disasters such as droughts, floods, and cyclones further impeded the shift from subsistence farming to commercial agriculture.

The Kalahandi, Balangir, and Koraput (KBK) districts in southwestern Odisha are characterized by their rich cultural heritage and diverse landscapes, but they have

long been associated with significant socio-economic challenges, including high levels of poverty, underdevelopment, and food insecurity. The original KBK region, consisting of Kalahandi, Balangir, and Koraput districts, was divided into eight districts in 1992 as part of an administrative reorganization aimed at better governance and addressing developmental challenges. The three original districts were split into the following eight districts:

Kalahandi and Nuapada

Balangir and Sonepur (Subarnapur)

Koraput, Nabarangpur, Rayagada, and Malkangiri

These districts, with a substantial tribal population, experience persistent issues such as inadequate infrastructure, malnutrition, and limited access to essential health and education services. Despite the region's natural resources, economic progress has been hindered by factors like erratic rainfall and low agricultural productivity. Various government interventions, including the Revised Long Term Action Plan (RLTAP), have sought to address these challenges, though the region continues to face substantial developmental constraints.

The hill areas of Koraput district, located in the Eastern Ghats of Odisha, India, have a unique and diverse agricultural system shaped by the region's topography, climate, and traditional practices. These hilly terrains are predominantly inhabited by indigenous communities who have developed sustainable farming practices over generations. The agricultural system here is characterized by the use of local knowledge, adaptation to the rugged landscape, and the cultivation of a wide variety of crops suited to the region's agro-ecological conditions. Overview of Koraput's Agricultural System

Koraput, situated in the southern region of Odisha, India, is well known for its deep-rooted agricultural traditions. Recognized as a significant hub for indigenous farming practices, it is part of the Eastern Ghats, a mountainous terrain with a distinctive ecosystem that fosters a variety of agricultural activities. The farming system in Koraput is strongly influenced by traditional wisdom, sustainable methods, and the

rich cultural heritage of the indigenous communities living in the area.

Koraput's agricultural system is characterized by its remarkable agro-ecological diversity, owing to its varied topography, climate, and soil types. The region experiences a subtropical climate with well-distributed rainfall, making it suitable for multiple cropping patterns. With an elevation ranging between 500 and 1,500 meters above sea level, the region experiences diverse micro-climates, enabling the cultivation of a wide range of crops. This diversity has resulted in a robust system that can adapt to changing climatic conditions and support biodiversity.

Koraput's indigenous communities have practiced agriculture for generations, and their farming techniques are highly sustainable. They have developed intricate knowledge about crop varieties, soil fertility, water management, and pest control. Some of the notable traditional farming practices in Koraput include

Shifting Cultivation (Podu Cultivation), this is a form of slash-and-burn agriculture where a piece of forest land is cleared, cultivated for a few years, and then left fallow to regenerate. It allows the soil to regain fertility and prevents land degradation. While it has faced criticism for contributing to deforestation, indigenous communities implement it in a way that preserves ecological balance.

Mixed Cropping and Intercropping, farmers in Koraput, farmers commonly cultivate multiple crops on the same land, including millets, pulses, oilseeds, and vegetables. This approach minimizes the risk of crop failure, enhances soil fertility, and ensures a consistent food supply.

Organic Farming, traditional farming in agriculture in Koraput is predominantly organic, utilizing natural inputs such as compost, animal manure, and green manure. The minimal use of chemical fertilizers and pesticides helps preserve soil health and supports the long-term sustainability of the farming system.

One of the most remarkable aspects of Koraput's agricultural system is the diversity of crops cultivated in the region. The area is known for the cultivation of indigenous landraces of rice, millets, pulses, oilseeds, and tuber crops. The Food and Agriculture Organization (FAO) has designated Koraput as a Globally Important Agricultural

Heritage System (GIAHS) in recognition of its extensive genetic resources, particularly its diverse rice varieties.

Rice Varieties, the region is home to over 300 varieties of rice, adapted to different soil types, water availability, and altitudinal variations. These varieties have unique traits such as resistance to pests, tolerance to drought, and adaptability to different climatic conditions. They are often cultivated in terraced fields, which help conserve water and prevent soil erosion.

Millet and Pulses, millets such as finger millet, pearl millet, and little millet are staple crops in Koraput's agriculture. They are highly nutritious, drought-resistant, and require minimal inputs, making them suitable for cultivation in rain-fed areas. Pulses like pigeon pea, black gram, and green gram are also widely grown, contributing to the protein intake of the local population and enriching soil fertility through nitrogen fixation.

Horticulture and Tubers, apart from cereals and pulses, the region also supports the cultivation of various fruits, vegetables, and tuber crops like yam, Colocasia, and sweet potato. These crops add to the dietary diversity of the communities and contribute to food security.

Water management is a critical aspect of Koraput's agricultural system, given the region's reliance on monsoons. Traditional methods of water harvesting, such as the construction of small earthen dams, ponds, and wells, are common practices that help retain moisture and ensure water availability during dry periods. The terraced fields found in the hilly areas also play a significant role in water conservation by reducing runoff and soil erosion. The indigenous communities of Koraput have developed a sophisticated understanding of water management, which enables them to adapt to seasonal variations and maintain agricultural productivity even in challenging climatic conditions.

Despite the resilience and sustainability of Koraput's agricultural system, the region faces several challenges, such as:

Climate Change – It includes Shifts in rainfall patterns, rising temperatures, and the growing occurrence of extreme weather events present a major challenge to traditional farming methods.

Land Degradation - Soil erosion, deforestation, and overexploitation of natural resources have led to land degradation, affecting agricultural productivity.

Loss of Indigenous Knowledge - With the increasing influence of modern agricultural practices and migration to urban areas, the traditional knowledge and practices that have supported Koraput's agriculture for generations are at risk of being lost.

To address these challenges, various governmental and non-governmental organizations have been working to promote sustainable agriculture in the region. Efforts include training farmers in improved farming techniques, introducing drought-resistant crop varieties, and promoting agroforestry to prevent soil erosion. There has also been a growing emphasis on the conservation of indigenous seeds and the documentation of traditional knowledge to ensure the sustainability of Koraput's agricultural system.

Koraput's agricultural system is a shining example of how traditional knowledge, biodiversity, and sustainable practices can coexist to create a resilient and adaptable farming system. The diversity of crops, the use of organic farming practices, and the effective management of natural resources have made this region a model for sustainable agriculture. By recognizing and preserving the unique agricultural heritage of Koraput, there is potential to address food security, adapt to climate change, and promote sustainable livelihoods for future generations.

Agricultural System of Malkangiri District is presented bellow Malkangiri, a district situated in the southernmost part of Odisha, India, is known for its distinct agricultural practices, shaped by the region's unique geographical features, diverse culture, and indigenous communities. With a predominantly tribal population, Agriculture in Malkangiri is strongly influenced by traditional wisdom and practices that have been preserved and handed down through generations. The district's agriculture is characterized by the cultivation of diverse crops, reliance on rain-fed farming, and

the utilization of sustainable methods adapted to the local environment.

Malkangiri is part of the Eastern Ghats and features a diverse landscape that includes hills, plateaus, plains, and river valleys. The district is bordered by the Sabari and Sileru rivers, which form part of the Godavari River basin, providing an essential water source for agricultural activities. The district's elevation varies between 150 and 900 meters above sea level, complemented by a subtropical climate and evenly distributed annual rainfall ranging from 1,200 to 1,500 mm, supports a variety of crops and farming practices.

Malkangiri can be divided into different agro-ecological zones based on its topography and soil types, which influence the cropping patterns and agricultural practices:

Hill and Upland Areas, these areas are characterized by undulating terrain, with red and lateritic soils that are well-drained but low in fertility. The hill regions are primarily used for shifting cultivation and the cultivation of drought-resistant crops like millets and pulses.

Valley and Lowland Areas, the fertile alluvial soils of the river valleys are suitable for rice cultivation, the main staple crop of the district. These areas also support the cultivation of various cash crops, vegetables, and oilseeds.

Plateau and Mixed Farming Areas, these regions are known for mixed cropping systems where farmers grow a combination of cereals, pulses, oilseeds, and vegetables. The soils here are generally loamy and retain moisture, allowing for the cultivation of multiple crops.

The indigenous communities of Malkangiri have developed various traditional farming practices adapted to the local environment, making agriculture more sustainable and resilient. Some of these practices include

Shifting Cultivation (Podu Cultivation), shifting cultivation, known locally as "Podu," is a common agricultural practice in the hilly regions of Malkangiri. Farmers clear small patches of forest land, cultivate crops for a few years, and then leave the land fallow to regain its fertility. This method helps maintain soil fertility and prevents pest infestations but has become controversial due to concerns about deforestation

and soil erosion.

Mixed Cropping and Intercropping, in Malkangiri, mixed cropping and intercropping are widely practiced, where farmers grow different crops together on the same plot. For example, millets are intercropped with pulses, oilseeds, and vegetables, which lessen the risk of crop failure, optimizes the use of soil nutrients, and enhances food security.

Agroforestry, many farmers practice agroforestry by planting trees, shrubs, and crops together. This helps conserve soil and water, improves soil fertility, and provides additional sources of income through the collection of timber, fruits, fuelwood, and medicinal plants.

Rainwater Harvesting, given the reliance on rain-fed agriculture, farmers in Malkangiri have developed techniques for harvesting and conserving rainwater. Small earthen check dams, ponds, and wells are constructed to store rainwater, ensuring water availability for crops during dry spells.

Malkangiri's agricultural system is notable for its crop diversity, which contributes to food security and resilience to climate change. The district's major crops include:

- 1. Rice-** The main crop and staple meal in Malkangiri is rice, especially grown in the fertile lowlands and river valleys. Traditional varieties of rice that are adapted to local conditions are commonly cultivated, contributing to the preservation of agrobiodiversity.
- 2. Millet-** In highland and hilly regions, millets such as finger millet (ragi), tiny millet (suan), and pearl millet (bajra) are commonly farmed. These crops are drought-resistant, require minimal inputs, and provide essential nutrients, making them well-suited to the region's rain-fed agricultural system.
- 3. Pulses-** Pulses such as pigeon pea (arhar), black gram (urad), green gram (moong), and cowpea (lobia) form an integral part of Malkangiri's cropping system. Often cultivated using mixed cropping methods, these pulses contribute significantly to soil fertility by enhancing nitrogen fixation.

4. Oilseeds- Groundnut, sesame, and niger seed are the primary oilseed crops cultivated in the district. These types of crops are essential source of income for farmers and provide fats and oils for the local diet.

5. Vegetables and Tubers- Farmers in Malkangiri grow a variety of vegetables, such as brinjal, pumpkin, tomatoes, beans, and leafy greens, in kitchen gardens and small plots. Tuber crops like yam, Colocasia, and sweet potatoes are also common and provide an additional source of carbohydrates and nutrition.

6. Cash Crops- Some farmers cultivate cash crops such as cotton, turmeric, ginger, and maize, which are sold in local markets or traded with neighboring regions. These crops help supplement household income and contribute to the local economy.

Water management is a critical aspect of Malkangiri's agricultural system due to the district's reliance on monsoon rains. Traditional water conservation practices include building small check dams, ponds, and wells helps in capturing and storing rainwater. Additionally, farmers use traditional knowledge to manage water resources efficiently, such as diverting water from streams and rivers to irrigate terraced fields. The construction of irrigation projects, such as the Balimela and Potteru irrigation systems, has improved water availability in some parts of the district, enabling farmers to grow crops during the dry season and adopt more intensive farming practices.

There are instances of Government and NGO Interventions. To address these challenges and improve agricultural productivity in Malkangiri, the government and various non- governmental organizations have initiated several programs, such as:

Promotion of Sustainable Farming Practices, training programs and workshops are conducted to promote sustainable farming practices, organic farming, and water conservation techniques.

Introduction of Improved Crop Varieties, Efforts are being made to introduce high-yielding and drought-resistant crop varieties to enhance productivity and improve farmers' incomes.

Access to Credit and Markets, Farmers are being encouraged to form cooperatives and self- help groups (SHGs) to gain better access to credit, training, and markets.

The agricultural system in Malkangiri district reflects a deep connection between the indigenous communities and their environment. The traditional practices, diverse cropping patterns, and sustainable methods have enabled the district's farmers to adapt to the challenges posed by the rugged terrain and changing climate. With continued support and the integration of modern agricultural techniques, Malkangiri's agricultural system holds the potential to enhance resilience, productivity, and sustainability, strengthening local livelihoods and supporting regional food security.

Security The Kalahandi, Bolangir, and Koraput (KBK) region in southwestern Odisha is among the most underdeveloped areas of the state, frequently experiencing famine and drought conditions (Govt of Odisha, 2020). Rural women in the KBK districts play a crucial role in agriculture and related activities, contributing significantly to horticulture, crop production, and livestock farming. The sex ratio in these districts stands at 977, slightly above the state average of 972 (Pandey et al., 2008). While the female literacy rate was just 24.72 percent considerably lower than the state average of 50.51 percent. Women in this region actively engage in various agricultural tasks, including pre-harvest and post-harvest activities. In addition to managing household responsibilities, rural women work tirelessly from dawn to dusk, contributing significantly to their family income. However, despite their substantial contributions, their role remains largely unrecognized.

It is estimated that rural women are responsible for producing over 55 percent of food grains and make up 67 percent of the total agricultural workforce (Ahuja, 2012). Women also play a dominant role in farm-related activities such as storage and processing, often surpassing male participation. The situation in the KBK districts reflects this trend. The difficult socio- economic conditions of women in these districts highlight the need for an in-depth study of their participation in agriculture, the challenges they face, and the barriers that hinder their progress. Understanding these aspects is essential to addressing the struggles of women in agriculture, particularly in the rural areas of the KBK region.

Conclusion: This chapter defined the study area within the KBK region of Odisha, focusing on Koraput and Malkangiri districts. These districts were chosen due to the researcher's familiarity, the presence of traditional farming practices, and the notably high participation of women in agriculture. Their selection provides a strong foundation for the data analysis presented in the next chapter.

CHAPTER IV

ANALYSIS OF DATA AND INTERPRETATION

4.1 Introduction

4.2 Socio- economic profile of the respondents.

4.3 Comparing women labourers and farmers

4.4 The gender gap

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4.7 SHG and Farm Women.

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CHAPTER -IV

ANALYSIS OF DATA AND INTERPRETATION

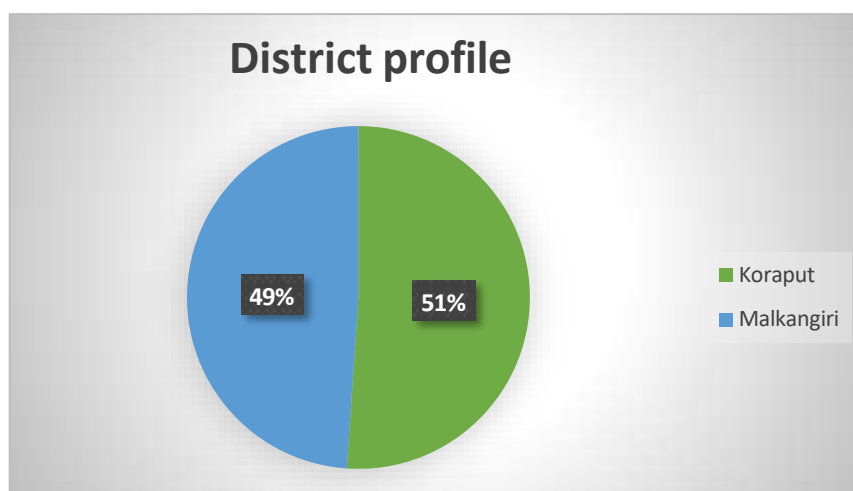
4.1 Introduction

This chapter presents an analysis of the data collected from farm personnel in two districts of Koraput and Malkangiri in Odisha. It starts by describing the socio-economic background of the respondents, including details such as their domicile, gender, age, educational qualification, marital status, and occupation. The following part of the chapter compares the two groups of farm personnel in the study area: women labourers and women farmers. It looks at important aspects like their income potential, sources of financial help for farming, their knowledge of crop insurance, and whether they sell their produce at the Minimum Support Price (MSP). After that, the chapter examines the gender gap among farm workers, focusing on differences in daily wages, working hours, and the use of mobile phones. This analysis highlights the challenges faced by women in farming and sheds light on the inequalities they encounter.

4.2 Socio- economic profile of the respondents

The data set provides a detailed demographic and occupational profile of 370 individuals across various categories, including district, village, gender, age, education, marital status, and primary occupation. The respondents are almost equally divided between the two districts of Koraput (51.08% or 51%) and Malkangiri (48.92% or 49%). This close division allows for a comparative study between the two districts (Chart 5), which may have similar or different socioeconomic dynamics, farming practices, or challenges related to education, or resource access.

Chart 2 District wise distribution of Respondents



Source Field Survey conducted on 12th April, 2022

The selected villages for this study are situated within two districts: Malkangiri and Koraput. This study comprises of five villages from Malkangiri district such as Ambapada, Gobindapali, Lakhanpur, Mundaguda and Udupa and three villages from Koraput district namely Boipariguda, Laxmipur and Padampur.

Table 4.1 Sample Villages of Malkangiri and Koraput

Villages of Koraput	No of Respondents (%)	Villages of Malkangiri (%)	No of Respondents (%)
Boipariguda	81(42.86)	Ambapada	37(20.44)
Laxmipur	51(26.95)	Gobindapali	36(19.89)
Padampur	57(30.16)	Lakhanpur	33(18.23)
-	-	Mundaguda	34(18.78)
-	-	Udupa	41(22.65)
Total 3	189(100)	Total 5	181(100)

Source: Field Survey conducted on 8th April, 2022

Above table 4.1 distribution of respondents across the villages in Koraput and Malkangiri reveals interesting variations in representation. In Koraput, the distribution is uneven with Boipariguda dominating the sample at 42.86 percent of the total respondents. In comparison, Padampur accounts for 30.16 percent of respondents, and Laxmipur has 26.95 percent. In Malkangiri, the respondents are relatively evenly distributed across the five surveyed villages. Udupa has the largest share, with 22.65 percent of respondents, followed by Ambapada (20.44%), Gobindapali (19.89%), Mundaguda (18.78%), and Lakhanpur, which has the smallest portion at 18.23 percent. This suggests a fairly balanced representation across all villages in Malkangiri. This selection process ensures a comprehensive representation of the villages for the study. Even distribution of sample size in Malkangiri district as against uneven distribution at Koraput district go on to imply the effect of purposive sampling used in this study and as such the principle of randomization has not been followed.

Gender wise classification of the Respondents

Gender is a term, borrowed from grammar, to describe individuals' social identity (woman/girl, man/boy) and personality or behavioural tendencies (e.g., masculine, feminine, androgynous, transgender). Gender as a social identity is usually (but not necessarily) related to an individual's biological sex (Johnson, 2012). Gender often influences social roles, responsibilities, and access to resources. By considering gender, researchers can uncover differences in behaviour, opportunities, and experiences that may be shaped by societal norms and expectations especially in a patriarchal society. Gender-based research helps in formulating more equitable policies and programs. For instance, knowing how men and women are affected differently by economic or social issues ensures that interventions target the needs of all groups (Glasser, 2008). By highlighting gender disparities in areas like education, employment, or access to resources, research can inform efforts to promote gender equality and improve conditions for underrepresented groups. In this survey there is no transgender found in Koraput and Malkangiri districts.

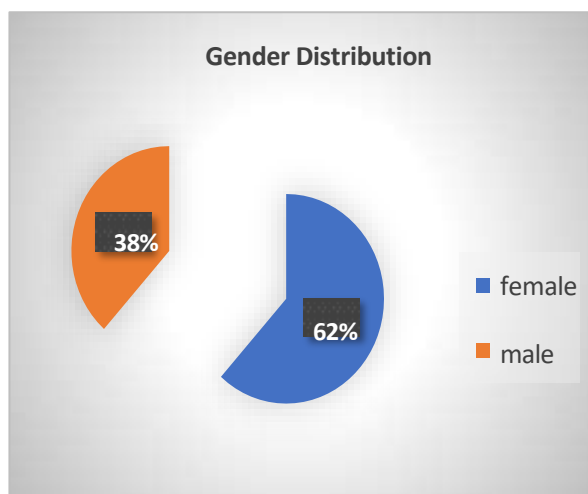
Table 4.2 Gender wise classification of the Respondents

Gender	Koraput (%)	Malkangiri (%)	Total (%)
Female	113(59.79)	115(63.54)	228(61.62)
Male	76(40.21)	66(36.46)	142(38.38)
Total	189(51.08)	181(48.91)	370(100)

Source: *Field Survey conducted on 10th April, 2022*

From the table 4.2 it is seen that a higher proportion of females in both Koraput and Malkangiri, with 59.79 percent of Koraput's representation and 63.54 percent of Malkangiri's being female. Overall, females make up 61.62 percent of the total respondents across both districts. Males account for 40.21 percent in Koraput and 36.46 percent in Malkangiri, making up 38.38 percent of the total respondents. The overall respondents are relatively balanced between the two districts, with Koraput contributing slightly more (51.08 %) compared to Malkangiri (48.91 %). The overall respondents from the two districts, Koraput and Malkangiri, consists of 38 percent males and 62 percent females. There is predominance of women among the sample respondents as against men in line with the global trend of importance of women in agricultural operations. Women are managing the agriculture sector as a result of men's increasing urban migration.

Chart 3 Distribution of Respondents based on Gender



Source *Field Survey conducted on 12th April, 2022*

Chart 3 show the distribution of respondents on gender wise. Among the contributions made by women are: readying the fields, seeds Planting, Growing and gathering produce, taking care of the environment taking care of food and child and upkeep of household. Women play a variety of jobs in agriculture, including labourers and cultivators.

Age classification of the respondents

Age is the period of time someone has been alive or something has existed(Trimarco, 1998). Age helps us understand patterns among different groups, like children, teens, adults, and the elderly. It often links to things like income, education, and jobs, giving insight into people's economic situation and career stages. For women, age affects their physical and mental ability to work, shaping their role in the workforce. The number of people able to work depends on the population's age structure, which also influences social attitudes and job flexibility. In agriculture, women of all ages, including young girls and older women, can find work opportunities. The following table indicates the representations of different age groups of farm persons.

Table 4.3 Age classification of the Respondents

Age Range	Koraput (%)	Malkangiri (%)	Total (%)
15-25	17 (8.99)	23(12.71)	40 (10.81)
25-40	36 (19.05)	90(49.72)	126 (34.5)
40-50	58 (30.69)	35(19.34)	93 (25.14)
50 above	78 (41.27)	33(18.23)	111(30)
Total	189(51.08)	181(48.91)	370(100)

Source Field Survey conducted on 14th April, 2022

The age distribution analysis of Koraput and Malkangiri districts reveals notable differences across age groups. In the 15-25 age range, Malkangiri has a higher percentage (12.71 %) compared to Koraput (8.99 %), indicating a slightly larger younger population in Malkangiri. The most striking contrast is in the 25-40 age group, where Malkangiri's population (49.72 percent) is significantly higher than Koraput's (19.05 %), suggesting that Malkangiri has a stronger representation of working-age individuals, particularly in farming. In contrast, Koraput has a higher percentage of individuals in the 40-50 age group (30.69 %) compared to Malkangiri (19.34 %), reflecting a more experienced workforce. The largest gap is seen in the 50 and above age group, where Koraput has a substantial percentage (41.27 %) compared to Malkangiri's 18.23 percent, indicating an aging population in Koraput. Overall, Malkangiri has a younger, more active workforce, while Koraput's older population remains more closely connected to farming activities. The younger population (15-25 years) represents only 10.81 percent, indicating lower involvement of youth, possibly due to migration for better opportunities or a declining interest in agriculture. Whereas the middle age population (25-40) represents higher percentages consisting of 34.5 percent. Higher is the age, greater is the participation in the agriculture as evidenced from the field showing around 89 percent of the respondents representing above 25 years of age. To supplement the family income and to support larger size of the family also there is an extra pressure to meet family expenditure. The younger generation prefer to moveout of the family and native place for the shake of having lucrative job and better income. More is the age greater is the attachment

towards the native land through reverse migration.

Marital status of the Respondents

Marital status can significantly influence an individual's social and economic circumstances, it refers to the legal recognition of a person's relationship, typically through a formal marriage recognized by law (Stimpson, and, Wilson, 2012). For instance, married individuals may have different financial stability, in social research and public policy, understanding marital status helps in designing programs and interventions tailored to the needs of different groups, marital status is linked to family structures, including parenting roles, caregiving responsibilities, and household composition (Ribar, 2004). The table below provides an overview of the marital status of women farm persons, highlighting how their legal and social statuses may influence their roles and economic participation in society.

Table 4.4 Marital status of the Respondents

Marital status	Koraput	Malkangiri	Total
Married(men)	40	38	78
Married(women)	80	81	161
Unmarried(men)	36	28	64
Unmarried(women)	33	34	64
Total	189(51.08)	181(48.91)	370(100%)

Source Field Survey conducted on 8th June, 2022

The marital status of respondents in Koraput and Malkangiri districts reveals notable gender and district-wise patterns. In Koraput, 40 men and 80 women reported being married, while in Malkangiri, the figures were slightly lower at 38 men and 81 women. Among the unmarried category, Koraput had 36 men and 33 women, whereas Malkangiri recorded 28 men and 34 women. Overall, out of the total 370 respondents, 189 (51.08%) were from Koraput and 181 (48.91%) from Malkangiri, with married women forming the largest single group across both districts. This

distribution highlights the predominance of married individuals—particularly women—among the respondents, along with a smaller but significant proportion of unmarried men and women in both districts. Gender differentiated social norms, poverty, lack of education, and safety concerns for girls are commonly identified as factors contributing to early marriages in rural areas. In the rural regions of Malkangiri and Koraput, parents view it as their primary responsibility to arrange marriages for their daughters at an early age. In the case of sons, there is an expectation that their wives will assume household responsibilities when the elders are engaged in work. Consequently, the proportion of married individuals is notably high among both genders in these areas.

Educational qualification of the Respondents

Education is regarded as a valuable asset, and it has been widely acknowledged as an investment in human capital. It equips women with essential skills, thereby empowering them and elevating their status in society. Educated women are more productive in the labour market, and their participation drives economic growth. Moreover, when women are educated, it positively impacts the educational achievements of their children, fostering a more educated future generation. The table below illustrates the educational background of women labourers, reflecting how varying levels of education influence their roles and contributions in society.

Table 4.5 Educational qualification of the Respondents

Education	Koraput (%)	Malkangiri (%)	Total
Illiterate	119 (62.96)	74(40.88)	193(52.16)
Primary	54 (28. 57)	77(42.54)	131(35.40)
Upper Primary	16 (8.47)	27(14.91)	43(11.62)
Higher Education	-	3(1.65)	3(0.81)
Total	189(51.08)	181(48.91)	370(100)

Source *Field Survey conducted on 14th May, 2022*

The data on table 4.5 of education levels in Koraput and Malkangiri highlights significant differences between the two districts. A large proportion of

respondents in Koraput are illiterate, accounting for 62.96 percent, compared to 40.88 percent in Malkangiri, making illiteracy the dominant category overall at 52.16 percent. In contrast, Malkangiri has a higher percentage of respondents with primary education (42.54 %) compared to Koraput's 28.57 percent, contributing to 35.40 percent of the total population. The percentage of respondents with upper primary education is also higher in Malkangiri (14.91 %) than in Koraput (8.47 %).

In Malkangiri, when combining the percentage of students in primary and upper primary education, the total reaches 56 percent. This increase can be attributed to initiatives like the mid-day meal program, the provision of bicycles, and other schemes designed to support school attendance and encourage education. A small proportion (1.65 %) of respondents in Malkangiri have achieved higher education, while there are none in Koraput.

Overall, the data reveals that Malkangiri has a higher literacy rate and more educational attainment beyond the primary level, while Koraput has a significantly higher illiteracy rate, indicating disparities in educational access and development between the two districts.

When researcher asked a respondent why she wasn't allowing her child to pursue higher education, she bounced back with eyebrows raised, *"Should I feed his mind first or his stomach first?"*. When a woman was asked about the reasons of drop out of her son, she felt bit uncomfortable and elaborated: *"higher education is costly and a bad investment, I cannot afford to make him an engineer or doctor. Eighth class fail is alright so that he can count and use currencies, give signature in a bank account, can recognize seeds, manure and pesticides. Thus, he left and continued to work to supplement our family income"*. Another woman farmer critiqued saying *"Higher education is an unpredictable and ambitious project for a needy family like ours"*.

Primary Occupation of Respondents

Occupation refers to a job or profession and reflects the social dynamics of a community, such as labour divisions, gender roles, and the influence of traditional or modern work practices. Primary occupation often involves working with nature or raw materials and represents the main economic activity of an individual or group,

particularly in communities where nature- based work is common (Nelson, 1988). It provides valuable insights into economic standing, helping us to understand key sources of income and livelihood. Studying primary occupations offers crucial insights into the economic, social, and cultural fabric of the population being researched.

Primary occupation of farm women has been seen and classified into two categories: agricultural labourers and farmer. A farmer is a person involved in agriculture, growing crops or raising animals for food and raw materials. In addition, agricultural labourers are those who perform various tasks in agriculture, assisting farmers with planting, harvesting, and other essential activities necessary for successful farming.

Table 4.6 Primary occupation of the Respondents

Primary Occupation	Koraput (%)	Malkangiri (%)	Total (%)
Labourer	126 (66.67)	119 (65.75)	245 (66.22)
Farmer	63 (33.33)	62 (34.25)	125 (33.78)
Grand total	189(51.08)	181(48.91)	370(100)

Source Field Survey conducted on 22th June, 2022

The data on table 4.6 of the primary occupation in Koraput and Malkangiri shows that the majority of respondents in both districts are agricultural labourers, with 66.67 percent in Koraput and 65.75 percent in Malkangiri, representing 66.22 percent of the total population. A smaller portion of the respondents are agricultural farmer, with a slightly higher percentage in Malkangiri (34.25 %) compared to Koraput (33.33 %), making up 33.78 percent overall.

The data indicates that most of the population in both districts is engaged in labour-intensive agricultural work. Malkangiri has a higher percentage of landowners, suggesting subtle differences in the agricultural economy between the two districts. The high percentage of labourers underscores the dependence on manual agricultural work, while the smaller proportion of landowner's points to a predominantly traditional, subsistence-based agricultural economy typical of rural areas. The low percentage of agricultural farmers suggests that innovative agricultural practices or businesses are not widespread, indicating a more traditional oriented approach to

farming. This distribution reflects the socio-economic conditions typical of rural, agrarian areas, where a majority depend on labour-intensive agriculture for survival, because in rural areas, the agricultural labourers often lack of skills and training. Most of these workers come from disadvantaged communities that have been overlooked for a long time. Additionally, without financial support, they struggle to become farmers or start their own businesses, which limits their chances.

Thus, In Malkangiri and Koraput, contrasting workforce demographics reveal distinct trends in agriculture, with Malkangiri showing a younger, active population in farming and Koraput displaying an older workforce, with a high percentage of individuals over 40, reflecting an aging farming community. Youth involvement in agriculture is low due to migration, while older residents remain attached to their land, often through reverse migration to support family incomes. Women dominate agricultural operations in both districts due to male migration to urban areas, taking on diverse roles from field preparation to household upkeep. Marriage is prevalent, driven by social norms, poverty, and early marriage customs that emphasize women's household roles. Education disparities are pronounced, with Koraput's high illiteracy compared to Malkangiri's, where primary and upper primary attendance is higher due to supportive programs.

Economic challenges in both areas lead families to view higher education as impractical, prioritizing immediate income support over extended schooling. A lack of innovation in agriculture and limited financial support leaves many as labourers, dependent on traditional, labour-intensive farming without access to the resources necessary to become independent farmers. The younger generation prefer to move out of the family and native place for the sake of having lucrative job and better income. More is the age greater is the attachment towards the native land through reverse migration

4.3 Comparing Women Labourers and Farmers

A comparison between women farmers and labourers is important to highlight differences, understand access to resources, and support women's empowerment in agriculture. This kind of research helps us to see how women contribute to farming,

the challenges they face, and what changes are needed for fair and sustainable development in rural areas. By looking at things like their daily income, overall working hour, whether their farming income covers household expenses, their knowledge about farming and risk management, if they know about crop insurance, where they get financial help for farming and their hopes for their children's future in farming, researchers and policymakers can create better farming systems. These systems can support women in all roles of labourer, farmers or to improve their lives.

Daily Income of the Respondents

Daily income refers to the amount of money a person earns for one day of work. In the context of agriculture, daily payment rates are particularly important for labourers and farmers who rely on seasonal or temporary work for their income. Tracking the average hourly income helps identify income inequalities, particularly between different groups, such as male and female agricultural workers, or between labourers, and farmers. Here, the per-hour income is calculated like: “total income per day divided by total number of hours worked per day for each respondent”.

Table 4.7 Daily Income of the Respondents

Daily income	Labourer	Farmer	Total
Koraput			
Average Per hour income	₹17.50	₹21	₹18.67
Average daily income	₹169.59	₹186.29	₹175.15
Malkangiri			
Average Per hour income	₹17.69	₹19.37	₹18.26
Average daily income	₹171.13	₹176.26	₹172.89

Source Field Survey conducted on 8th March, 2023

The table 4.7 of income data from Koraput and Malkangiri districts presents a clear comparison between the earnings of labourers and farmers in each area, as well as between the two districts as a whole. We see that in Koraput, labourers earn an average of ₹17.50 per hour, when examining per-hour earnings, whereas farmers in

the same district make slightly more at ₹21 per hour. This difference suggests a premium on agricultural work, likely due to skill requirements, demand, or productivity differences in farming. Together, these rates result in an overall per-hour average income of ₹18.67 in Koraput.

In Malkangiri, the per-hour income of labourers is slightly higher at ₹17.69 compared to their counterparts in Koraput. Farmers, however, earn an average of ₹19.37 per hour, which is lower than the hourly rate for farmers in Koraput. The overall per-hour income in Malkangiri stands at ₹18.26, which is slightly below Koraput's average. This discrepancy in per-hour income between the two districts highlights that, while labour rates are quite similar, Koraput's agricultural sector offers a marginally higher compensation than Malkangiri's, making it somewhat more profitable for farmers in Koraput. In terms of daily income, the patterns are also revealing. In Koraput, labourers have an average daily income of ₹169.59, while farmers again surpass this figure with an average daily earning of ₹186.29. This difference not only reinforces the higher earnings potential in farming but also reflects the accumulated impact of the hourly rate differences over a full workday. Together, the average daily income in Koraput is ₹175.15, showing a consistent edge in earning for individuals working in this district. In Malkangiri, labourers have a daily income of ₹171.13, slightly higher than their counterparts in Koraput, likely due to the minor increase in their per- hour rate. However, the average daily income for farmers in Malkangiri is ₹176.26, which remains below that of Koraput's farmers, again reflecting the slight disadvantage in their hourly rate. This results in an overall average daily income in Malkangiri of ₹172.89, which is marginally lower than in Koraput.

Comparatively, this data suggests that both labourers and farmers in Koraput tend to earn slightly more overall than those in Malkangiri, both on an hourly and daily basis. The differences are not large but do indicate a modest economic advantage in Koraput. Labourers earn comparable income in both districts, with a slight edge in daily income in Malkangiri, while farmers experience a more noticeable difference, earning more in Koraput than in Malkangiri. This suggests that Koraput may have a somewhat more favorable economic environment for agricultural activities, possibly

due to factors like crop demand, productivity, or pricing, which collectively enable higher incomes for farmers. The comparison indicates a slight but consistent edge for Koraput, particularly for those engaged in farming, pointing to differences in earning potential that could influence workforce distribution and economic planning between these districts. This also, indicates that while Koraput's income levels are generally higher, Malkangiri's income structure seems to benefit agricultural labourers more, possibly due to differences in the intensity of work, local demand for labour, or the nature of contracts.

Working hours of the Respondents

A working hour is the amount of time an employee spends at work during a day, including weekends and holidays. It can also refer to any hour during the day when work is being done. The working hour and working conditions for women in agricultural roles in labourer and farmer, across Koraput and Malkangiri offer a critical view into the economic participation of women in rural agricultural economies.

Table 4.8 Working hours of the Respondents

Working hours	Labourer	Farmer	Total
Koraput			
Average of working hours in a day	10.422hrs	10.25hrs	10.24hrs
Malkangiri			
Average of working hours in a day	10.38hrs	10.42hrs	10.36hrs

Source *Field Survey conducted on 8th March, 2023*

Table 4.8 of working hours of the Respondents The comparison of average working hours per day between Koraput and Malkangiri for agricultural workers shows some important differences in labour patterns and reveal differences in daily work commitments. In Koraput, agricultural labourers work the most, averaging 10.42 hours per day, while farmers work slightly less, at 10.25 hours daily. This results in an overall average of 10.24 working hours per day in Koraput. This suggests that labourers in Koraput put in the longest hours, potentially due to the physical

demands and continuous nature of labour tasks. In Malkangiri, however, the working hour distribution is reversed. Farmers work slightly more than labourers, averaging 10.42 hours per day compared to the 10.38 hours logged by labourers. This creates an overall daily average of 10.36 hours across both roles in Malkangiri, indicating a marginally higher average workload than in Koraput.

Comparatively, workers in Malkangiri tend to have a slightly higher overall daily working average (10.36 hours) than those in Koraput (10.24 hours). While Koraput shows a more significant difference between labourers and farmers' working hours, with labourers working longer than farmers, Malkangiri's average working hours for both groups are very close, reflecting a more uniform workload. This comparison suggests that Malkangiri might have a more consistent work requirement across roles, while Koraput shows a greater variation in time commitments, especially for labourers.

Work Satisfaction of the Respondents

Work satisfaction, often referred to as job satisfaction or employee satisfaction, is an important measure of how content individuals feel about their jobs. It reflects the level of fulfilment or happiness a person experiences in their work environment. Here we compare the data on work satisfaction between agricultural workers in Koraput and Malkangiri, which provides important insights into the attitudes of different worker categories towards farming.

Table 4.9 Work Satisfaction of the Respondents

Work Satisfaction	Labourer (%)	Farmer (%)	Total (%)
Koraput			
No	28(31.11)	12(52.17)	40(35.39)
Yes	62(68.88)	11(47.82)	73(64.60)
Grand Total	90(100)	23(100)	113(100)
Malkangiri			
No	33(38.37)	14(48.27)	47(40.86)
Yes	53(61.62)	15(51.72)	68(59.13)
Grand Total	86(100)	29(100)	115(100)

Source Field Survey conducted on 8th May, 2023

Above the table 4.9 show the Work Satisfaction level of women farmer and labourer of both the districts. In Koraput, the majority of agricultural workers, with 64.60 percent of respondents, report that they like farming, while 35.39 percent express dissatisfaction. In contrast, agricultural labourers in Koraput show higher levels of satisfaction, with 68.88 percent enjoying their work, though 31.1 percent still report dissatisfaction. Similarly, farmers in Koraput are satisfied with their work, with 47.82 percent indicating that they like farming, while 52.17 percent are unhappy.

In Malkangiri, overall satisfaction is somewhat lower, with 59.13 percent of agricultural workers expressing a positive attitude towards farming and 40.9 percent indicating dissatisfaction. Among agricultural labourers in Malkangiri, 61.6 percent are satisfied, but a larger proportion of 38.37 percent express dissatisfaction compared to their counterparts in Koraput. Interestingly, farmers in Malkangiri report the highest levels of satisfaction, with

51.72 percent saying they enjoy farming, though 48.27 percent still express dissatisfaction, which is higher than in Koraput. Agricultural labourers, while mostly satisfied, show higher dissatisfaction in Malkangiri, which could reflect differences in working conditions, income levels, or other economic factors. Farmers are generally the most satisfied group in both districts, with 64.60 percent satisfaction in Koraput and 59.13 percent in Malkangiri, though a major percentage of Malkangiri farmers report dissatisfaction.

Overall, the data suggests that while most agricultural workers in both districts like farming, there are underlying issues, that may need to be addressed to improve work satisfaction across the board. A very interesting observation emerges from the data: despite earning relatively low wages from agricultural labour, a significant number of workers still express a strong sense of satisfaction with their jobs. This suggests that their connection to farming is not solely driven by financial incentives but by a deeper emotional or cultural bond. For many agricultural labourers, staying connected to the land holds immense value. Farming offers them a way to remain rooted in their motherland, preserving their traditional way of life, community ties, and relationship with nature. This intrinsic connection to the land seems to outweigh the economic challenges, making them feel fulfilled despite the lower income. This

sentiment likely reflects the importance of agriculture in their identity and sense of belonging, where the rewards are measured not just in money, but in the preservation of heritage and a deep sense of purpose tied to working the land.

Agricultural Income Sufficiency for Household Expenditure of the Respondents

Agricultural income sufficiency for household expenditure refers to whether the income earned from agricultural activities is adequate to meet the financial needs of a household. This is a crucial factor in determining the economic sustainability of farming for families, particularly in rural and agrarian societies where agriculture is the primary source of livelihood. The sufficiency of agricultural income for household expenditure is a critical measure of the economic health and sustainability of farming families, particularly women. If income from agriculture can cover all basic needs and expenses, it reflects a stable and viable livelihood.

Table 4.10 Agricultural Income Sufficiency for Household Expenditure of the Respondents

Agri-Income Sufficiency for Household Expenditure	Labourer (%)	Farmer (%)	Total (%)
Koraput			
No	75(83.33)	17(73.91)	92(81.41)
Yes	15(16.66)	6(26.08)	21(18.58)
Grand Total	90(100)	23(100)	113(100)
Malkangiri			
No	70(81.39)	23(79.31)	93(80.86)
Yes	16(18.60)	6(20.68)	22(19.13)
Grand Total	86(100)	29(100)	115(100)

Source Field Survey conducted on 24th March, 2023

Above the Table 4.10 comparative analysis of income sufficiency for household expenditures among women agricultural labourers, and farmers in Koraput and Malkangiri highlights the economic challenges faced by women in different agricultural roles. The data provides insights into how different groups of women,

despite their varying levels of control and participation in agriculture, struggle to meet their household financial needs.

In Koraput, the overwhelming majority of women in all three agricultural categories report that their agricultural income is not sufficient to cover household expenses. Agricultural labourers are the most financially insecure group in Koraput. Out of 90 labourers, 75 (83 percent) report that their income is insufficient for household expenditure, with only 15 (17 percent) stating that their income is sufficient. This high level of income insufficiency reflects the vulnerability of labourers, who typically earn low daily wages and have limited control over their work and income. These women are often employed seasonally, making their income irregular and insufficient for meeting consistent household demands. Women farmers in Koraput are also under financial strain. Of the 23 women farmers, 17 (73.91%) report insufficient income for household expenditures, with only 6 (26.08%) reporting sufficiency. This shows that even women who own land and have control over production decisions struggle to earn enough from agriculture to cover basic household expenses. Their situation may be affected by the size of their landholdings, crop yield variability, and access to markets.

In Malkangiri, the trend is similar, with a majority of women across all agricultural roles reporting that their income is insufficient to meet household needs. Agricultural labourers in Malkangiri face significant financial difficulties. Out of 86 labourers, 70 (81 %) report that their income is insufficient, with only 16 (19 %) reporting sufficient income. This mirrors the situation in Koraput, where labourers face low wages, lack of job security, and reliance on agricultural seasons for work. The slight improvement in income sufficiency compared to Koraput may be due to regional differences in income levels or employment availability.

Women farmers in Malkangiri, however, show slightly better results than those in Koraput. Out of 29 women farmers, 23 (79.31 %) report insufficient income, while 6 (20.68 %) report that their income is sufficient. Although the majority still face economic challenges, the higher number of farmers reporting sufficient income compared to Koraput suggests that landownership provides some financial security in

Malkangiri. This may be due to differences in crop production, land productivity, or better market access.

Agricultural Labourers, women labourers in both Koraput and Malkangiri show the highest levels of income insufficiency, with 83 percent of labourers in Koraput and 81 percent in Malkangiri reporting that their agricultural income does not cover household expenses. The similarity between the two regions highlights the systemic economic vulnerability of women in this category. Agricultural labourers, being dependent on daily wages, often experience financial instability, particularly due to seasonal employment and low wage rates.

Farmers, women farmers who own land show the highest income sufficiency rates compared to labourers, though they still face significant challenges. In Koraput, 73.91 percent of farmers report insufficient income, while in Malkangiri, 79.31 percent report income insufficiency. The slightly better situation for women landowners in Malkangiri suggests that factors like land size, crop choices, or market conditions might provide them with slightly more stability compared to their counterparts in Koraput. However, the majority of landowners in both regions still struggle to generate enough agricultural income to support their households, indicating that land ownership alone is not a sufficient guarantee of financial security.

Labourers in both regions are the most financially vulnerable group. Their dependency on low wages and seasonal work means that the majority of them cannot generate enough income to meet basic household needs. Improving labour conditions, increasing wage rates, and providing more consistent work opportunities could help reduce their economic insecurity. Women farmers fare better than labourers in terms of income sufficiency, though the majority still report that their agricultural income is not enough to cover household expenses. Enhancing land productivity, improving access to resources (such as seeds, fertilizers, and water), and ensuring better market prices could help these women achieve greater financial stability.

Lewis Model of Dualistic economy and Agricultural Income Insufficiency

The findings above Table 4.10 relate to the Lewis Model by showing that women agricultural labourers and farmers are mostly part of the traditional, low-income

sector with limited access to resources. According to the Lewis Model, this sector has surplus labour and low productivity, which explains why many women struggle to meet household expenses despite being involved in agriculture. Without support or transition to better-paying jobs or modern farming methods, their economic condition remains unchanged.

Farming knowledge and Risk taking of the respondents

Farmers are typically the decision-makers and owners of agricultural operations, while agricultural labourers are the workforce that helps carry out the farming activities. Farming knowledge is a collection of practices and techniques that help farmers produce more food on the same land. It includes local methods that focus on improving the biological and ecological processes in agriculture. Farming knowledge is a set of skills and techniques that help farmers grow more food on the same land. It includes local methods that focus on improving the natural processes in farming. Labourers often have strong farming knowledge because they work directly with the land every day. On the other hand, farmers, who focus more on managing and supervising, may have less hands-on experience compared to the labourers. Labourers also learn their farming skills from others, often picking up knowledge over time from their elders or more experienced workers. This gradual learning process helps them build strong practical expertise in farming. Decision-making is the principal activity of management. All decisions have outcomes or consequences. However, in most situations the outcome of a decision cannot be predicted. The more complex the risk, the more difficult it becomes for farmers to make an informed decision. For effective decisions to be taken, farmers need information on many aspects of the farming business. Farmers have to find ways of dealing with risk and protecting themselves from the uncertainties of the future (Kahan, 2008). The Farmers face many risks when managing their farms as businesses. Weather conditions can shift unexpectedly, harvest prices may fall, labour shortages can occur during critical times, and machinery might break down when it's needed most. Additionally, draught animals may die, and government policies can change suddenly. All these factors can impact the profitability of their farms (Mishra, 2019).

Farming knowledge and risk-taking are inversely related. As someone moves up from being a labourer to a farmer, their hands-on knowledge of specific farming skills tends will decrease. At the same time, the level of risk they face increases, as they are more exposed to uncertainties like market prices, labour availability, machinery breakdowns, and policy changes, all of which can impact the profitability of their farm.

Knowledge about crop Insurance of the Respondents

The comparison of women's knowledge about crop insurance across different agricultural roles of labourers, and farmers in Koraput and Malkangiri highlights the level of awareness and access to financial protection mechanisms in rural areas. Crop insurance is crucial for mitigating risks associated with crop failure, and understanding how women in agriculture access this knowledge can provide insight into potential gaps in information dissemination and financial inclusion.

Table 4.11 Knowledge about crop insurance

knowledge about crop insurance	Agricultura Labourer(%)	Agricultural Farmer (%)	Total (%)
Koraput			
No	77 (85.55)	12(52.17)	89(78.76)
Yes	13(14.44)	11(47.82)	24(21.23)
Grand Total	90 (100)	23(100)	113(100)
Malkangiri			
No	61(71)	17(58.62)	78(67.82)
Yes	25(29)	12(41.37)	37(32.17)
Grand Total	86(100)	29(100)	115(100)

Source Field Survey conducted on 28th July, 2023

Table 4.11 explain about the knowledge about crop insurance of the farm women. In Koraput, the majority of women agricultural labourers lack knowledge about crop insurance. Out of 90 women labourers, 77 (85.55 percent) reported having no knowledge of crop insurance, while only 13 (14.44 percent) are aware of it. This

indicates a significant information gap among women labourers, who make up the largest group in Koraput's agricultural workforce. Given that labourers often engage in the most physically demanding tasks and are highly dependent on crop success for their livelihood, the lack of awareness about crop insurance leaves them particularly vulnerable to financial loss in the event of crop failure. For women farmers, out of 23 women farmers, 11(47.82 percent) are aware of crop insurance while 12(52.17 percent) are not. Although this group is smaller in number, the kind of 50-50 split indicates that even though farmers, by the nature of their role, are directly involved in crop management, there is still a considerable gap in knowledge about risk mitigation strategies like insurance. This lack of awareness may stem from limited outreach by agricultural extension services or barriers such as illiteracy and lack of access to formal channels of information.

In Malkangiri, a similar pattern emerges, although the knowledge gap among women labourers is slightly smaller than in Koraput. Out of 86 women labourers, 61 (71 percent) lack knowledge about crop insurance, while 25 (29 percent) are aware of it. While this shows a modest improvement compared to Koraput, it still reflects a significant lack of information dissemination to women in the most vulnerable agricultural roles. Labourers in Malkangiri, like those in Koraput, face high levels of risk, and the absence of awareness about crop insurance compounds their financial instability. For women farmers in Malkangiri, 17(58.62 percent) out of 29 have no knowledge of crop insurance, while 12 (41.37 percent) are aware of it. This represents a slight improvement compared to the farmers in Koraput. Farmers in Malkangiri seem to have slightly better access to information or are perhaps more integrated into agricultural networks that offer insurance schemes, but there remains a significant portion who are unaware of this critical financial tool.

Agricultural Labourers, in both regions, women agricultural labourers exhibit the lowest level of awareness about crop insurance. In Koraput, 77(85.55 percent) of labourers lack knowledge about crop insurance, while in Malkangiri, the figure is slightly lower at 61(71 percent). Despite the modest difference, the overwhelming lack of awareness in both regions underscores the need for targeted outreach and education programs that specifically address women labourers, who are the most

vulnerable to crop failure and financial hardship. This gap suggests that women labourers may not be included in formal channels of agricultural training or insurance outreach, limiting their ability to protect themselves financially.

Women farmers in Malkangiri appear to have a slightly better understanding of crop insurance compared to those in Koraput. In Malkangiri, 12(41.37 percent) of women farmers are aware of crop insurance, compared to 11 (47.82 percent) in Koraput. This may reflect regional differences in how agricultural information is disseminated or the presence of local programs that promote crop insurance for farmers.

However, in both regions, around half of the women farmers remain uninformed about crop insurance, indicating that even those directly responsible for managing crops are not fully aware of the tools available to mitigate financial risks. In Koraput and Malkangiri, awareness of crop insurance among women in agriculture is notably low, with 78.76 percent in Koraput and 67.82 percent in Malkangiri unaware of its benefits.

This gap reflects insufficient efforts to promote crop insurance in rural areas, leaving women agricultural workers especially labourers and farmers financially vulnerable to crop failure, natural disasters, and market fluctuations. The lack of knowledge, particularly among labourers, highlights their high susceptibility, while farmers also miss the opportunity to protect their operations. Effective initiatives targeting women through local networks, agricultural services, and self-help groups are needed to improve access to crop insurance, helping women in agriculture manage risks and strengthen their financial resilience.

Source of financial aid for farming and other household activities of the respondents

The "source of financial aid" refers to the origin or provider of funds, resources, or assistance intended to support individuals or groups in need of financial support. This aid can come from various entities, including government programs, banks, non-profit organizations, community groups, and private lenders (Sieger, 2017). Financial aid helps farmers manage expenses related to seeds, fertilizers, equipment, labour, and other essential farming operations, supporting them through economic challenges and

enhancing productivity.

Table 4.12 Source of financial aid for farming and other house hold activities

Source of financial aid for farming and other house hold activities	Labourer (%)	Farmer (%)	Total (%)
Koraput			
Bank	23(25.84)	8(33.33)	31(27.43)
Local money lender	2(2.24)	1(4.16)	3(2.65)
SHG	64(71.91)	14(58.33)	78(69.02)
No lone	-	1(4.16)	1(0.88)
Grand Total	89(100)	24(100)	113(100)
Malkangiri			
Bank	13(15.11)	12(41.37)	25(21.73)
Local money lender	10(11.62)	3(10.34)	13(11.30)
SHG	63(73.25)	14(48.27)	77(66.95)
Grand Total	86(100)	29(100)	115(100)

Source Field Survey conducted on 8th March, 2023

The table 4.12 comparison of sources of financial aid for women involved in agriculture labourers, and farmers in Koraput and Malkangiri offers valuable insights into how different groups access funds to support their farming activities. By analyzing the role of banks, self- help groups (SHGs), and local moneylenders in providing loans, we can understand the financial behaviour and challenges faced by these women in two distinct rural regions.

In Koraput, the most prominent source of financial aid for women agricultural workers, across all roles, is the Self-Help Groups (SHGs). SHGs provide financial support to 64(71.91 %) women labourers, and 14(58.33 %) farmers, making up a total of 78(69.02 %) out of 113 cases. This dominance of SHGs reflects their crucial role in empowering women labourers, who constitute the largest group (89 women) in the sample, and rely heavily on SHGs for their financial needs. SHGs offer a communal form of support, typically providing small loans with flexible repayment terms, which is particularly important for women labourers who often lack collateral or formal

financial literacy.

When it comes to banks, only 23(25.84 %) labourers, and 8(33.33 %) farmers rely on this source of financial aid, making up a total of 31(27.43 %) women. Women labourers are more likely to secure bank loans compared to farmers, likely because of group-based schemes or microfinance options where collateral may not be as strictly enforced. However, the low number of female farmers accessing bank loans (only 8) indicates that women in this role face difficulties in meeting formal banking requirements, such as credit scores, property rights, or guarantors.

Local moneylenders play a minimal role in providing financial support in Koraput, with only 3(2.65 %) women across all roles relying on them. This suggests that while informal lending still exists, women tend to prefer SHGs and banks, likely due to better terms of repayment and reduced exploitation compared to moneylenders, who are known for charging high interest rates, indicating that access to some form of financial aid is nearly universal among the women surveyed in Koraput.

In Malkangiri, the trend is similar, with SHGs being the most significant source of financial aid, supporting 63 (73.25 %) women labourers, and 14 (48.27 %) farmers, for a total of 77(66.95 %) out of 115 cases. As in Koraput, SHGs are a crucial financial lifeline for women, particularly labourers, who face the greatest economic vulnerability. Women farmers in Malkangiri also turn to SHGs for financial support, albeit in smaller numbers. SHGs' prominence in both regions underscores their effectiveness in providing accessible, community-based financial aid to women who may otherwise struggle to access formal banking institutions.

In terms of bank loans, 13(15.11 %) women labourers, and 12(41.37 %) farmers in Malkangiri use banks for financial aid, totalling 25(21.73 %) women. Interestingly, in Malkangiri, more female farmers (8) secure bank loans compared to Koraput, this difference may be due to regional variations in access to banking services or agricultural schemes that target farmers.

Local moneylenders are more prominent in Malkangiri than in Koraput, with 13(11.30 %) women (10 labourers, and 3 farmers) relying on this source of financial aid. This suggests that women in Malkangiri may have fewer formal options available or may face more barriers in accessing SHGs or banks, pushing them to depend on moneylenders despite the high interest rates typically charged. When comparing Koraput and Malkangiri, a few key differences and similarities emerge regarding how women agricultural workers access financial aid: Dominance of SHGs, in both Koraput and Malkangiri, SHGs are the primary source of financial aid for women, particularly for labourers. In Koraput, 78(69.02 %) of women labourers rely on SHGs, while in Malkangiri, the figure is 77 (66.95 %). SHGs are equally important for and farmers, though fewer in number. This reflects the strong role of community- based financial systems in rural areas where formal banking services may be difficult for women to access, especially those without collateral or formal credit history.

Banks play a more significant role in Koraput than in Malkangiri, especially for labourers. In Koraput, 26 percent of women labourers have accessed bank loans compared to only 15 percent in Malkangiri. However, Malkangiri has a higher proportion of women farmers (33 %) accessing bank loans compared to Koraput (only 41.37 %). This could indicate that specific banking schemes or agricultural policies in Malkangiri may be more favourable to farmers, while Koraput offers more options for labourers through banks.

Local moneylenders are a minimal source of financial aid in Koraput, they play a slightly larger role in Malkangiri, where 13 women rely on them compared to only 3 in Koraput. This suggests that women in Malkangiri, particularly labourers, might face more difficulty in accessing SHGs or banks, possibly due to more stringent requirements or fewer options available, leaving them more dependent on informal moneylending.

Farmers, in both districts, are fewer in number compared to labourers and are less likely to access financial aid from formal sources such as banks. Women farmers struggle to secure formal financial backing. This could be due to gender-based

barriers, such as limited land ownership, lack of collateral, or lower social standing, which restrict their ability to secure larger loans for expanding their businesses or farming operations.

In summary, SHGs are the most significant source of financial aid for women across all agricultural roles labourers and farmers in both Koraput and Malkangiri, reflecting the importance of community-based financial support systems in rural economies. However, women in Malkangiri seem to rely more on local moneylenders compared to those in Koraput, likely due to fewer formal financial options. The relatively low access to bank loans for women, farmers, highlights the need for improved financial inclusion policies that cater specifically to women in rural agricultural sectors, addressing barriers such as lack of collateral, credit history, and formal financial education. By strengthening women's access to diverse and fair financial resources, both regions can help women enhance their agricultural productivity and economic independence.

Desire for children to become farmers of the Respondents

The desire for children to become farmers reflects the aspirations and perspectives of farmers, particularly parents, regarding whether they want their children to pursue agriculture as a profession. This sentiment can be influenced by multiple factors, including economic viability, labour conditions, the availability of opportunities, and societal perceptions of farming as a career. The desire for children to become farmers is an important aspect of understanding the future of agriculture, particularly from the perspective of women. It reveals attitudes toward the profession, economic concerns, gender dynamics, and cultural values.

Table 4.13 Desire for Children to Become Farmers of the Respondents

Desire for Children to Become Farmers	Labourer (%)	Farmer (%)	Total (%)
Koraput			
No	82(91.11)	23(100)	105(92.92)
Yes	8(8.88)	-	8(7.07)
Grand Total	90(100)	23(100)	113(100)
Malkangiri			
No	79(91.86)	26(89.65)	105(91.30)
Yes	7(8.13)	3(10.34)	10(8.69)
Grand Total	86(100)	29 (100)	115(100)

Source Field Survey conducted on 18th March, 2023

The data of table 4.13 on women's desire for their children to become farmers in Koraput and Malkangiri reveals a widespread reluctance across all agricultural role's labourers, and farmer. This indicates a collective dissatisfaction with the agricultural sector, regardless of the level of involvement or type of work these women perform. In Koraput, 91 percent of agricultural labourers, and 100 percent of farmers do not want their children to enter farming. Similarly, in Malkangiri, 92 percent of labourers, and 89 percent of farmers express the same sentiment. This reluctance to encourage farming as a career path for the next generation reflects the many challenges women in agriculture face, including financial instability, market volatility, and the physical demands of farm work.

As a result, they prefer that their children seek better economic opportunities in other sectors, where stability and profitability may be more assured. For agricultural labourers, who are often the most economically vulnerable group, the overwhelming reluctance to have their children continue in farming reflects the precarious nature of their work. In both regions, over 161 of labourers oppose the idea of their children becoming farmers. These women typically face seasonal, low-paying jobs that offer little job security or upward mobility. Their opposition highlights the difficult

working conditions and financial struggles they experience, driving their desire for their children to pursue more stable and better-paying jobs outside of agriculture. Overall indicates, SHGs are the most significant source of financial aid for women across all agricultural role's labourers and farmers in both Koraput and Malkangiri a clear disillusionment with farming as a career among women in both regions. The lack of knowledge,

particularly among labourers, highlights their high susceptibility, while farmers also miss the

opportunity to protect their operations. Effective initiatives targeting women through local networks, agricultural services, and self-help groups are needed to improve access to crop insurance, helping women in agriculture manage risks and strengthen their financial resilience. Labourers often have strong farming knowledge because they work directly with the land every day.

On the other hand, farmers, who focus more on managing and supervising, may have less hands-on experience compared to the labourers. The majority of women, regardless of their role in agriculture, do not want their children to continue in farming, reflecting a broader concern about the sustainability and profitability of the agricultural sector. To make farming more attractive to future generations, there is a need to address the underlying challenges, such as improving access to stable markets, ensuring fair crop prices, and providing greater financial support and security to those in the agricultural industry.

The data highlights widespread discouragement with farming as a career among women in Koraput and Malkangiri, with most preferring their children avoid agriculture due to concerns about its sustainability and profitability. Slight income differences show Koraput farmers earning more on average than their counterparts in Malkangiri, possibly due to higher productivity and crop demand, while Malkangiri's income structure modestly Favors labourers. Despite these differences, labourers in both districts face significant financial vulnerability, depending on low, inconsistent incomes that are insufficient for basic needs, while even women farmers struggle to cover household expenses.

A move from labourer to farmer brings increased risk exposure due to market volatility and other uncertainties, though practical farming knowledge tends to decrease. Both districts show strong cultural ties to farming, with high levels of job satisfaction rooted in tradition and community rather than income alone. Community-based financial support systems like SHGs are crucial, particularly for women labourers, though access varies by district. Koraput labourers benefit more from bank loans, whereas more women farmers in Malkangiri access formal credit, hinting at localized banking policies. Additionally, Malkangiri women, especially labourers, more frequently resort to moneylenders, likely due to limited SHG and bank access.

4.4 The Gender Gap

Average working hours serve as a key parameter in understanding the gender gap. In the agricultural sector, reducing the gender gap is essential for creating a more inclusive and productive agricultural economy where the contributions of women are recognized, valued, and adequately compensated. The gender gap in income refers to the disparity in earnings between men and women for doing the same or similar work. It is typically expressed as the percentage difference in income between men and women. Studying the gender wage gap is crucial for identifying the roots of economic inequality between men and women and for designing effective interventions to close the gap. This research has broader implications, including the empowerment of women, the promotion of gender equality, and improvements in overall economic and social development.

The gender gap in agriculture is evident across several key parameters. Working hours often reveal that women engage in longer hours, balancing both agricultural tasks and substantial unpaid domestic responsibilities, which underscores the inequity in labour distribution. Income disparities are prevalent, with women typically earning less in both per-hour and daily wages compared to men, reflecting systemic economic challenges. Knowledge of and access to government policies, such as the Kalia Yojana, crop insurance, and minimum support prices (MSP), are crucial for economic stability, yet women frequently lack this information.

Additionally, the adoption of modern technology, including mobile tools for farming, is essential for improving productivity, but women often face barriers to access and usage. Decision-making power remains disproportionately in the hands of men, limiting women's influence over agricultural choices and financial resources. Furthermore, entrenched gender norms and customs dictate a division of unpaid work in the household, often relegating women to subordinate roles despite their significant contributions to agriculture. Addressing these multifaceted disparities is essential for promoting gender equity in rural development, such as Working hour, Income (per hour income, daily income, Policy Information (Kalia yojana, crop ins, MSP), Adopt to technology (use modern tech in Farming, use of Mobile), Decision making power, Gendered norms and customs (Division of unpaid work in the household)

Average Working Hours of the Respondents

A "working hour" refers to a specific period of time during which a person is engaged in their job or professional activities. By comparing working hour researchers can pinpoint gaps that may be caused by gender. This data is crucial for advocating for fair compensation and gender equity in agriculture. Here the overall working hours is explained between the male and female of Koraput and Malkangiri districts.

Table 4.14 Working hours of the Respondents

Average working hours	Koraput (%)	Malkangiri (%)
Female	10.36	10.25
Male	8.56	8.64
Grand Total	9.70	9.60

Source *Field Survey conducted on 8th September, 2023*

Above the table 4.14 analyse the of average working hours in Koraput and Malkangiri reveals a notable gender imbalance, where women work significantly longer hours compared to men in agricultural labour. In Koraput, women work an average of 10.36 hours per day, whereas men work only 8.56 hours per day. Similarly, in Malkangiri, women work 10.25 hours daily, compared to 8.64 hours for

men. This means that across both districts, women are working about 2 hours more per day than men.

In a patriarchal society, all household work is primarily considered the duty of women, so women are putting more time and effort which, highlights the unequal division of labour. Women, who often manage both farm and household responsibilities, are under greater time pressure, yet their contributions remain invisible. This imbalance in working hours points to the double burden many women in agriculture face they not only engage in labour-intensive farm work but are also expected to handle domestic duties, which adds to their overall workload. This extra burden can have long-term effects on their health and well-being, as well as limit their opportunities for economic advancement or skill development

Daily Income of the Respondents

Income means the amount of money received in exchange for products or services. Income is an accounting term that is used to describe the excess of revenue over expenses. In other words, income is the difference between what you earn and what you spend. Income can be classified as current or non-current depending on whether it is being generated right now or in the future. Current income is commonly referred to as cash flow, while non-current income may be generated by assets such as property, investments, or goodwill. (Kanbur, 2000). Income is a crucial measure for understanding the economic and social disparities that underlie the gender gap. Analysing income patterns provides insight into how financial inequities reinforce gendered power imbalances, restrict women's choices, and perpetuate systemic inequality. In the parameter of income, the researcher explains the per hour income and daily income between both the gender.

Per Hour Income Gap of the Respondents

Tracking the average hourly wage helps identify income inequalities, particularly between different groups, such as male and female agricultural workers, or between labourers and farmers. By comparing hourly wages, researchers can pinpoint wage gaps that may be caused by gender, or differences in agricultural roles.

This data is crucial for advocating for fair compensation and gender equity in agriculture. Here the per hour income is calculated like: “total income per day divided by total number of hours worked per day for each respondent”.

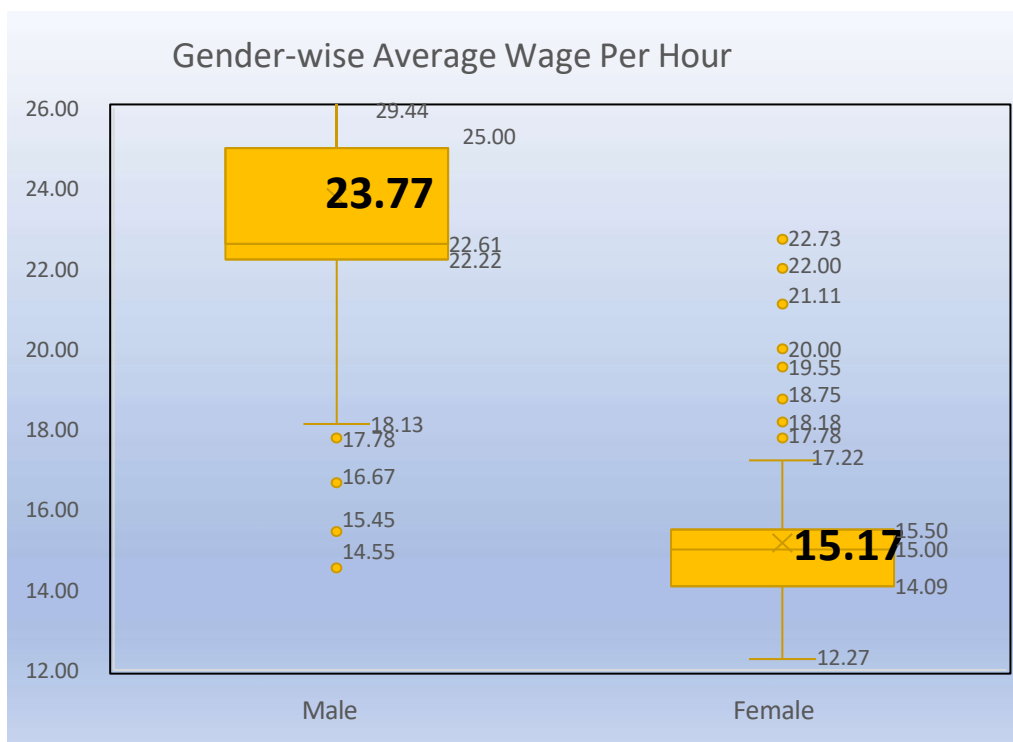
Table 4.15 Per hour Income Gap

Per hour income gap	Koraput	Malkangiri	Grand Total
Female	15.43	14.91	15.17
Male	23.48	24.11	23.77
Grand Total	18.67	18.26	18.47

Source *Field Survey conducted on 8th March, 2023*

The table 4.15 analysis of average per-hour wages in Koraput and Malkangiri reveals a striking gender pay gap, with men consistently earning more than women for similar labour. In Koraput, women earn an average of ₹15.43 per hour, while men earn ₹23.48, meaning that men are paid about 52 percent more than women. In Malkangiri, the gap is even wider women earn ₹14.91 per hour, compared to ₹24.11 for men, resulting in a 61percent higher income for men. These figures highlight significant wage inequality, where women's contributions in agriculture and labour-intensive work are undervalued compared to those of men.

Chart 4 Gender wise Wage gap of the Respondents



Source Field Survey conducted on 8th March, 2023

The chart 3 show, overall, across both districts, women earn an average of ₹15.17 per hour, while men earn ₹23.77, leading to an income gap of approximately 57 percent. This disparity suggests that women, especially in rural areas like Koraput and Malkangiri, face systemic challenges that prevent them from achieving equal pay. These challenges could be linked to lower access to higher-paying roles, limited educational opportunities, and societal norms that place women in lower-wage positions. Additionally, women may have less bargaining power, further restricting their ability to negotiate better income or access to higher-paying jobs.

The implications of this income gap are far-reaching. Economically, women remain at a disadvantage, with lower earnings that directly impact their financial independence and the welfare of their households. Furthermore, the persistent income inequality limits women's

opportunities for economic empowerment and perpetuates poverty cycles. Addressing these disparities will require targeted efforts, such as increasing women's access to skills training, education, and better-paying jobs, as well as implementing fair income policies and ensuring stronger social and legal protections for women. By closing the gender wage gap, both Koraput and Malkangiri can foster more equitable and sustainable development in their agricultural and labour sectors.

Average Daily Payment of the Respondents

Daily wage refers to the amount of money a worker earns for one day of work. In the context of agriculture, daily wage rates are particularly important for labourers and farmers who rely on seasonal or temporary work for their income.

Table 4.16 Daily payment of the Respondents

Average daily payment	Koraput(₹)	Malkangiri(₹)
Female	157.38	153.92
Male	201.57	205.94
Grand Total	175.15	172.89

Source Field Survey conducted on 22th October, 2023

Analysis of table 4.16 of average daily payments in Koraput and Malkangiri reveals a significant gender wage gap, reflecting the broader economic inequalities faced by women in the agricultural sector. In Koraput, women earn an average daily wage of ₹157.38, while men earn ₹201.57, showing that men receive about 28percent more than women for similar labour.

In Malkangiri, the gender wage gap is even wider, with women earning ₹153.92 and men receiving ₹205.94 per day, meaning that men earn 34percent more than women. These figures demonstrate that women in both districts consistently earn less than men, even though they perform comparable tasks in agriculture.

This gender gap in daily wages underscores the systemic undervaluation of women's work in rural agricultural settings. Despite their substantial contributions to farming and household labour, women are paid significantly less, reflecting deep-rooted social norms that devalue women's labour compared to men's. The consequences of

this wage gap are far-reaching: it not only limits women's financial independence but also impacts the economic well-being of their families, as lower income means less ability to invest in essential areas like education, healthcare, and agricultural inputs.

Addressing this income disparity is crucial for achieving gender equality in rural economies. Policy interventions are needed to ensure that women receive fair compensation for their labour, alongside initiatives that promote women's access to education, training, and higher-paying roles within agriculture. Closing the gender wage gap would not only uplift women economically but also strengthen rural communities by fostering more equitable and sustainable development.

Policy Information of the Respondents

Policy information is crucial in gender gap research as it offers important insights into the frameworks and regulations that influence the economic and social interactions between genders. Various policies concerning labour, education, healthcare, and social welfare play a significant role in determining the opportunities and outcomes available to both women and men, directly affecting their access to essential resources and support systems. By examining these policies, researchers can uncover existing gaps, biases, or limitations that contribute to inequality, such as inadequate parental leave, the unavailability of affordable childcare, or issues related to wage discrimination. Additionally, analysing policies allows for the assessment of the effectiveness of measures designed to bridge the gender gap, thereby informing future recommendations aimed at enhancing gender equity. Ultimately, a thorough understanding of the policy environment empowers researchers to advocate for strategic and effective actions that can tackle the fundamental causes of gender disparities. Here the researcher describes about the gender gap on MSP, Kalia Yojana and crop insurance on the parameter of Policy information.

The Assistant Agriculture Officers from both Koraput and Malkangiri districts acknowledged KALIA Yojana is recognized by the officials as a key initiative supporting small, marginal, and landless farmers, including rural women in Odisha. They noted that the scheme provides financial assistance for cultivation and

livelihood activities, helping women farmers participate more actively in agriculture. While many women have benefited through direct cash transfers, challenges such as lack of awareness, documentation issues, and exclusion errors still limit its full reach. Officials highlighted the role of Self-Help Groups (SHGs) in helping rural women access the scheme and suggested that simplifying procedures, improving digital access, and strengthening awareness campaigns could enhance its effectiveness in empowering women farmers.

Selling crop at MSP by the respondents

Selling crops at Minimum Support Price (MSP) refers to the practice where farmers sell their agricultural produce to the government or authorized agencies at a pre-determined price. The MSP is set by the government to ensure that farmers receive a minimum price for their crops, protecting them from price fluctuations in the market and providing a stable income.

Table 4.17 Selling Crop at MSP by the Respondents

Selling crop at MSP	Koraput (%)	Grand Total (%)	Malkangiri (%)	Grand Total (%)
Female	41(36.28)	113(100)	34(29.57)	115(100)
Male	71(93.42)	76(100)	46(69.70)	66(100)
Grand Total	112(59.26)	189(100)	80(44.19)	181(100)

Source *Field Survey conducted on 8th March, 2023*

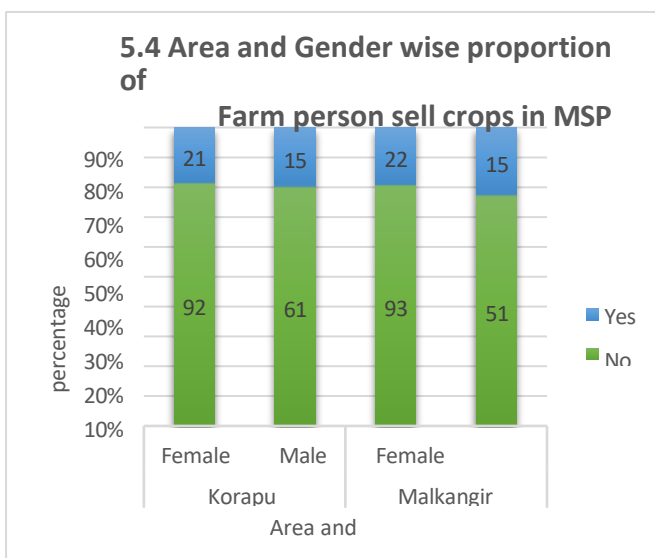
The table 4.17 analysis of women's participation in selling crops to government purchase centre in Koraput and Malkangiri reveals a significant gender gap compared to their male counterparts, highlighting challenges women face in accessing formal markets. In Koraput, only 36.28 percent of women sell their crops to government purchase centres, whereas 93.42 percent of men do so, illustrating a vast disparity. In Malkangiri, the situation is similar, with only 29.57 percent of women engaging in crop sales to government centres compared to 69.70 percent of men. This stark contrast shows that men have far greater access to formal agricultural markets, leaving women behind. Several factors likely contribute to this gap. Women

generally have limited access to land, financial resources, and information, which restricts their ability to participate in formal market channels. Social and cultural barriers may also play a role, as traditional gender roles often limit women's mobility and discourage them from engaging in public or commercial activities, including selling produce at government centres. Additionally, women may lack knowledge or awareness about government procurement systems, further preventing them from taking advantage of these opportunities.

The overall participation rates show that while 59.26 percent of all farmers in Koraput (both men and women) sell to government centres, this drops to 44.19 percent in Malkangiri. These figures suggest broader accessibility issues beyond gender, further limiting women's engagement in formal agricultural markets. The lengthy official processes and delays in receiving payment are significant reasons why farmers, especially women, do not sell their crops at government procurement centres, while transportation issues and documentation

requirements further hinder their participation in Minimum Support Price (MSP) schemes; as a result, small intermediaries often take their crops directly from the fields and provide immediate payment. To bridge this gap, it is essential to empower women farmers by providing them with training and raising awareness about government procurement processes. Ensuring better access to transportation, financial resources, such as credit and subsidies, can also enhance women's ability to produce and market their crops.

Chart 5 Area and gender wise proportion of farm person sell crops in MSP



Source Field Survey conducted on 8th March, 2023

Kalia Yojana of the Respondents

The data from Koraput and Malkangiri districts illustrates a remarkable level of awareness regarding the Kalia Yojana scheme among the surveyed population, which includes a total of 370 individuals 228 females and 142 males. Notably, every respondent in both groups demonstrated full awareness of the scheme, with 100 percent of females and 100 percent of males confirming their knowledge of Kalia Yojana. This outcome signifies that the outreach efforts aimed at promoting the scheme have been exceptionally effective, successfully reaching and engaging both genders without any disparity. Overall, the findings reflect a strong recognition of the scheme, highlighting its relevance and the effectiveness of efforts to disseminate information among the local population. This result also suggests that the Kalia Yojana has effectively reached a wide audience in the district, achieving full recognition among the surveyed population. The equal awareness levels across both males and females highlight the success of the communication and outreach efforts, demonstrating that the community has been well-informed about the benefits and objectives of the Kalia Yojana. This underscores the program's relevance and its potential positive impact on the local population.

Crop Insurance of the Respondents

Crop insurance helps farmers mitigate risks associated with unpredictable weather, pests, and natural disasters. Studying its uptake can reveal how prepared farmers are to cope with agricultural losses. Crop insurance can safeguard farmers' incomes, ensuring they are not financially devastated by crop failures. Research on crop insurance can show its role in promoting financial security in farming communities. Here the researcher describes the gender gap on “knowledge about crop insurance” in the Koraput and Malkangiri districts.

Table 4.18 Knowledge about Crop insurance

Crop insurance knowledge	No (%)	Yes (%)	Grand Total(%)
Koraput			
Female	89(78.76)	24(21.23)	113(100)
Male	61(80.26)	15(19.73)	76(100)
Grand Total	150(79.36)	39(20.63)	189(100)
Malkangiri			
Female	78(67.82)	37(32.17)	115(100)
Male	38(57.57)	28(42.42)	66(100)
Grand Total	116(64.08)	65(35.91)	181(100)

Source Field Survey conducted on 8th December, 2023

The data on the table 4.18 of crop insurance coverage among farmers in Koraput and Malkangiri districts reveals significant gender-based and regional differences in insurance adoption. In Koraput, a substantial majority of both women and men lack crop insurance. Among females, 89 out of 113 reported not having crop insurance, with only 24 (21.23) having coverage. Male farmers show a similar trend, with 61 out of 76 uninsured and 15 (19.73 percent) insured. Overall, in Koraput, 79.36 percent of respondents are uninsured, while only 20.63 percent have crop insurance, indicating limited insurance uptake across genders in this district.

In Malkangiri, the situation reflects slightly better crop insurance coverage, especially among male farmers. Here, 67.82 percent of female farmers (78 out of 115) reported not having insurance, with 32.17 percent (37) having insurance coverage. Among males, only 57.57 percent (38 out of 66) are uninsured, while 42.42 percent (28) have crop insurance. This district shows a higher overall crop insurance coverage, with 35.91 percent of respondents insured compared to Koraput's 20.63 percent. The higher rate of insurance uptake among men in Malkangiri suggests that gender and location significantly influence access to crop insurance.

Comparatively, crop insurance adoption is notably higher in Malkangiri than in Koraput, with a more pronounced gender gap in insurance coverage in Koraput. Male

farmers in Malkangiri have the highest knowledge of crop insurance, while female farmers in Koraput are the least likely to be insured. This indicates that both geographic and gender-related factors play a substantial role in crop insurance coverage, with Malkangiri farmers, especially men, having relatively better access to this financial safety net compared to their Koraput counterparts. Government or NGO Initiatives more targeted insurance programs, subsidies, or partnerships available in Malkangiri, which could contribute to the higher adoption rate there. Specific initiatives aimed at increasing insurance adoption or promoting financial inclusion might have reached Malkangiri more effectively. In Koraput, to improve access to crop insurance and other financial services, these efforts are still in a gradual phase of development. Initial challenges, such as lower awareness levels, traditional gender roles, and limited infrastructure, may slow the immediate uptake of these programs. However, with sustained intervention, education, and outreach, will create long-term improvements in awareness, accessibility, and adoption of financial services like crop insurance in Koraput district.

Adopt to Technology by the Respondents

“Adopt to technology” in farming refers to the process by which farmers incorporate new tools, techniques, and innovations into their agricultural practices. This might include using advanced machinery, data-driven methods, automated systems, or biotechnology to improve efficiency, productivity, and sustainability. By adopting technology, not only in farming but also in day-to-day life, a person can become more aware of government plans, policies, and other developmental works introduced by the government, and increase their resilience, cut costs, improve productivity, and contribute to sustainable food systems. Here, the parameters of adopt-to-technology researchers include the use of Modern Technology in Farming and the use of personal mobile phones.

The block level officer noted that while some women farmers, particularly those associated with Self-Help Groups (SHGs), have started adopting simple mechanized tools and mobile-based advisory services, widespread adoption is still a challenge due to lack of awareness, limited digital literacy, and poor access to infrastructure in

remote areas. The officers suggested that targeted training programs, digital literacy initiatives, and awareness campaigns can help rural women understand and adopt new technologies. They also highlighted that promoting the use of mobile apps, weather advisory services, digital payment systems, and modern agricultural equipment can improve both productivity and income levels for women farmers.

Use of Modern Technology in Farming of the Respondents

In Odisha, the gender divide in agricultural practices is particularly evident in the operation of modern farming equipment. Men are generally the primary operators of essential machinery such as tractors, power tillers, rice-cutting machines, harvesters, and irrigation systems. This trend underscores a significant gender gap in both access to technology and the opportunities for skill development within the agricultural sector.

Access to Training and Resources - One of the critical factors contributing to this divide is the differential access to training programs and technical knowledge. Men often have greater opportunities to participate in workshops and training sessions focused on modern agricultural practices and machinery operation. These programs are frequently designed to enhance productivity and efficiency, yet they predominantly attract male participants. This imbalance not only perpetuates existing gender roles but also limits women's involvement in the agricultural workforce.

Family Dynamics and Gender Roles - Within households, traditional gender roles play a significant role in determining who is permitted to learn and operate farming equipment. Families tend to prioritize training for male members, viewing them as the primary labour force responsible for managing machinery and making critical farming decisions. In many cases, male family members are encouraged to learn the intricacies of various technologies, with support from other household members. Whereas, women are often discouraged from pursuing similar training, leading to a lack of hands-on experience with modern equipment. When the researcher asked one of the respondents why she doesn't allow her daughter to learn to operate the machinery, she replied, *“All the people there are men, so how can I trust them? Who will protect her? Besides, why should we spend so much money on a machine for her*

instead of saving that money for her marriage". This dynamic reflects broader societal attitudes that position men as leaders in agricultural practices and decision-making roles. As a result, women may feel marginalized and excluded from the technological advancements that could improve their productivity and economic status. Addressing this gender gap requires a multifaceted approach. Programs aimed at promoting gender inclusivity in agricultural training should be prioritized, ensuring that women have equal access to learning opportunities related to modern farming technologies. Encouraging men to support women in learning to operate machinery and engage in decision-making processes can foster a more collaborative environment in farming households.

Additionally, raising awareness about the benefits of involving women in all aspects of agriculture especially in the use of modern technology can lead to more balanced agricultural practices. By recognizing and valuing the contributions of both men and women, Koraput and Malkangiri can enhance its agricultural productivity and move toward a more equitable farming system.

Having Personal Mobile Phone by the Respondents

Mobile phones provide individuals with access to essential information. Mobile phones allow people to stay connected with family, communities, and support networks. Understanding the rate of mobile phone ownership helps researchers measure how open or adaptable a population is to new technologies.

Table 4.19 Having personal Mobile Phone

Having personal mobile phone	No (%)	Yes (%)	Grand Total (%)
Koraput	66.14	34	100.00
Female	82.30	17.70	100.00
Male	42.11	57.89	100.00
Malkangiri	62.98	37.02	100.00
Female	87.83	12.17	100.00
Male	19.70	80.30	100.00
Grand Total	64.59	35.41	100.00

Source Field Survey conducted on 8th December, 2023

Table 4.19 analyse of mobile phone ownership data in Koraput and Malkangiri districts reveals a significant gender disparity, particularly affecting women's access to personal mobile phones. This gap is not just a reflection of technology ownership but also highlights deeper issues related to gender inequality in access to resources, information, and economic empowerment. In Koraput, a substantial 66.14 percent of the population does not own personal mobile phones, but the gender breakdown is stark. Among women, a striking 82.3 percent do not own a mobile phone, compared to only 42.11 percent of men. This significant gap where more than twice the number of women lack mobile phones compared to men underscores the digital divide that disproportionately impacts women. For women in Koraput, especially those involved in agriculture as labourers or farmers, the lack of access to mobile phones can severely limit their ability to stay informed about crucial aspects of their livelihoods. Mobile phones are increasingly essential for accessing agricultural market information, connecting with buyers or suppliers, and participating in government welfare programs such as subsidies, crop insurance, or financial aid. Women without mobile phones are excluded from these opportunities, which can contribute to ongoing economic marginalization. The disparity between male and female mobile phone ownership is significant because it suggests that men in the region have better access to resources that can enhance their economic activities, including managing agricultural production, trading crops, or accessing financial services such as mobile banking. This imbalance means that men are better positioned to adapt to new agricultural opportunities, technologies, and economic trends, while women are left behind.

In Malkangiri, the overall situation is slightly better, with 62.98 percent of the population not owning a mobile phone. However, the gender disparity in this region is even more severe. A staggering 87.83 percent of women in Malkangiri do not own a mobile phone, compared to only 19.7 percent of men. This means that nearly nine out of ten women are without access to a personal mobile phone, whereas the vast majority of men own one. The vast gender gap in Malkangiri reflects deep-rooted inequalities in access to technology and resources. The extremely low rate of mobile phone ownership among women significantly curtails their ability to access key

information related to agriculture, employment, and economic opportunities. Mobile phones are an essential tool for connecting with markets, learning about weather patterns, securing jobs, and even accessing government initiatives. Women's lack of mobile phones in Malkangiri indicates that they are much more likely to be disconnected from these opportunities, which further entrenches their economic and social vulnerabilities in contrast, men in Malkangiri are in a far better position to leverage mobile phones for economic gain. With 80.3 percent of men owning a mobile phone, they can more easily connect to the digital economy, access market prices, and benefit from financial services, such as digital banking and remittance transfers. This gender gap exacerbates existing inequalities, as men are able to take advantage of economic opportunities that are denied to women. The data from both Koraput and Malkangiri highlights the pervasive gender gap in mobile phone ownership, which has significant implications for women's economic empowerment. Mobile phones are not just communication devices, they are tools for accessing information, financial services, government support programs, and market opportunities. Without them, women are effectively cut off from the digital economy, which plays an increasingly important role in rural and agricultural communities. This lack of access to mobile phones disproportionately affects women, who are already economically marginalized. Women in both Koraput and Malkangiri, especially those working as agricultural labourers or farmers, often have lower incomes, fewer assets, and less access to financial services than men. Without mobile phones, they cannot easily access market information, government services, or financial resources like loans or subsidies, all of which are increasingly delivered through digital platforms.

The gender gap in mobile phone ownership also reflects broader socio-economic and cultural barriers that women face. In many rural areas, women may have less financial independence and decision-making power within households, limiting their ability to purchase or use mobile phones. Additionally, societal norms may restrict women's access to technology, either because of perceptions that mobile phones are not necessary for women or due to concerns about women's autonomy and mobility. For men, the higher rates of mobile phone ownership provide them with a clear

economic advantage. Men in both Koraput and Malkangiri are better positioned to take advantage of mobile technology to improve their agricultural practices, connect with markets, and access financial services. This creates a widening gap in economic opportunities between men and women, reinforcing existing inequalities in income, wealth, and social status. The gender gap in mobile phone ownership in Koraput and Malkangiri is a reflection of broader inequalities in access to resources, information, and economic opportunities. Addressing this digital divide through targeted interventions and broader efforts to empower women could have a transformative impact on their economic and social well-being.

Decision Making Power of the Respondents

Women in these districts play a vital role in various farming activities, including sowing, weeding, harvesting, and post-harvest processing. Their extensive involvement in day-to-day operations provides them with valuable insights into the agricultural process. However, despite their knowledge and experience, they often lack formal authority in making decisions about the farm's overall management. Traditional gender roles heavily influence decision-making dynamics in Malkangiri and Koraput. In many households, men are viewed as the primary decision-makers regarding financial investments, crop selection, and the use of modern technology. Women are often expected to focus on household responsibilities and contribute to farming tasks without having a say in broader agricultural decisions. These cultural norms can limit women's ability to assert their opinions and preferences. Women often face barriers to accessing resources, information, and training opportunities that are crucial for informed decision-making. While men may have more exposure to agricultural education and market information, women frequently rely on informal networks for knowledge. This lack of access can hinder their ability to make informed choices regarding crop management, technology adoption, and financial planning.

In some cases, women in Malkangiri and Koraput are increasingly participating in collective decision-making processes within their communities. Because in some cases men are dependent upon the women for asking to take financial aid from the

SHG. Women's groups and cooperatives are emerging as platforms for sharing knowledge, resources, and support. These collective efforts can amplify women's voices in agricultural decisions and promote greater equality within households and communities. Thus, Gendered norms and customs, particularly regarding the division of unpaid household work, heavily impact the gender gap across areas such as employment, income, and personal well-being. Societal expectations often dictate that women shoulder most household responsibilities, including cooking, cleaning, childcare, eldercare, and even tending to domestic animals.

These tasks are carried out daily without recognition, contributing to an unacknowledged yet substantial workload. This heavy workload leaves them with little time or energy to participate in training programs, engage in community decision-making, or seek opportunities to enhance their skills. The lack of support systems or infrastructure, such as childcare facilities, further limits their ability to fully participate in agricultural activities. A critical issue highlighted by the researcher is menstruation. Many women experience severe menstrual cramps yet continue to perform these duties and also go for work without support or care from family members. Compounding this issue, many women lack access to menstrual hygiene products, such as sanitary napkins. Instead, they still rely on “kapda” (a piece of cloth) during their periods, often due to lack of education on alternatives and affordability concerns. When asked about sanitary napkins, one woman responded, *“Who will bring the pads from the market for me and my daughter? We cannot ask a male family member to buy them.”* Another woman expressed concerns over the cost, stating, *“It’s a bit expensive; we can’t spend around 200 rupees on sanitary pads every month.”* These responses underscore the challenges women face in managing their health and well-being due to social taboos, financial constraints, and lack of familial support. Addressing these issues is essential to bridging the gender gap and ensuring women’s health and dignity are prioritized.

Despite coming from the same labour-intensive work, men typically take time to rest or gather with other men, engaging in activities like playing cards or socializing. In contrast, women, upon returning home, are expected to take on all household

responsibilities alone, including cooking, cleaning, and childcare, with little to no appreciation or recognition. This disparity not only adds to women's physical and mental burden but also reinforces gendered norms that undervalue their contribution. While men have time to relax and recharge, women remain in a continuous cycle of unpaid work, widening the gender gap in terms of well-being, time, and respect within the household. Addressing this imbalance is essential to achieving gender equity, as it affects not only women's health but also their opportunity for personal growth and rest.

Table 4.20 Socio-economic profile of the Respondents

Malkangiri				Koraput		
	Femal e	Male	Total	Femal e	Male	Total
N	33	26	59	37	27	64
Daily Wage (in Rs.)	Femal e	Male	Total	Femal e	Male	Total
Mean	156.69	267.88	206.53	151.32	263.70	198.73
Age Group	Femal e	Male	Total	Femal e	Male	Total
18-30	30.30	7.69	20.34	13.51	0.00	7.81
30-40	9.09	50.00	27.12	54.05	59.26	56.25
40-50	30.30	26.92	28.81	16.22	22.22	18.75
50 and above	30.30	15.38	23.73	16.22	18.52	17.19
Education (%)	Femal e	Male	Total	Femal e	Male	Total

Illiterate	54.55	23.08	40.68	35.14	25.93	31.25
Primary	9.09	53.85	28.81	29.73	44.44	35.94
Secondary	24.24	11.54	18.64	24.32	29.63	26.56
Tertiary and higher education	12.12	11.54	11.86	10.81	0.00	6.25
Own Agricultural Land (%)	Female	Male	Total	Female	Male	Total
No	78.79	19.23	52.54	70.27	37.04	56.25
Yes	21.21	80.77	47.46	29.73	62.96	43.75
Own Mobile Phone (%)	Female	Male	Total	Female	Male	Total
No	60.61	42.31	52.54	70.27	22.22	50.00
Yes	39.39	57.69	47.46	29.73	77.78	50.00
Received Training on Farming (%)	Female	Male	Total	Female	Male	Total
No	100.00	84.62	93.22	100.00	77.78	90.63
Yes	0.00	15.38	6.78	0.00	22.22	9.38
Heard about Crop Insurance (%)	Female	Male	Total	Female	Male	Total
No	75.76	50.00	64.41	89.19	55.56	75.00
Yes	24.24	50.00	35.59	10.81	44.44	25.00
Grand Total (%)	100.00	100.00	100.00	100.00	100.00	100.00

Source: Field Study

An analysis of the collected data concerning the demographics and socioeconomic indicators of Malkangiri and Koraput districts reveals notable trends. One such observation pertains to the gender disparity in average wages, with males

consistently earning higher wages than females in both districts. A significant observation from the data is the gender disparity in average wages across both Malkangiri and Koraput districts. In Malkangiri, while the overall average daily wage for both genders is 206.53 rupees, a closer look reveals a substantial gap: men earn on average 267.88 rupees per day, whereas women earn only 156.69 rupees. Similarly, in Koraput, despite the overall average daily wage being slightly lower at 198.73 rupees, men earn significantly more with an average of 263.70 rupees per day compared to women who earn only 151.32 rupees per day. These disparities underscore the persistent issue of gender wage gaps in these regions, reflecting broader systemic inequalities in access to education, employment opportunities, and fair compensation. Addressing these disparities requires concerted efforts to promote gender equality in the workforce and ensure equitable economic opportunities for all individuals, regardless of gender.

The literacy rates among females in both Koraput and Malkangiri districts reveal a concerning disparity compared to their male counterparts. In Koraput, the female illiteracy rate stands at 35.14%, slightly higher than in Malkangiri, where it is 54.55%. Similarly, the male literacy rate is higher in Koraput at 42.19% compared to 44.07% in Malkangiri. However, when examining the illiteracy rates, a troubling pattern emerges. Regarding training on farming, a higher percentage of males have received training compared to females, with 15.38% of males having received training compared to none of the females. Additionally, males exhibit greater awareness of crop insurance, with 50% of males having heard about it compared to only 24.24% of females.

In terms of land ownership, a higher percentage of males own agricultural land compared to females, with 80.77% of males compared to only 21.21% of females owning land. Similarly, a larger proportion of males own mobile phones compared to females, with 57.69% of males compared to 39.39% of females owning mobile phones.

Moreover, the data exposes disparities in access to farming training, with a notably higher percentage of males having received training compared to females. This gap in skill development opportunities can perpetuate gender-based divisions in labour roles within the agricultural sector, hindering women's ability to enhance

productivity and adopt sustainable farming practices. Additionally, the lower awareness of crop insurance among females underscores a lack of access to risk mitigation mechanisms, leaving them vulnerable to agricultural shocks and jeopardizing their livelihood security. It reveals a stark contrast in land ownership, with a significantly higher percentage of males owning agricultural land compared to females. This discrepancy not only reflects unequal access to land resources but also potentially limits women's economic empowerment and participation in agricultural decision-making processes. Similarly, disparities in mobile phone ownership suggest differential access to technology, a crucial tool for accessing market information, communication, and financial services, further exacerbating gender inequalities.

The widening disparity underscores the challenges in access to and completion of higher levels of education, particularly in rural areas like Malkangiri and Koraput. Addressing this gap requires concerted efforts to improve infrastructure, increase access to secondary education facilities, and implement policies that promote equitable educational opportunities for all individuals, regardless of their geographic location or socioeconomic background.

The table:2 presents the results of an Independent Samples t-test conducted to examine the equality of means for the variable "Daily Wage". Levene's test is used to assess whether the variances of the two groups being compared are equal or not. The obtained F-statistic is 10.264 with a significance level (Sig.) of .002, indicating that the assumption of equal variances is violated. When equal variances are assumed, the obtained t-statistic is -36.289 with 121 degrees of freedom (Df), and the significance level is .000. This indicates a statistically significant difference in the mean daily wage between the two groups.

Table 4.21 Independent Samples Test (t-test)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Daily_Wage	Equal variances assumed	10.264	.002	-36.289	121	.000	-111.783	3.080	-117.882	-105.685
	Equal variances not assumed			-33.719	76.169	.000	-111.783	3.315	-118.386	-105.181

Source: survey data

In examining daily wages between genders in Malkangiri and Koraput through an independent samples t-test, a noteworthy discrepancy emerged, signifying a significant difference in earnings. Women, across both regions, consistently garnered substantially lower wages compared to their male counterparts. This wage gap persisted irrespective of whether equal variances were assumed or not, indicating a robust trend. On average, women earned approximately 111.783 rupees less per day than men, underscoring a pronounced disparity in income between genders within these areas. This finding not only highlights existing gender-based wage inequalities but also emphasizes the need for targeted interventions to address and rectify such disparities, promoting gender equity and fair compensation in the workforce.

In the table:3, the researcher designated the 18-30 age group as the reference category for the age variable. For educational qualification, the reference category was set as "illiterate." Conversely, for variables such as ownership of a mobile phone, possession of agricultural land, and participation in pre-training, the reference categories were established as "not owning a mobile phone," "not owning agricultural land," and "no pre-training," respectively, in comparison to owning a mobile phone, possessing agricultural land, and receiving pre-training.

Table 4.22 Regression Analyses of Wages by Gender

<i>Dependent variable:</i>			
Daily Wage			
Sample	Male	Female	Pooled
Constant	256.543***	132.283***	138.297***
	-15.873	-6.675	-6.009
Gender			
Male			100.023***
			-3.163
Age group (Years)			
30-40	-9.591	16.368***	8.053
	-12.711	-5.715	-5.077
40-50	-6.596	14.461**	9.611*
	-13.318	-5.93	-5.371
50 and above	-8.546	20.179***	13.414**
	-15.653	-6.787	-6.431
Education			
Primary	3.015	0.876	2.094
	-6.225	-4.182	-3.486

Secondary	11.918	7.278	8.746 ^{**}
	-8.059	-4.459	-3.873
Tertiary and higher education	-1.712	1.048	-1.001
	-12.249	-6.688	-6.032
Residence			
Malkangiri	6.813	7.402 ^{**}	7.740 ^{***}
	-4.944	-3.045	-2.472
Own mobile phone	-2.493	8.595 ^{**}	3.468
	-6.99	-3.539	-3.182
Own agricultural land	5.593	-0.412	1.942
	-5.323	-3.259	-2.729
Received training on farming	42.474 ^{***}		42.730 ^{***}
	-6.293		-4.762
Observations	53	70	123
R ²	0.595	0.313	0.956
Adjusted R ²	0.498	0.21	0.951
Residual Std. Error	15.380 (df = 42)	10.758 (df = 60)	12.808 (df = 111)
F Statistic	6.166 ^{***} (df = 10; 42)	3.040 ^{***} (df = 9; 60)	217.962 ^{***} (df = 11; 111)
Note:	* p<0.1; ** p<0.05; *** p<0.01		

Table 4.22 shows us the regression analysis conducted in this study investigates the determinants of average daily wage, shedding light on the socio-economic factors influencing wage differentials within the studied population of Malkangiri and

Koraput districts. Through a comprehensive examination of various independent variables, including gender, age group, marital status, education level, occupation, ownership of a mobile phone, and awareness of crop insurance, the study seeks to elucidate the nuanced dynamics of wage determination. Here Reference Category is Female and the dependent variable in all three models is "Daily Wage," which represents the daily wage earned by individuals. Age has a significant effect on wage of women in both Koraput and Malkangiri. The regression analysis provides valuable insights into the determinants of wages in the agricultural sector, shedding light on various factors influencing earning differentials between genders. The model demonstrates its robustness by explaining a significant portion of the wage variance, with adjusted R-squared values ranging from 0.21 to 0.498 for females and males respectively. This statistical significance, indicated by the F-statistic, underscores the collective explanatory power of the included variables in elucidating wage disparities. The findings reveal a notable gender wage gap, with males consistently earning significantly more than females, as indicated by the positive coefficient for males in comparison to females. This disparity underscores persistent inequalities in labour compensation between genders within the agricultural workforce. Education emerges as a multifaceted determinant of wages, with secondary education demonstrating a consistent positive impact on earnings for both genders, supported by statistically significant coefficients. However, the effects of primary education and tertiary/higher education appear less pronounced, with coefficients failing to reach statistical significance. A particularly intriguing finding is the substantial positive impact of receiving training on farming on wages for both genders, evidenced by large and statistically significant coefficients. This highlights the pivotal role of skill development and training programs in enhancing earning potential within the agricultural sector. Residence in Malkangiri is associated with higher wages for both genders, reflecting regional disparities in income levels within the agricultural landscape. It seems that in both male and female categories in comparison to Koraput districts, Malkangiri districts people earn more than 7.74 rupees in their daily wage. This suggests a significant difference in earnings between these districts compared to other areas or compared to a baseline wage. Understanding the reasons behind this wage differential could provide valuable insights into economic dynamics and

opportunities in these regions, with a striking level of significance at 99%. Furthermore, ownership of a mobile phone emerges as a significant determinant of female wages, suggesting the potential role of technology access in augmenting earning opportunities for women in rural contexts. Conversely, ownership of agricultural land does not significantly influence wages for either gender, indicating that land ownership may not directly translate into enhanced earning capacity within the agricultural labour market. This observation hints at the potential role of technology and connectivity in enhancing economic opportunities in these areas. Access to mobile phones might facilitate better communication, access to information, and opportunities for remote work or entrepreneurship, leading to higher wages. In summary, the regression analysis illuminates the complex interplay of socio-economic factors shaping wage differentials in the agricultural sector. By highlighting the gender wage gap, the importance of education, the impact of training programs, and regional disparities in income levels, these findings provide valuable insights for policymakers and stakeholders seeking to address inequities and enhance economic opportunities within rural communities.

The analysis highlights a significant correlation between age and wages among women residing in Koraput and Malkangiri. When compared to the reference group of women aged 18-30, distinct trends emerge across different age brackets. Notably, women aged 30-40 in both areas experience a notable increase in wages, earning approximately 16.368 rupees more, with a high level of statistical significance at 99%. This suggests that older women tend to earn more compared to younger agricultural labourers. Furthermore, women above 50 years old earn approximately 20 rupees more compared to those aged 18-30, indicating a consistent pattern of higher earnings among older female workers.

This finding suggests that while land ownership may contribute somewhat to earnings, other factors such as education level, access to technology, and perhaps non-agricultural employment opportunities could play a more significant role in determining wage levels in these areas. Understanding the various factors that influence wages can help policymakers and stakeholders formulate more targeted interventions to improve economic outcomes for individuals in these regions. It's a significant finding that individuals who receive agricultural training earn 42 rupees

more in their daily wage in both Koraput and Malkangiri districts, with a high level of statistical significance (99%). This suggests that agricultural training plays a crucial role in improving economic outcomes for individuals in these areas. The impact of agricultural training could be multifaceted. It likely enhances agricultural productivity, knowledge of modern farming techniques, and market access, leading to higher earnings for individuals engaged in agriculture. Additionally, it could empower individuals to diversify their agricultural activities or engage in value-added agricultural practices, further boosting their income.

4.5 Role of Women in Agricultural Development

Women play a vital role in agricultural development, especially in rural areas, where they contribute significantly to both farming activities and household management. Their involvement spans across various agricultural sectors, including crop production, livestock management, and post-harvest processing. Despite facing challenges such as limited access to resources, land ownership, and financial support, women continue to demonstrate resilience and adaptability in driving agricultural productivity (Gowda, 2018). In many regions, women also serve as labourers, entrepreneurs, and decision-makers within their households and communities. The role of women in agricultural development is not only crucial for food security but also for fostering economic growth, improving rural livelihoods, and promoting sustainable farming practices (Patil, 2018). As financial inclusion and access to modern resources grow, women's contributions to agriculture become even more significant, shaping the future of rural economies and enhancing overall agricultural sustainability (Ghosh, 2014). This part sets the stage for understanding the multifaceted contributions of women to agricultural development. The role of Women in Agricultural Development analyses on parameters such as: Knowledge on agricultural operation, Knowledge on agriculture management, Climate Resilience and Adaptation and Knowledge and Skills.

Participation in agricultural operation

Participation of agricultural operations includes key activities such as sowing, weeding, winnowing, harvesting, irrigation, fertilizer application, and plant protection. In this context, the researcher aims to describe the level of agricultural knowledge possessed by women farmers in both districts.

Table 4.23 Participation in agricultural operations

Participation in agricultural operation	Yes (%)	No (%)	Grant total
Sowing	212(92.98)	16(7)	228
Weeding	212(92.98)	16(7)	228
Winnowing	200(87.71)	28(12.28)	228
Harvesting	210(92.10)	18(7.89)	228
Irrigation	52(22.80)	176(77.19)	228
Fertilizer application	90(39.47)	138(60.52)	228
plant protection	100(44)	128(56)	228

Source Field Survey conducted on 18th December, 2023

Above the table 4.23 elaborate the Participation in agricultural operations of the Koraput and Malkangiri farm women. Sowing is the process of planting seeds, while transplanting means moving a plant from one place to another in agriculture. In the Koraput and Malkangiri regions, it is mostly women who do these tasks. They learn the skills from their ancestors, without any special training. On the other hand, men generally prefer not to do this kind of work. Weeding refers to the process of removing unwanted plants, called weeds, from crop fields, which is essential for protecting crops and ensuring better yields. The vast majority of participants demonstrate strong familiarity with sowing and weeding tasks, with 92.98 percent acknowledging knowledge in both areas. This high percentage suggests that sowing and weeding are likely essential. Out of 228 only, 16(7%) women were not aware about sowing and weeding. In the Koraput and Malkangiri regions, this task has traditionally been carried out by women for generations. They often work in groups, using their knowledge and skills passed down from their ancestors. Men in these

regions generally do not participate in this activity, much like other agricultural tasks that are primarily handled by women. This highlights a clear gender-based division of labour in the agricultural practices of these two areas.

Winnowing is a traditional agricultural technique used to separate heavier components, such as grains, from lighter materials like chaff. This process typically involves using wind or air to blow away the lighter chaff, leaving the clean grains behind. Participation of winnowing is slightly lower, with 87.71percent of respondents affirming their familiarity. Although this is still a high percentage, a small portion (12.28%) lacks understanding in this area. It plays a vital role in preparing the harvested crops for storage or further processing.

Harvesting, on the other hand, is the process of collecting mature crops, plants, or other agricultural produce when they are ready to be consumed or sold. In the regions of Koraput and Malkangiri, both winnowing and harvesting are significant farming activities. Awareness of harvesting techniques is nearly as widespread as for sowing and weeding, with 92.10 percent of women reporting familiarity.

This indicates that harvesting, much like sowing and weeding, is a key area for women agricultural expertise. Unlike some other agricultural tasks, both men and women actively participate in these two processes, working together to ensure the successful collection and preparation of crops. This shared involvement of men and women in winnowing and harvesting marks a contrast to the gendered division of labour seen in other tasks, such as weeding and transplanting, in these areas.

Irrigation is the practice of providing water to crops through artificial methods, such as pipes, sprinklers, or canals, to enhance crop growth and yield. Use of irrigation methods shows a notable decline, with only 52(22.80%) of women aware of these practices, while a significant 176(77.19%) lack this knowledge. However, the majority of women reported facing difficulties in operating motor pumps during irrigation, although they assist male members throughout the process. This technique is especially important in areas like Koraput and Malkangiri, where heavy rainfall occur, without rain water harvesting leaving natural water sources insufficient to support agriculture.

Fertilizer application, another essential agricultural practice, involves using nutrient-rich compounds to promote plant growth and improve soil fertility. Plant protection, on the other hand, focuses on safeguarding crops from pests and diseases, ensuring their health and productivity. A few numbers of women 90(39.47%) are knowledgeable about use of fertilizer application, although a majority,138(60%) are not. In the Koraput and Malkangiri regions, both men and women take part in these critical task's irrigation, fertilizer application, and plant protection. What's noteworthy is that despite the complexity and importance of these activities, the farmers here have not received formal training; they rely on traditional knowledge and hands-on experience passed down through generations. This shared responsibility in managing these agricultural processes reflects the collaborative nature of farming in these communities.

From the observations above, the researcher concluded that a significant portion of agricultural work in the districts of Koraput and Malkangiri is performed by women. This highlights the crucial role women play in the agricultural development of these regions, as they are deeply involved in nearly every stage of farming, from sowing and transplanting to winnowing and harvesting. Their contributions are vital to sustaining the agricultural economy of these areas. However, the study also revealed that despite their hard work and active involvement, the majority of these rural women remain uneducated, unskilled, and bound by traditional roles. They often lack access to formal education and specialized training, which limits their potential for improving productivity and adopting modern agricultural techniques.

As a result, these women are often considered unskilled labour, even though they carry out essential tasks that keep the farming system functioning. This situation reflects broader social and economic challenges, where the productive capacities of rural women remain underutilized and undervalued due to limited opportunities for skill development and education. Addressing these issues could significantly enhance their role and impact in agricultural development.

Agricultural Management Practices

Knowledge of agricultural management includes key activities such as Knowledge about crops, Soil management, Cropping system management, Fertilization selection, Storage and Protection management. In this context, the researcher aims to describe the level of agricultural management knowledge possessed by women farmers in both districts.

Table 4.24 Agricultural management Practices

Agricultural Management Practices	Yes (%)	No (%)	Grant total
Innovations on crops	190(83.33)	38(16.67)	228
Soil management	150 (65.78)	78(34.22)	228
Cropping pattern management	185(81.14)	43(18.86)	228
Fertilization use	109(47.80)	119(52.19)	228
Storage	109(47.80)	119(52.19)	228
Protection management	62(27.19)	166(72.80)	228

Source Field Survey conducted on 28th November, 2023

The data of table 4.24 provides insight into the Practices levels of women in the Malkangiri and Koraput districts regarding various aspects of agricultural management. In agriculture, a crop is a plant or plant product cultivated and harvested on a large scale, either for profit or to support a household's needs (Eliazer, 2019). Having knowledge about crops involves understanding the various types of crops, their purposes, and the methods for growing them. It also includes awareness of whether a crop is intended as a cash crop or for other uses. In innovations about Crops majority of respondents, 83.33 percent (190 women), possess knowledge about crop management, indicating that crop selection, cultivation practices, and possibly crop rotation are familiar concepts. However, 16.67 percent (38 women) lack this knowledge, suggesting a need for further awareness or training in crop-related practices for a small segment.

Knowledge about soil management is comparatively lower, with 65.78 percent (150 women) familiar with soil-related practices. This indicates that while a majority have some understanding of managing soil for productivity, 34.22 percent (78 women) lack this knowledge, which could impact sustainable farming and soil health in the long term.

The majority, 81.14 percent (185 women), understand cropping pattern systems, which may include crop rotation, intercropping, and mixed cropping strategies. The remaining 18.86 percent (43 women) are not familiar with these practices, highlighting an area where knowledge improvement could further benefit agricultural efficiency.

Use of fertilizer is relatively low, with only 47.80 percent (109 women) aware of suitable fertilization practices, while 52.19 percent (119 women) lack this understanding. This gap may lead to suboptimal use of fertilizers, affecting crop yields and potentially causing soil degradation over time.

In storage practices, 109 (47.80%) farm women have knowledge, while 119 (52.19%) do not. Proper storage is crucial for reducing post-harvest losses, so this indicates that while many women understand effective storage methods, more education or resources could improve food security by reducing waste.

Approximately 27.19 percent (62 women) are familiar with crop protection management, likely including pest and disease control methods. However, 72.80 percent (166 women) lack this knowledge, which could leave a significant portion of crops vulnerable to threats.

The data reveals that women in these districts have a solid understanding of crop and cropping system management, as well as storage and protection practices. However, significant knowledge gaps exist in soil management, fertilization selection, and protection management. Improving access to information and training in these areas could help enhance overall agricultural productivity and sustainability.

Use of Knowledge and Skills of the Respondents

Agronomic knowledge, like understanding different crops, their growth cycles, and planting methods helps women make smart choices about what to plant, when to plant, and how to get the best harvests. This is especially useful for those who farm to support their families. When a researcher asked a farmer if she knew the growth cycles of plants, she answered, *“what? Agriculture operation means knowledge by practice. We’ve been doing this since childhood, so of course we know.”* They claimed to have little knowledge of modern farming technologies. While they were very vocal about their skills in traditional practices, they modestly recognize having limited access to newer, more efficient methods.

Mellor’s Model of Traditional Agriculture and Use of Technology

This situation aligns with Mellor’s Model of Traditional Agriculture, which emphasizes improving productivity through technological change and better input use within the existing labor force. In the context of Koraput and Malkangiri, women's limited access to and control over agricultural machinery and irrigation reflects underutilized potential. According to Mellor, equipping farmers including women with the skills and tools to use modern technology can enhance agricultural output without needing to shift labor away from farming. Therefore, providing training and access to machinery and irrigation systems for women would not only increase their productivity but also support broader rural development, as Mellor envisioned.

Climate Resilience

Odisha is largely a cyclone-prone region, though cyclones primarily impact the coastal districts rather than the southern districts, like Malkangiri and Koraput. However, the 2016 District Disaster Management Plan for Koraput still identified it as a cyclone-prone area (Pati, B. K., 2010). The eastern coast of India, including Odisha’s coastal areas, is particularly vulnerable to cyclones due to the formation of most tropical cyclones in the Bay of Bengal. In Koraput, the region’s hilly terrain and sloped agricultural land create challenges for irrigation. Irregular rainfall patterns and extended dry periods often threaten crops, putting local livelihoods at risk (District

Irrigation Plan of Koraput, 2016).

To counter these challenges, women in these areas frequently adopt traditional, sustainable farming practices such as crop rotation, agroforestry, and organic farming. These methods play an essential role in preserving soil fertility, preventing erosion, and enhancing resilience to adverse weather conditions, making agriculture in the region more adaptable to climate fluctuations. Among the 228 women, 120(52%) reported practicing mixed cropping, a system known to improve climate resilience. Women farmers in Koraput and Malkangiri possess extensive knowledge of local ecosystems, which enables them to apply agricultural methods closely aligned with their environment. The increasing impacts of climate change are disproportionately affecting women farmers. Their indigenous expertise encompasses understanding local soil characteristics, native crop varieties, seasonal weather cues, and sustainable water management strategies. This deep-rooted knowledge helps women select drought-tolerant crops, adjust planting schedules based on seasonal indicators, and use natural pest and disease management techniques. These strategies are crucial in responding to the increasingly unpredictable climate of these drought-prone regions. By implementing these techniques, women strengthen resilience not only within their farms but also within the broader community, supporting food security and agricultural productivity despite climate challenges. Empowering women to share and expand their indigenous knowledge through training and community initiatives could further support climate resilience in these vulnerable regions.

In the Koraput and Malkangiri regions, this task has traditionally been carried out by women for generations, as evidenced through analysis of this section on role of women in agricultural development. They often work in groups, using their knowledge and skills passed down from their ancestors. Men in these regions generally do not participate in this activity, much like other agricultural tasks that are primarily handled by women. This highlights a clear gender-based division of labour in the agricultural practices of these two areas. Women's familiarity with tasks like planting, weeding, and harvesting enables them to manage daily farming activities effectively and sustainably. However, they participate less in tasks such as ploughing, fertilizing, and irrigation.

Understanding agriculture management, including soil health, crop rotation, and pest control, enables effective resource management, which is essential for long-term productivity. While most women have strong knowledge in areas such as crop types, soil management, and cropping system management, they have limited skills in fertilizer selection and pest protection management in both districts.

Adopting practices to cope with climate shifts, such as drought-resistant crops and sustainable irrigation, allows women farmers to protect their livelihoods against extreme weather conditions in Koraput and Malkangiri. While they are skilled in traditional practices, they have limited access to newer, more efficient methods.

Practical skills and technical know-how empower women farmers to make informed decisions, adopt modern practices, and innovate, enhancing their overall productivity and adaptability. Training women in these areas could significantly boost their productivity and reduce the time spent on labour-intensive tasks. While operating agricultural machinery is mostly managed by men in farming communities, women often play supportive roles. They assist with preparations, handle tools, and manage tasks that complement machine operations, contributing to the overall efficiency of farm work.

4.6 Empowerment of Women in Agriculture

Women's empowerment in agricultural development has emerged as a critical factor in rural India, where women play an integral role in the agricultural economy. In the tribal districts of Koraput and Malkangiri in Odisha, women's mobility meaning their ability to move freely and access public spaces and services independently is a pivotal factor in their empowerment within the agricultural sector. Mobility not only enables women to participate actively in agricultural activities but also allows them to engage in financial, social, and decision-making roles traditionally dominated by men. This essay explores how increased mobility is transforming the lives of women in Koraput and Malkangiri, enhancing their independence, confidence, and participation in agricultural development. The Empowerment of Women in Agricultural Development analyses on parameters such as: financial inclusion, Policy Information, Mobility, Increased Autonomy and Decision-Making Power and

Leadership.

Financial inclusion

Financial inclusion means that people and businesses have access to affordable and responsible financial services that meet their needs (Sarma & Pais2011). Financial inclusion can improve women's bargaining power in agricultural markets. With improved financial literacy, women can make more informed decisions regarding resource allocation, enhancing the sustainability of their farming operations. As women gain financial independence and improve their agricultural practices, the long-term sustainability of farming operations in the districts are enhanced. According to the officers, the initiatives Jan Dhan Yojana, KALIA Yojana and linkage of Self-Help Groups (SHGs) with banks have contributed significantly to bringing rural women into the formal financial system.

A bank account is a financial account maintained by a bank or financial institution that allows individuals or organizations to deposit, withdraw, transfer, and manage money. It is a secure place to store money and conduct various financial transactions. It is one of the indicators of economic empowerment. Having a bank account is essential for a variety of financial activities, especially for farmers and beneficiaries of government schemes like KALIA Yojana or MSP.

Table 4.25 Having Bank Account

Having bank account	Koraput (%)	Malkangiri (%)	Grand Total (%)
No	0	0	0
Yes	113(100)	115(100)	228(100)
Grand Total	113	115	228

Source Field Survey conducted on 28th November, 2023

The data of the table 4.25 indicating that all surveyed women in both Koraput and Malkangiri districts have bank accounts highlights a significant positive development in women's financial empowerment and engagement in the economic landscape. The complete ownership of bank accounts among these women reflects their proactive

approach to managing their finances, a crucial step towards economic independence and security. The fact that all surveyed women in Koraput and Malkangiri districts have bank accounts plays a crucial role in enhancing agricultural development. Here's this financial inclusion contributes positively to the agricultural sector such as: Having a bank account allows women to access credit facilities, such as loans for purchasing seeds, fertilizers, and equipment. This financial support can enable them to invest in better agricultural practices, thereby increasing productivity and crop yields. With access to credit, women can afford inputs that may have been previously out of reach, allowing for the cultivation of higher-value crops.

Women who have bank accounts are more inclined to adopt modern farming techniques and technologies because they can access funding for investments in irrigation systems, machinery, and other resources that improve efficiency. In this study, 100 percent of the 228 women having bank accounts, which empowers them in their agricultural practices. Having a bank account allows them to receive payments for farming equipment or subsidies directly, making it easier for them to invest in necessary farming tools and resources. Bank accounts encourage savings, which can act as a buffer against agricultural risks such as crop failure or market fluctuations. Govt pay them This financial security allows them to take calculated risks, such as trying new crops or entering into contracts with buyers. Those who sell crops at MSP they get paid through their account directly. With funds available in their bank accounts, women can negotiate better prices for their produce and engage in direct selling, rather than relying on middlemen. This empowerment in market dealings can lead to increased income and greater financial independence. These programs can provide women with essential skills in budgeting, financial planning, and investment strategies, directly benefiting their agricultural ventures. Women are likely to invest in practices that protect the environment, such as crop rotation and organic farming, ensuring that agriculture remains viable for future generations.

Policy Information

Access to policy information is the other criterion for empowerment of women. Policy information provides researchers with an understanding of the broader context

of their research, including the legal, social, and economic factors that influence the topic. Under this framework, the researcher examined policies such as the KALIA Yojana, selling crops at Minimum Support Price (MSP), and crop insurance knowledge.

Benefits from KALIA YOJANA

The KALIA Yojana (Krushak Assistance for Livelihood and Income Augmentation) is a welfare scheme launched by the Odisha government in 2018 to support farmers and agricultural workers. It aims to improve the livelihood of small and marginal farmers by providing financial assistance. The scheme offers Rs. 10,000 annually to farmers for the Kharif and Rabi seasons, along with zero-interest agricultural loans.

Table 4.26 Benefits from *Kalia Yojana*

KALIA YOJANA	Koraput(%)	Malkangiri(%)	Total
Yes	113(100)	115(100)	228
Grand Total	113(100)	115(100)	228

Source Field Survey conducted on 2nd December, 2023

The data of table 4.26, indicates that 100 percent of the women surveyed in both Koraput and Malkangiri are fully aware of the KALIA Yojana, with 113 women in Koraput and 115 in Malkangiri acknowledging their knowledge of the scheme. This complete awareness among women highlights the success of outreach efforts regarding the KALIA (Krushak Assistance for Livelihood and Income Augmentation) scheme, which is a state government initiative aimed at providing financial support to small and marginal farmers. This universal awareness suggests that information about the KALIA Yojana has been effectively disseminated in both districts, ensuring that women are informed about the financial assistance and benefits available through the scheme. Given that women farmers often face barriers to accessing financial resources, the widespread knowledge of this scheme is a positive sign for their agricultural and economic development.

Above data ensures that women are not excluded from vital government assistance

and are better positioned to take advantage of the scheme's benefits, which include income support and aid for agricultural activities. The high level of awareness also indicates that the government's efforts to promote the scheme have successfully reached both men and women, empowering more individuals to improve their livelihoods through financial aid. This level of knowledge provides a foundation for further policy interventions and support systems fitted to the needs of women farmers, who play a crucial role in agriculture but are often underrepresented in formal support structures.

Selling Crops at MSP by the Respondents

Selling crops at the Minimum Support Price (MSP) involves a government-set price floor at which farmers can sell certain agricultural products. MSP is designed to safeguard farmers from price fluctuations in the open market.

Table 4.27 Selling Crops at MSP by the Respondents

Selling Crops at MSP	Koraput (%)	Malkangiri (%)	Grand Total (%)
No	72(63.72)	81(70.43)	153(67.10)
Yes	41(36.28)	34(29.56)	75(32.89)
Grand Total	113	115	228

Source Field Survey conducted on 12th October, 2023

The table 4.27 reveals the role of women in agricultural development is critical, yet the data on their participation in selling crops to government purchase centres (under the Minimum Support Price, or MSP) highlights a significant gap in their access to formal markets. In both Koraput and Malkangiri, a majority of women are not utilizing the MSP system to sell their crops. In Koraput, 72 out of 113 women (approximately 63.72%) do not sell their produce to government purchase centres, while only 41 women (36.28%) do.

The situation is similar in Malkangiri, where 81 out of 115 women (70.43%) do not engage with the MSP system but the fact that 41 women in Koraput and 34 women in Malkangiri are successfully navigating the government procurement process is a

positive indication of progress.

These figures reveal that despite their significant involvement in agricultural labour and production, women have limited participation in formal market structures like MSP. This could be due to several factors, including lack of awareness about MSP benefits, limited access to market information, or barriers such as transportation, financial resources, or social norms that restrict women's mobility and decision-making in agricultural activities.

The fact that 75 out of 228 women across both districts sell their crops through government channels reflects the broader challenges women face in fully benefiting from agricultural development initiatives. These women are setting an example by securing better prices for their produce through the Minimum Support Price (MSP) system, which helps stabilize their income and provides a more predictable revenue stream, contributing to their financial independence and empowerment. Their participation in MSP sales represents a move toward reducing the gender gap in access to agricultural resources and markets, showing that women are capable of thriving in a system traditionally dominated by men.

Moreover, women's significant role in agricultural labour, working long hours, managing farms, and contributing to household food security positions them as key drivers of rural development. As more women gain access to government support systems like MSP and other agricultural schemes, they are likely to influence the broader agricultural economy positively. By improving market access, offering targeted financial support, and removing barriers such as mobility constraints and lack of information, we can further enable women to play an even greater role in agricultural development. In conclusion, while there are challenges to overcome, women's participation in selling crops to government purchase centres shows a positive trajectory toward economic empowerment and more equitable involvement in agriculture. As they continue to break barriers and access formal markets, women's role in agricultural development will strengthen, leading to more sustainable and inclusive growth in rural communities.

Table 4.28 Availing Crop Insurance

Availing crop Insurance	Koraput (%)	Malkangiri (%)	Grand Total (%)
No	89(78.76)	78(67.83)	167(73.25)
Yes	24(21.24)	37(32.17)	61(26.75)
Grand Total	113(100)	115(100)	228(100)

Source *Field Survey conducted on 4th December, 2023*

The table 4.28 analysis of women's Availing crop insurance in Koraput and Malkangiri highlights a significant gap in awareness, which may limit their ability to safeguard against agricultural risks. In Koraput, a large majority of women, 78.7 percent are unaware of crop insurance schemes, while only 21.24 percent have knowledge about them. Similarly, in Malkangiri, 67.83 percent of women lack awareness, although the situation is slightly better, with 32.17 percent being informed about crop insurance options. Overall, across both districts, only 26.75 percent of women are aware of crop insurance, leaving 73.25 percent uninformed. This widespread lack of knowledge poses a significant challenge to women's ability to protect their agricultural investments against unpredictable risks such as droughts, floods, or pest infestations.

Crop insurance is a critical tool for mitigating these risks, but without awareness of these schemes, women farmers are more vulnerable to financial losses, which can affect their livelihoods and long-term agricultural productivity. The disparity in knowledge between the two districts indicates that there may be regional differences in access to information or outreach efforts. In Malkangiri, the higher percentage of informed women suggests that initiatives to spread awareness about crop insurance may have been more effective than in Koraput. Though, both regions still have a long way to go in ensuring that all women farmers are fully aware of the benefits and availability of crop insurance.

But it cannot be ignored that at least overall 27 percent of the women are fully aware about the crop insurance. Effective initiatives targeting women through local networks, agricultural services, and self-help groups are needed to improve access to

crop insurance, helping women in agriculture manage risks and strengthen their financial resilience. To address this gap, there is a need for targeted education and outreach programs specifically designed for women farmers. These programs should focus on spreading information about crop insurance schemes and their benefits, as well as guiding women through the process of enrolment.

Mobility

In Koraput and Malkangiri, women's increasing mobility has significantly improved their access to financial resources and services with 100 percent of women having bank account. Traditionally, limited movement restricted women's ability to visit banks. Women rely on their male counterparts or sons for transportation, as only men are typically responsible for accompanying women when they need to go somewhere. However, as more women gain the confidence to handle financial transactions, apply for loans, and attend SHG meetings on their own, Gradually, they are gaining the confidence to go out independently or with their female friends. Mobility has also played a significant role in women's access to agricultural training programs and technology in these districts. With 33 percent women sell their crops in government porches center. And 100 percent women having bank account which show that at least once in a month they need to go to the bank because all the members are SHG members. Women's mobility is also helping to break long-standing gender norms in these tribal communities. Traditionally, men were the primary earners, and women were restricted to household roles. However, as women in Koraput and Malkangiri increasingly take on responsibilities outside the home, they are challenging these stereotypes.

Increased Autonomy and Decision-Making Power

Women's mobility has had a transformative impact on their decision-making power, especially within the household. With increased freedom to access markets (33%), banks (100%), and SHG meetings (100%), women are now contributing somehow to financial decisions and family planning in agriculture. In the districts of Koraput and Malkangiri, women's voices are valued in decisions related to crop cultivation, and

household expenses, because they have can access to lone easily compare to the male counterpart. This growing autonomy is critical for women's empowerment, as it gives them a sense of agency and respect within their communities. Additionally, their increased involvement in decision-making processes has resulted in better resource allocation and enhanced productivity in agricultural practices.

Women's Leadership in Community Decision-Making

Leadership in community decision-making is one of the most neglected areas of women's empowerment in Koraput and Malkangiri. As women take on more prominent roles in local governance bodies, self-help groups (SHGs), and agricultural cooperatives, they are gaining little importance in discussions surrounding resource allocation, and crop management. Women's leadership has also been instrumental in knowledge-sharing and skill-building initiatives.

In Koraput and Malkangiri, where women form a significant part of the agricultural workforce, they play a key role in promoting sustainable farming practices, crop diversification (81%) as per table (6.1), and soil management (table 6.2) within their communities. But in a patriarchal society, it is often difficult for people to accept a woman in a leadership role in the community. Through SHGs, training programs and agricultural workshops, women are building networks that facilitate the exchange of best practices. Women leaders in agriculture in Koraput and Malkangiri are setting powerful examples for younger generations. As these women navigate challenges, make impactful decisions, and drive agricultural success, they inspire young girls and women to pursue similar roles of responsibility and leadership. The visibility of women leaders helps break down cultural stereotypes, encouraging the youth to view agriculture as a viable and respected profession for both men and women. This intergenerational influence is crucial for sustaining empowerment and fostering a new generation of confident, capable women leaders in rural agriculture.

Thus, Access to financial inclusion fosters independence, giving women a secure way to save, access funds, and invest in essential resources, thereby enhancing their economic stability. Having bank accounts encourages savings, which serve as a safeguard against agricultural risks like crop failures or market fluctuations.

Government payments and subsidies directly deposited into these accounts provide additional financial security, enabling women to take calculated risks, such as experimenting with new crops or entering into contracts with buyers. In both Koraput and Malkangiri, a majority of women are not utilizing the MSP system to sell their crops. It reflects the broader challenges women face in fully benefiting from agricultural development initiatives. Awareness of the KALIA Yojana in these districts ensures that women know about financial support available to them, helping them make informed decisions in agriculture. This participation shows they can thrive in agricultural markets, helping close the gender gap in resource access.

Basically, limited movement restricted women's ability to visit banks or any financial institutions in Koraput and Malkangiri districts. Women rely on their male counterparts or sons for transportation, as only men are typically responsible for accompanying women when they need to go somewhere. Men were the primary earners, and women were restricted to household roles. However, through the SHG interventions the women in Koraput and Malkangiri take on responsibilities outside the home, they are challenging these stereotypes, because once a month they need to visit the bank, and they also attend Self-Help Group (SHG) meetings outside the home, they are gradually gaining the confidence to go out independently.

Traditionally, decision-making power rests with the male members of the households. Their knowledge and experience in farming practices, along with access to financial aid from Self-Help Groups (SHGs), are gradually allowing women to participate in family decision making process. Leadership in community decision-making is one of the most neglected areas of women's empowerment in Koraput and Malkangiri. Women leadership ensures that community agricultural policies reflect the needs and challenges faced by women farmers and labourers, helping to make these policies more inclusive and effective. Through SHGs, training programs and agricultural workshops, women are building networks that facilitate the exchange of best practices.

4.7 SHG and Farm Women

SHGs provide a platform for women to share knowledge, receive training, and gain exposure to new agricultural techniques, which enhances their productivity and income. Moreover, SHGs foster a sense of community and mutual support, empowering women to overcome economic challenges together. This collective strength not only improves their financial independence but also helps them actively participate in decision-making processes related to farming and household finances. Self-Help Groups (SHGs) have had a profound positive impact on farm women in rural areas, particularly in regions like Koraput and Malkangiri. By participating in SHGs, farm women gain access to collective financial resources, which allows them to invest in agricultural activities, purchase necessary inputs like seeds and equipment, and adopt improved farming practices.

Membership in SHG

A member of a Self-Help Group (SHG) is an individual who joins a small, informal group, typically composed of people from similar socio-economic backgrounds, who work together to achieve financial and social goals. SHG members pool their savings, provide each other with small loans, and often engage in income-generating activities.

Table 4.29 Membership in SHG

Membership in SHG	Koraput (%)	Malkangiri (%)	Grand Total (%)
Yes	113(100)	115(100)	228(100)
No	0	0	0

Source Field Survey conducted on 16th July, 2022

Table 4.29 of membership in SHG In both Koraput and Malkangiri districts shows, 100 percent of the women surveyed are members of Self-Help Groups (SHGs), reflecting the widespread participation of women in these community-based financial and support networks. This exhibited an encouraging trend. This widespread

membership indicates the critical role SHGs play in empowering women, providing financial aid, and fostering collective action in agricultural and rural development. Accordingly, the strong presence of SHGs contributes significantly to the economic and social empowerment of women in these regions.

Financial Aid for Farming and other Household Activities

Through which farmers secure financial support to fund their agricultural activities. These sources of aid can include formal institutions like banks, government schemes, self-help groups (SHGs), cooperative societies, or informal sources such as local moneylenders, family, or friends. Financial aid is essential for women farmers to invest in seeds, fertilizers, equipment, labour, irrigation, and other inputs needed for successful farming.

Table 4.30 Financial aid for Farming and other Household Activities

Source of Financial aid	Koraput No (%)	Malkangiri No (%)	Grand Total (%)
Bank	31(27.43)	25(21.79)	56(24.56)
SHG	78(69.02)	77(66.95)	155(67.98)
Local money lender	3(2.65)	13(11.30)	16(7.01)
No Loan	1(0.88)	-	1(0.43)
Grand Total	113(100)	115(100)	228(100)

Source Field Survey conducted on 14th July, 2022

In the table 4.30 of the table of districts of Koraput and Malkangiri, women increasingly access financial aid for farming and household activities through various supportive channels, which strengthens their economic stability and enables them to contribute significantly to agricultural and family wellbeing. The data on financial aid for farming in Koraput and Malkangiri districts highlights a significant reliance on Self-Help Groups (SHGs) among women farmers. Out of the 228 respondents, 155 women (68%) received financial support from SHGs, making them the most prominent source of aid, compared to banks (56) and local money lenders (16).

The data shows that Self-Help Groups (SHGs) are a primary source of financial support, with a remarkable 155 women (78 in Koraput and 77 in Malkangiri) relying on these community-based networks. SHGs empower women by providing accessible loans and fostering a sense of community and mutual support, which is crucial for both household expenses and agricultural needs. SHG involvement not only enhances women's access to funds but also strengthens their role in local economic development.

Banks are another important resource, providing loans to 56 women across the two districts (31 in Koraput and 25 in Malkangiri). Bank loans indicate a positive shift toward formal financial inclusion, as more women are now able to access structured lending options. This access helps women gain confidence in managing finances and enables them to invest in farming activities, improving productivity and resilience against economic uncertainties.

Local moneylenders still play a role, particularly in Malkangiri, where 13 women rely on them, compared to 3 in Koraput. While moneylenders offer quick access to funds, community awareness and support for formal financial options can gradually reduce this dependency. Finally, the fact that only one respondent does not rely on any form of loan suggests that most women actively seek financial resources, showing their commitment to enhancing their household and farming capabilities.

SHGs provide farm women with easy and affordable access to credit, without the need for collateral or complicated procedures typically required by formal banks. This access to microfinance enables women to invest in farming inputs such as seeds, fertilizers, and tools, increasing their agricultural productivity. SHG loans are often more flexible and tailored to the needs of rural women, which can be a vital lifeline for those who may otherwise struggle to secure loans from banks or would have to resort to high-interest local money lenders. Being part of an SHG offers women more than just financial support; it also fosters collective empowerment. SHGs promote solidarity among women farmers, allowing them to share knowledge, pool resources, and support one another.

This network of mutual support empowers women to take on more significant roles in

decision- making, not just within their farms, but also within their households and communities. It enhances their confidence to participate in agricultural activities and take risks that can lead to improved farming outcomes. SHGs often collaborate with governmental and non- governmental organizations to provide training and capacity- building programs to their members.

These programs might cover financial literacy, modern farming techniques, or sustainable agricultural practices, which enhance the overall skills of farm women. This exposure helps women adopt innovative farming methods, improving both productivity and sustainability. SHGs reduce women's dependence on local moneylenders, who often charge exorbitant interest rates. By offering financial aid at lower rates, SHGs alleviate the financial burden on women farmers, allowing them to reinvest more of their earnings into their farms or households rather than repaying high-interest loans.

SHGs contribute to the broader agenda of financial inclusion by encouraging savings habits and integrating women into the formal financial system. As women participate in SHGs, they are often encouraged to open bank accounts, access financial literacy programs, and gain the skills to manage their finances effectively. Over time, this financial inclusion empowers women to take more control over their income, savings, and investments, benefiting their agricultural work and overall livelihood.

Building Social Capital

The social network built within SHGs creates a platform for women to engage with local institutions and agricultural markets, giving them a collective voice (Carly Nichols, 2021). This increased social capital enables women to negotiate better terms for their products, access government schemes like crop insurance or subsidies, and actively participate in community development. Women's involvement in farm decision-making is positively and negatively correlated with social capital aspects (Po, & Hickey, 2020).

The prominent role of SHGs in providing financial aid to farm women in Koraput and Malkangiri districts highlights the significant empowerment opportunities for

rural women. By offering affordable credit, fostering collective empowerment, providing training, and promoting financial inclusion, SHGs contribute to the sustainable growth of women in agriculture. The reliance on SHGs is a clear indication of the critical role these groups play in enhancing the capacity of women farmers to contribute to agricultural development, improve their household income, and increase their socio-economic standing.

Financial aid refers through which farmers secure financial support to fund their agricultural activities. These sources of aid can include formal institutions like banks, government schemes, self-help groups (SHGs), cooperative societies, or informal sources such as local moneylenders, family, or friends. Financial aid is essential for farmers to invest in seeds, fertilizers, equipment, labour, irrigation, and other inputs needed for successful farming.

SHG as a Tool of Empowerment of the Respondents

A Self-Help Group (SHG) is a small, informal group of individuals, typically from similar socio-economic backgrounds, who come together to address common financial and social challenges. SHGs are particularly popular in rural areas and often consist of women aiming to improve their livelihoods through mutual cooperation.

Table 4.31 SHG as a Tool of Empowerment

SHG as a Tool of Empowerment	Koraput (%)	Malkangiri (%)	Grand Total
Yes	113 (100)	115(100)	228
No	0	0	0
Grand Total	113(100)	115(100)	228

Source *Field Survey conducted on 16th June, 2022*

In Table 4.31, both Koraput and Malkangiri districts, 100 percent of the women respondents, totalling 228, received financial help from Self-Help Groups (SHGs), reflecting the critical role these groups play in empowering women in agriculture. SHGs have become a vital source of social support, ensuring that all women, regardless of their socio-economic status, have access to resources for farming

activities. This widespread participation highlights how SHGs foster collective action and empower women to manage their social independently. By offering affordable loans, SHGs protect women from the high-interest rates of local moneylenders, promoting economic stability and reducing financial vulnerability.

This suggests that SHG participation has universally supported the members' growth and progress in these areas, possibly by enhancing their access to financial resources, training, and community support. The unanimous response across both districts highlights the significant and inclusive impact of SHGs in promoting development for women in these districts. This independence not only strengthens women's roles in agriculture but also boosts productivity and innovation in farming, contributing positively to the local economy and overall rural development. The universal reliance on SHGs showcases their transformative impact on women's empowerment and agricultural progress.

Pre-Training for Farming Through SHG

Pre-training refers to the educational and skill development programs designed to equip individuals with the knowledge, techniques, and tools needed to engage in agriculture effectively. It can be particularly useful for new farmers, youth, women or those transitioning from traditional to modern farming practices.

Table 4.32 Pre-Training for Farming Through SHG

Pre training for farming through SHG	Koraput (%)	Malkangiri (%)	Grand Total (%)
No	89(78.76)	99(86.08)	188(82.45)
Yes	24(21.23)	16(13.91)	40(17.54)
Grand Total	113(100)	115(100)	228(100)

Source Field Survey conducted on 10th July, 2022

The data of table 4.32 on pre-training for farming through Self-Help Groups (SHGs) in Koraput and Malkangiri districts shows that a majority of women, 82.45 percent, did not receive any formal pre-training before engaging in agricultural activities. Only 17.54 percent of women across both districts benefited from such training. In

Koraput, 21.23 percent of the women received pre-training, while in Malkangiri, only 13.91 percent had this opportunity. Some Positive Role of Pre-Training through SHGs only 17 percent women who received pre-training through SHGs were likely better equipped with essential agricultural skills, including modern farming techniques, crop management, and financial literacy. This small but significant group had access to knowledge that could increase their productivity and enhance farming efficiency, contributing to improved yields and profitability. Pre-training can help women adopt sustainable farming practices that not only increase output but also ensure environmental conservation. Women who undergo pre-training are better prepared to make informed decisions about crop selection, investment, and risk management. This reduces the uncertainty associated with farming and allows them to engage in more profitable and less risky agricultural activities. SHGs offering pre-training can empower women to take calculated risks that improve their farming operations.

Although a smaller percentage of women have received pre-training through SHGs, those who did are in a better position to contribute to agricultural development. Pre-training equips women with essential skills, reduces farming risks, and promotes sustainability. Expanding access to such training through SHGs can further enhance women's roles in agriculture, helping them transition from traditional farming practices to more efficient and innovative approaches. This would significantly improve agricultural productivity and strengthen the economic empowerment of women in rural areas.

Communication Difficulties with the Block or District Agricultural Officers

Communication efforts should be made to improve communication between women farmers and agricultural officers, whether through the introduction of women-specific helplines, local agricultural extension services, or regular field visits by officers. This would ensure better information flow and support for women in agriculture.

Table 4.33 Communication Difficulties with the Block or District Agricultural Officers

Communication difficulties	Koraput	Malkangiri	Grand Total
No	33(29.20%)	37(32.17%)	70(30.70%)
Yes	88(77.87%)	70(60.86%)	158(69.29%)
Grand Total	113(100%)	115(100%)	228(100%)

Source *Field Survey conducted on 2th July, 2022*

The table 4.33 data on communication with block or district agricultural officers in Koraput and Malkangiri districts shows that a significant portion of women farmers, labourers, and entrepreneurs are successfully able to engage with these officials. Across both districts, 69.29 percent of women reported no communication difficulties, reflecting a strong foundation for interaction between women in agriculture and government support systems. In Koraput, 29.20 percent of women were able to communicate effectively, while in Malkangiri, 32.17 percent reported smooth interactions.

Efforts should be made to improve communication between women farmers and agricultural officers, whether through the introduction of women-specific helplines, local agricultural extension services, or regular field visits by officers. This would ensure better information flow and support for women in agriculture. Self-Help Groups (SHGs) can play a critical role in bridging communication gaps. SHGs could serve as intermediaries, facilitating dialogue between women and agricultural officers, organizing collective meetings, and ensuring women receive relevant updates and information from district or block authorities. With mobile penetration growing in rural areas, digital platforms and mobile applications can be introduced to facilitate easier communication with agricultural officers. Training women to use these tools would further empower them to access real-time advice, participate in government schemes, and stay informed about agricultural developments.

In Koraput and Malkangiri, traditional barriers have historically restricted women's roles in agriculture and community life. Leadership opportunities are now providing women with the means to challenge these norms and gain respect as decision-makers. In regions where women's roles were once limited to household duties and manual labour, they are now leading initiatives that promote gender equality, fair wages, and access to resources. By leading agricultural cooperatives, advocating for fair crop prices, and participating in community planning, women are reasserting their value and capability in spaces traditionally dominated by men. This shift not only enhances their personal empowerment but also make the way for greater gender equity in the long term, fostering an environment where young girls can aspire to leadership roles in agriculture.

Addressing these communication barriers is essential for enhancing women's participation in government programs, improving agricultural outcomes, and empowering them to take full advantage of available resources and support. Strengthening these links will positively impact the agricultural development of the region and further empower women in their agricultural roles.

In conclusion, this financial aid structure across banks, SHGs, and other sources reflects a positive trend in empowering women financially. By utilizing these resources, women in Koraput and Malkangiri are better equipped to support their families, invest in farming, and contribute to their communities' agricultural and economic growth. This dominant role of SHGs in supporting women farmers reflects a positive trend in rural agricultural development.

Women involved in self-help groups (SHGs) have significantly increased their confidence, enabling them to communicate more effectively with block and district agricultural officers. This newfound confidence allows them to voice their concerns and seek guidance on agricultural practices, government schemes, and financial support. As a result, they can better access resources and information essential for their farming activities. Enhanced communication also fosters collaboration between women farmers and agricultural officials, leading to improved agricultural outcomes.

This empowerment is crucial for bridging the gap between women in agriculture and the support systems available to them. Overall, the increased confidence gained through SHGs is transforming the way women engage with agricultural authorities. Pre-training through SHGs encourages women to explore entrepreneurial opportunities in agriculture, such as starting small agri-businesses, processing units, or marketing their produce directly. This fosters innovation and growth within the agricultural sector and contributes to rural economic development.

4.8 Problems of Farm Women

Women farmers play an indispensable role in global agriculture, particularly in Koraput and Malkangiri districts, where they contribute significantly to food production and rural development. Despite their crucial involvement, women face multiple barriers that hinder their full potential in farming. The challenges they encounter are multifaceted, deeply rooted in historical gender inequalities, and exacerbated by socio-economic, cultural, and environmental factors. This section aims to explore the most pressing issues that affect women farm personnel today.

Topographical Constraints

The districts of Koraput and Malkangiri are marked by challenging topography, featuring undulating terrain, hills, and dense forest cover. This uneven landscape presents significant obstacles to the construction of large-scale irrigation projects like dams or canals, which are typically more feasible in flatter regions. As a result, water distribution across agricultural fields becomes particularly problematic, with water often flowing unevenly due to the natural slope of the land. This leads to inefficient irrigation, where some fields receive excessive water while others remain parched.

Given these constraints, small-scale irrigation systems, such as check dams, ponds, or lift irrigation, are more suitable for these areas. However, the development and maintenance of such systems have been insufficient, leaving many fields without reliable water sources. This has a direct impact on crop productivity, making agriculture less viable and further compounding water scarcity challenges. Moreover, the irregular water supply increases the time and effort required for women to

maintain crops, leaving them with less time for other essential activities, such as childcare, education, or income-generating work. This additional workload can exacerbate health issues, such as fatigue and musculoskeletal problems, given the physically demanding nature of carrying heavy loads of water across hilly terrain. In periods of drought or poor rainfall, women are often the first to bear the brunt of food insecurity, as they tend to prioritize the needs of their families over their own. This can lead to malnutrition and a decline in overall well-being. Furthermore, with limited opportunities for alternative employment, women become more vulnerable to poverty, perpetuating a cycle of economic hardship. Addressing these topographical constraints and improving irrigation infrastructure is crucial not only for enhancing agricultural productivity but also for alleviating the disproportionate burden on women and improving their quality of life.

Socio-cultural constraints and gender roles

Cultural expectations and entrenched gender roles present another significant barrier for women in agriculture. In many rural societies, women are expected to prioritize household duties, childcare, and food preparation over farming activities. This restricts their participation in agricultural decision-making processes and their ability to contribute fully to farming operations.

Moreover, women farmers often face limited autonomy in making decisions about agricultural inputs, marketing, and sales. Men typically control income from farming, and women's contributions are undervalued or go unrecognized. Even when women do engage in farming, they are often confined to less lucrative sectors, such as subsistence farming or small-scale vegetable gardening, which limits their economic opportunities.

Socio-cultural norms in Koraput and Malkangiri place significant restrictions on women's mobility, autonomy, and decision-making power. In many cases, women are expected to prioritize household duties, such as cooking, cleaning, and child-rearing, over agricultural work. This limits the time and energy they can devote to farming, thereby reducing their agricultural productivity and economic potential. Cultural expectations often prevent women from participating in village-level

decision-making bodies, such as panchayats, where key agricultural policies and programs are discussed and implemented. In these tribal regions, patriarchy plays a major role in how women engage with agriculture. Women are often confined to specific agricultural tasks, such as post-harvest processing or vegetable gardening, which are considered "women's work" and are less valued economically. Additionally, societal norms discourage women from taking part in market transactions, and they are often dependent on male relatives to sell their produce, further limiting their economic empowerment.

Migration

In Koraput and Malkangiri, seasonal migration is a common phenomenon in the districts of Koraput and Malkangiri, driven primarily by economic necessity. Due to limited employment opportunities and low agricultural productivity, many residents, particularly from low-income and marginalized communities, migrate to other regions during the agricultural off-season to seek work. This migration often involves entire families or individual family members, who typically find temporary jobs in construction, brick kilns, or other labour-intensive industries. For women, seasonal migration adds further complexity, as they often juggle responsibilities at the new job location while managing household duties if they stay back. Those who migrate face additional challenges, including limited access to healthcare, insecure housing, and disruption of their children's education. Those who hold only the male member migrate to city for better income, there also the women face the tough job of managing both their homes and farms alone because their husbands or sons move to cities to earn more money. This adds a heavy burden on these women, who must look after their families while also doing hard farm work, often without enough resources or support. This not only makes life harder for them but also limits their chances to learn new skills or access financial help. To help, it's important to offer these women more resources, training, and support systems that make their work and family responsibilities easier to handle.

Lack of Cold Storage Facilities

In both Koraput and Malkangiri districts, many women farmers struggle with the lack of cold storage facilities. Without a way to store their crops, they are forced to sell their produce quickly to local middlemen, often at very low prices. This limits their ability to earn a fair income from their hard work, as they cannot wait for better market prices or transport their produce to larger markets. Addressing this issue by increasing access to affordable cold storage options would empower these women farmers to retain their crops longer, reduce waste, and secure fairer prices.

Right to Land Resources

Limited access to land and resources is a major barrier for farmers, especially women, who often lack secure land rights and face difficulty obtaining essential agricultural inputs. Policy solutions should focus on formalizing land ownership for women through legal frameworks that recognize and protect their rights, making it easier for them to access and control land.

Additionally, offering affordable credit and financing options can help them invest in vital resources like quality seeds, modern equipment, and improved infrastructure. Accessible training and support programs are also crucial, enabling farmers to build skills and adopt sustainable practices, which together boost productivity and income. Strengthening these areas not only enhances women farmers' economic resilience but also supports broader community development.

Reliance on Rain-fed Agriculture

A substantial portion of agricultural land in the districts of Koraput and Malkangiri relies heavily on monsoonal rains, making farming activities extremely vulnerable to climate variability. This dependence on rain-fed agriculture has become increasingly precarious in recent years due to the unpredictable and erratic nature of monsoon patterns. When rainfall is insufficient, delayed, or unevenly distributed, it directly impacts the sowing and growth cycles of crops, leading to drought-like conditions

that severely hinder agricultural productivity.

The consequences of these irregular rainfall patterns are particularly harsh for small and marginal women farm personnel, who lack access to alternative irrigation sources. During years of poor rainfall, crop yields can decline dramatically, resulting in significant financial losses and pushing farming households deeper into poverty. The scarcity of water not only affects staple crops but also restricts the ability of farmers to diversify into other, potentially more resilient or profitable crops. This situation perpetuates a cycle of economic hardship and food insecurity in the region, as farmers struggle to secure enough produce to sustain their livelihoods and meet the nutritional needs of their families.

Water Resources Management

Although both districts have numerous rivers and streams, the potential of these water bodies for irrigation is not fully utilized. Water harvesting techniques, such as check dams and rainwater harvesting, are not effectively implemented in most parts. Additionally, due to deforestation and soil erosion, many water sources are prone to siltation, reducing their effectiveness as reliable sources of water for irrigation. Women farmers in Koraput and Malkangiri districts of Odisha face a multitude of challenges that hinder their socio-economic progress and overall well-being. The gender wage gap, limited access to land and resources, socio-cultural constraints, environmental vulnerabilities, and restricted market access all contribute to the marginalization of women in agriculture. Addressing these challenges requires a concerted effort from the government, non-governmental organizations, and the private sector to create policies and programs that promote gender equality in agriculture.

Moreover, the lack of proper water management infrastructure, such as reservoirs, check dams, and irrigation systems, exacerbates the impact of erratic rainfall. Without reliable irrigation, women farmers are often unable to salvage their crops during dry spells, making them highly dependent on external aid or loans to survive, which can lead to increased indebtedness. Addressing this issue requires a concerted effort to develop water-efficient farming techniques, improve irrigation infrastructure, and implement climate-resilient agricultural practices to reduce the heavy reliance on

rain-fed agriculture and enhance the resilience of farmers in these districts.

Ineffective government-led initiatives

Despite numerous projects initiated by the government in various parts of Odisha, the districts of Koraput and Malkangiri remain significantly under-served. Many of these projects suffer from poor maintenance, resulting in frequent breakdowns and reduced efficiency, which further aggravates for women farm personnel.

Additionally, there is a noticeable lack of government-led initiatives aimed at enhancing farmers' knowledge and skills in adopting modern, water-efficient irrigation techniques, such as drip and sprinkler irrigation, as well as the use of modern machinery and new farming practices. As a result, the lack of proactive government intervention in these districts not only hinders agricultural productivity but also perpetuates the economic instability for farmers. This finding is found to the contrary of either of Hood's theory (1991) of New Public Management (NPM) or Schultz's theory of Human Capital as governing and governed tend to detach themselves from each other.

Indigenous and Traditional Practices

Women farm personnel in Koraput and Malkangiri, especially among tribal communities, rely heavily on traditional farming methods, which are not always compatible with modern market needs. In the districts, lack of and limited access to information remains a major challenge for women farmers. These regions, marked by geographical isolation and high levels of illiteracy, further marginalize women who already face gender-specific barriers. Women farmers often lack critical knowledge about modern farming techniques, government schemes, financial assistance programs, and market access. This information gap prevents them from fully utilizing the resources available to enhance agricultural productivity. Additionally, women farmers in these districts are generally excluded from decision-making processes in agricultural planning and resource allocation. Without access to extension services, training, or digital platforms, they are unable to take advantage of modern technology, improve their agricultural skills, or expand their economic

opportunities.

4.9 A Case Study

Sabita Marandi - Resilience in Rural Agriculture

To respect the privacy of the respondents, pseudonyms have been used in the case study, and the names mentioned are not their real names.

This case study relates to the life and challenges of Sabita Marandi, a 45-year-old tribal agricultural farmer from Boipariguda in the Koraput district of Odisha, India. Sabita's life reflects the resilience and determination of women farmers in rural India, particularly in the face of socio-economic hardships. Despite lacking basic amenities and facing personal losses, Sabita continues to contribute to her family's livelihood through agriculture.

Sabita's life took a significant turn when her husband passed away, leaving her to manage the household alone as a single surviving widow. Living in a rural area with limited access to resources, livelihood she has faced numerous challenges. She was illiterate and did not know how to manage her living including access to clean drinking water, health facilities and farming support. She had a milking cow and she survived by selling milk for couple of months after the death of her husband. She narrated how she sold some brass utensils for her survival. However, her two daughters were given marriage before the death of her husband. Gradually, seeing her devastated, her two married daughters advised her to muster courage and to engage herself in agricultural practices in the farm land of her husband for her own survival. She started cultivating paddy first and got good return. She got motivated to work harder. The local Sarpanch was her husband's friend who provided support and encouragement. She also worked in neighbour's land who in turn provided their labour in exchange. Accordingly, she enhanced her agricultural operations and started cultivating a variety of crops, including such as marigold, ginger, potatoes and peanuts.

Amidst her extensive workload, Sabita used traditional methods for cultivation and processing, which was nevertheless challenging. Sabita's reliance on traditional

farming methods allows her to produce crops that are well-adapted to the local environment. By utilizing traditional techniques, she not only preserves her cultural heritage but also ensures sustainable agricultural practices that can withstand climate variability.

The nearest market (Mandi) is 14-15 kilometres away, posing significant transportation challenges for farmers like Sabita. Limited public procurement facilities make it difficult for farmers to sell their produce. Many farmers, including Sabita, could not access the Mandi, reduce their income potential and exacerbate their financial struggles. Despite these hardships, Sabita demonstrates resilience through community support. She collaborates with her neighbor's and members of Self-Help Groups (SHGs) to enhance her farming practices and market her products. This collaborative effort not only provides her with assistance in her agricultural endeavors but also fosters a sense of community among women in the village.

Sabita Marandi's story is emblematic of the challenges faced by women farmers in rural India. Despite numerous obstacles, she continues to fight for her livelihood and the well-being of her community. Sabita's resilience is a testament to the strength of women in agriculture, who play a crucial role in sustaining their families and communities amidst adversity. There is a need for strengthening Market Access. Creating better road connectivity and establishing procurement centers closer to farming communities, will significantly improve farmers' access to markets. There is a pressing need for the government and NGOs to support for traditional practices. Promoting traditional agricultural practices and integrating them with modern techniques can help improve productivity while preserving cultural heritage. By addressing these challenges, initiatives aimed at improving the livelihoods of farmers like Santi can lead to sustainable development in rural areas of Odisha and beyond.

4.10 An overview

This chapter describes the socio-economic profile of the respondents including the personal characteristics and gender gap. The chapter was divided in five sections. The first section is introduction. The second section deals with the Socio- economic profile of the respondents. The third section attempts a comparison of characteristics between women labourers and farmers. The fourth section states about gender gap in the study area. By exploring the unique circumstances and contributions of farmers and labourers, the chapter highlights the diverse challenges women face in these roles. The chapter also attempted an exploration of the gender income gap in both districts, revealing significant disparities in earnings and access to resources. Through this comprehensive analysis, the chapter aimed to illuminate the complexities of gender dynamics and economic participation of women in the rural agricultural sector, providing valuable insights into the socio-economic realities of women in Koraput and Malkangiri. And this section presents an overview of the findings.

The socio-economic features of the respondents from the Koraput and Malkangiri districts present certain significant differences. Malkangiri features a younger workforce and Koraput displays an aging population in agricultural operations, particularly those over 40 years of age. Youth participation in farming is low due to migration for better opportunities, while older residents often return to farming to support family incomes. Women increasingly take on agricultural roles due to male migration. Majority of respondents are married, influenced by social norms and early marriage customs. Educational disparities are stark, with Koraput having a higher illiteracy rate as compared to Malkangiri. Economic pressures lead families to prioritize immediate income over education, and limited innovation in agriculture keeps many dependent on traditional labour. As a result, younger individuals seek opportunities elsewhere, while older generations show stronger ties to their native land, often returning through reverse migration.

Following this initial analysis, the chapter transitions into a comparative study of women in to two distinct agricultural roles: farmers, labourers. The analysis of women's roles in agricultural development across Koraput and Malkangiri highlights several important aspects, from wage disparities, access to financial services and crop insurance. A common theme across these observations is the significant gender gap that persists in key areas of agricultural participation and support. Women across all roles, particularly labourers and farmers, express a strong reluctance for their children to pursue farming as a livelihood. This sentiment reflects the hardships they face, including low income, long working hours, and economic insecurity. The financial insufficiency is especially prevalent among labourers, who are often in the most economically precarious position.

Women in both Koraput and Malkangiri consistently earn less than their male counterparts. In terms of hourly wages and daily payments, men earn significantly more, indicating a gender-based disparity in remuneration for similar work. This gap is not just a financial concern but also reflects broader systemic inequalities, such as unequal access to resources, opportunities, and decision-making power in the agricultural sector.

When it comes to sourcing financial aid, women, especially those in agricultural labour, rely heavily on Self-Help Groups (SHGs) rather than banks or local money lenders. This trend shows both the importance of community-based financial systems for women and the limitations women face in accessing formal financial institutions like banks, which may offer more substantial loans or better terms. SHGs are crucial for women's participation in agriculture but may not fully address the scale of funding needed for larger investments in farming. Women labourers primarily rely on Self-Help Groups (SHGs) for financial support, while farmers have greater access to formal banking systems. Farmers often face challenges accessing substantial financial support, relying on local lenders in many cases.

The data reveals a concerning lack of knowledge about crop insurance, especially among women farmers. In both Koraput and Malkangiri, a significant majority of women have no knowledge of or access to crop insurance, with fewer women than

men participating in these programs. This leaves women more vulnerable to financial losses due to crop failure or adverse weather events, perpetuating economic insecurity and limiting their ability to invest in or expand their agricultural practices.

Another area of gender disparity is evident in women's lower participation in selling crops to government purchase centres (MSP). The data shows that a far smaller percentage of women, compared to men, sell their crops at these centres, limiting their access to fair market prices and government-supported procurement systems. This may result from a lack of access to market information, logistical challenges, or systemic barriers that prevent women from fully participating in formal agricultural markets.

The comparison of income sufficiency for household expenditure shows that a large proportion of women in both regions do not find their agricultural income sufficient to meet their household needs. This financial strain is likely linked to the gender wage gap and limited access to financial and insurance services, creating a cycle of economic vulnerability for women farmers.

Gender-sensitive policies and programs that recognize the dual roles women play in agriculture and the household are essential for fostering more equitable and sustainable rural development. Closing this gap in both working hours and wages is key to empowering women and achieving greater gender equality in the agricultural sector.

This result also suggests that the *Kalia Yojana* has effectively reached a wide audience in the district, achieving full recognition among the surveyed population. The equal awareness levels across both males and females highlight the success of the communication and outreach efforts, demonstrating that the community has been well-informed about the benefits and objectives of the Kalia Yojana. This underscores the program's relevance and its potential positive impact on the local population.

In some cases, the women in Malkangiri and Koraput are participating in collective decision-making processes within their communities. Because in some cases men are dependent upon the women for asking to take financial aid from the SHG. Women's groups and cooperatives are emerging as platforms for sharing knowledge,

resources, and support. These collective efforts can amplify women's voices in agricultural decisions and promote greater equality within households and communities.

Interestingly, both men and women, especially in Koraput, express a lack of desire for their children to pursue farming. This sentiment may stem from the economic challenges and uncertainties faced in agriculture, particularly for women, who are more vulnerable to financial risks and limited support systems. This reluctance also reflects broader societal concerns about the viability and sustainability of farming as a livelihood, especially when income sufficiency is a constant struggle. Overall, the data reveals significant gender disparities in key areas of agricultural participation and support. Women face systemic barriers in accessing fair wages, financial aid, crop insurance, and markets, which limits their economic empowerment and long-term success in agriculture. Addressing these gender gaps through targeted interventions such as increasing women's access to financial services, promoting crop insurance awareness, and ensuring equal market participation can play a critical role in enhancing agricultural development and improving the livelihoods of women farmers. Empowering women in agriculture is essential not only for gender equity but also for the broader goal of sustainable rural development.

This chapter also, describes Empowerment of the Women and Agricultural Development. The next section is dealing with the Role of Women in Agricultural Development. The second section state about the Empowerment of Women in Agriculture followed by the SHG and Farm Women and problems that faced by women farm personnel. The last section states about A Case Study in the study area. Women in Koraput and Malkangiri have become pivotal in agriculture, enhancing local economies and promoting sustainable farming.

Women now take on greater responsibilities, benefiting from support programs like self-help groups (SHGs), crop insurance, and other services that provide financial security and help manage agricultural risks. Awareness of the KALIA Yojana in these districts ensures that women understand the financial assistance available to them, enabling informed agricultural decisions. Women's participation in the

Minimum Support Price (MSP) program a traditionally male-dominated space highlights their growing influence in agricultural markets, contributing to closing the gender gap in resource access.

Women contribute extensively to farm labour, balancing long hours in the fields with household management, which supports overall rural development. Programs like MSP empower women to be active contributors to the agricultural economy, reinforcing their role in economic progress.

Nearly all women in Koraput and Malkangiri now have bank accounts, which represents a significant step toward financial independence. This access enables them to manage their earnings, access loans, and make investments in their farms, fostering economic security and control over their income.

Overall, these advancements reflect the crucial role of supporting women in agriculture. Women in these districts now drive progress through increased agricultural knowledge, mobility, autonomy, and leadership. Their participation fuels sustainable agricultural growth and enhances rural livelihoods in Koraput and Malkangiri.

Women's knowledge of farming techniques gained through SHGs and community programs has improved crop productivity, supporting better economic stability for families and communities. Their increased mobility allows them to participate in markets and banking independently, boosting their economic activities and involvement in the agricultural value chain.

Enhanced autonomy enables women to make key agricultural and financial decisions, fostering a sense of independence. Access to loans and government support has empowered them to manage income and farming practices more effectively.

Women's leadership in SHGs and community initiatives strengthens their influence, allowing them to guide group decisions, access loans, and lead agricultural practices. This leadership builds a support network, amplifying their contributions to local agriculture and inspiring broader participation.

This financial aid structure across banks, SHGs, and other sources reflects a positive

trend in empowering women financially. By utilizing these resources, women in Koraput and Malkangiri are better equipped to support their families, invest in farming, and contribute to their communities' agricultural and economic growth. This dominant role of SHGs in supporting women farmers reflects a positive trend in rural agricultural development. Some positive Role of SHGs for Farm Women:

Pre-training through SHGs encourages women to explore entrepreneurial opportunities in agriculture, such as starting small agri-businesses, processing units, or marketing their produce directly. This fosters innovation and growth within the agricultural sector and contributes to rural economic development.

Although a smaller percentage of women have received pre-training through SHGs, those who did are in a better position to contribute to agricultural development. Pre-training equips women with essential skills, reduces farming risks, and promotes sustainability.

Women involved in self-help groups (SHGs) have significantly increased their confidence, enabling them to communicate more effectively with block and district agricultural officers. This newfound confidence allows them to voice their concerns and seek guidance on agricultural practices, government schemes, and financial support. As a result, they can better access resources and information essential for their farming activities. Enhanced communication also fosters collaboration between women farmers and agricultural officials, leading to improved agricultural outcomes. This empowerment is crucial for bridging the gap between women in agriculture and the support systems available to them. Overall, the increased confidence gained through SHGs is transforming the way women engage with agricultural authorities.

In conclusion, empowering women with skills, mobility, and leadership in agriculture is transforming Koraput and Malkangiri. As women gain independence and knowledge, they advance sustainable agricultural development, fostering stronger rural economies and a brighter future for the districts.

Women in Koraput and Malkangiri are at the forefront of agricultural development, showing increased knowledge, mobility, autonomy, and leadership in their

communities. These changes are key to creating sustainable agricultural growth and improving rural livelihoods in these districts.

Women in both districts have gained substantial knowledge of farming practices, including seed selection, pest management, crop rotation, and soil care. Access to training sessions, self- help groups (SHGs), and community-based programs has been vital. Many women now have hands-on skills, enabling them to increase crop productivity and manage farm activities effectively, resulting in better economic stability for their families and communities.

Access to a bank account enables financial independence, providing women with a secure way to save, access funds, and invest in resources, enhancing their economic stability. Bank accounts encourage savings, which can act as a buffer against agricultural risks such as crop failure or market fluctuations. Govt pay them This financial security allows them to take calculated risks, such as trying new crops or entering into contracts with buyers.

Increased mobility has significantly empowered women in these areas. Women are now more likely to travel to markets, banks, and SHG meetings independently, breaking traditional restrictions and widening their social and economic interactions.

In recent years, women in Koraput and Malkangiri have gained little autonomy in both household and agricultural decisions. This empowerment lets them make critical choices about crops, land management, and household finances. Access to financial resources like loans and government schemes has given women greater control over income, contributing to a stronger sense of independence and confidence.

Women are emerging as leaders within their communities, managing SHGs, guiding group savings, and leading community-based agricultural initiatives. Their role in SHGs gives them opportunities to influence group decisions, seek loans for farming or other needs, and lead agricultural practices. Women's leadership fosters a supportive network, allowing them to make impactful contributions to the community's agricultural success and inspire others to participate actively.

Women farm personnel in Koraput and Malkangiri, especially among tribal

communities, rely heavily on traditional farming methods, which are not always compatible with modern market needs. In the districts, lack of and limited access to information remains a major challenge for women farmers

Without access to extension services, training, or digital platforms, they are unable to take advantage of modern technology, improve their agricultural skills, or expand their economic opportunities.

The empowerment of women through knowledge, mobility, autonomy, and leadership in agriculture is transforming Koraput and Malkangiri. As women continue to gain skills and independence, they help advance sustainable agricultural development, leading to stronger rural economies and a brighter future for these districts.

Empowering women farmers with access to resources, financial services, technical training, and market linkages will not only improve their personal livelihoods but also contribute to the broader goal of sustainable agricultural development in rural Odisha. Without such interventions, the potential of women farmers to contribute to the agricultural economy will remain untapped, perpetuating cycles of poverty and inequality in these vulnerable districts.

Women in agriculture in the study area are found experiencing several problems like topographical constraints, socio-cultural constraints and gender roles, migration issues, lack of cold storage facilities, right to access land resources, reliance on rain-fed agriculture, water resources management, lack of government-led initiatives including problems related to indigenous and traditional practices.

Conclusion: This chapter analysed the socio-economic profile of women farm personnel in Koraput and Malkangiri districts, comparing women labourers and women farmers. It highlighted key differences in income, access to financial support, knowledge of crop insurance, and sale of produce at MSP. The gender gap in wages, working hours, and mobile phone usage further revealed the challenges and inequalities faced by women in agriculture. These findings provide valuable insights into the socio-economic conditions and systemic barriers that affect women's empowerment in the farming sector.

CHAPTER- V

SUMMARY, FINDINGS, CONCLUSIONS AND POLICY NEEDS

5.1 Introduction

5.2 Summary

5.3 Major Findings

5.4 Conclusion

5.5 Problem Dimensions and Policy Needs

5.6 Limitations of the Study

5.7 Scope for Further Research

CHAPTER-V

SUMMARY, FINDINGS, CONCLUSION AND POLICY NEEDS

5.1 Introduction

In India, agriculture is a crucial component of rural livelihood, with women constituting the backbone of the country's agricultural economy as farmers and workers. Their role in agriculture is varied and intricate, encompassing all aspects from planting and harvesting to post-harvest operations. In an agrarian state like Odisha, the KBK districts are considered some of the most underdeveloped areas, where women contribute significantly to agriculture. Their involvement, though essential, is frequently undervalued and informal, with many working as unpaid family labourers. Improving the status of farm women in these districts would require initiatives to enhance their access to resources, training, and recognition, thereby empowering them to contribute more effectively to agricultural productivity and rural development.

Studies in Odisha and other developing regions reveal that women significantly contribute to agricultural production, yet their efforts lack recognition and proper support. Despite policies intended to improve their roles and living conditions, women, especially in the KBK region, continue to lead marginalised lives with minimal resources. In spite of their critical role in sustaining farm operations and contributing to household income, farm women in Koraput and Malkangiri often face challenges such as limited access to land ownership, credit, training, and modern agricultural resources. Gender disparities remain a central issue, as women's contributions in agriculture are often overlooked, with few studies addressing their challenges. So, understanding the conditions of women farmers and labourers is essential to acknowledge their contributions and address the difficulties they encounter in this sector.

To promote rural development, there needs to be a shift in mindset that enables women to engage in economic activities on equal terms with men. It is important for women to move beyond traditional roles focused primarily on homemaking and child-rearing, and instead take on more progressive roles where their economic

contributions to society are valued and encouraged. Their daily lives, both at home and in the broader community, remain challenging and demanding. This underscores the need for a renewed and intensified approach to developmental efforts. Their daily lives, both at home and in the field, remain challenging and demanding. Still many studies have not highlighted a clear-cut gender inequality in the income opportunities, and recognition for farm women in rural areas of Odisha.

Only a limited number of studies have addressed this research topic, revealing that gender differences have consistently played a pivotal role in agriculture. Despite their significant contributions, women's roles in the agricultural sector have often been overlooked, and they do not receive adequate social security in return and addressing the difficulties they face. Therefore, it is essential to examine the conditions of women farmers and labourers to evaluate their contributions and the challenges they encounter in the agricultural sector. Only a few studies have highlighted a clear-cut gender inequality in the income opportunities, and recognition for farm women in rural areas and understand the experiences of women contributors in agriculture in Koraput and Malkangiri districts. There is a scarcity of research focusing specifically on women in agriculture, particularly in certain regions. This study can serve as a foundation for future research, encouraging more in-depth exploration of women's roles, challenges, and opportunities in the agricultural sector of Koraput and Malkangiri districts.

Every effort has been made to gather the necessary data for this study within the two districts. Data collection was carried out by administering a pre-tested survey among a sample of women agricultural farmers and labourers in rural areas of Koraput and Malkangiri. The primary aim of the research is to study the agricultural contribution of rural farm women farmer and labourer through highlighting the socio-economic conditions, gender gap and impact of SHG on them, in the districts.

5.2 Summary

Chapter one is on "INTRODUCTION". This chapter provides a comprehensive introduction to the study, beginning with a general overview of the research context. It explores various theories on agricultural development, including Mellor's Model of

Traditional Agriculture, Schultz's Theory of Human Capital, and Lewis's Model of Dualistic Economy, to establish a theoretical foundation. A review of relevant literature follows, covering key themes such as women's role in agriculture, their contributions to rural development, the impact of technology on rural women, gender disparities in agricultural wages, the role of Self-Help Groups (SHGs) in women's employment, and the specific challenges women face in agricultural operations. The chapter then identifies the research gap, articulates the statement of the problem, and discusses the scope and relevance of the study. It outlines the objectives and research questions guiding the study, followed by a detailed discussion on the methodology, including research design, sampling framework, data sources, pre-testing, data collection tools, processing and analysis techniques, and ethical considerations. Finally, the chapter concludes with an outline of the overall chapter plan, providing a structured approach to the study.

Chapter Two, titled "Participation of Women in Agriculture and Rural Development," is an extension of Chapter One. It explains rural development and the role of women, discussing women's contributions to rural development in both India and Odisha. In India, rural development is focused on maximizing agricultural production and related activities, as well as promoting rural industries, especially those based in villages and agriculture. In Odisha, rural women play a vital role in driving economic, environmental, and social changes that are necessary for sustainable development. The concept of women's "triple role" includes three categories of responsibilities: productive (income-generating), reproductive (family care), and community activities, which show their greater involvement in development. Next section explores the "feminization of agriculture" and the active participation of women in farming, both in India and specifically in Odisha. This phase emphasizes how women contribute significantly to agriculture, from tasks like sowing and weeding to harvesting and post-harvest work.

In Odisha, women are central to rural development through their extensive involvement in agriculture, handling almost every stage of farming. Implementing gender budgeting is crucial in this context, as it ensures resources are allocated to create equal opportunities and outcomes for all genders. Since women play such a

vital role in agricultural operations including sowing, transplanting, weeding, and harvesting it is essential they have access to farm machinery, tools, and equipment. Gender-friendly equipment, in particular, can reduce their physical strain and enhance both their productivity and engagement in agricultural work. Section three discussed about the Policies glorifying Women role in Agriculture in India. Phase four provides an overview of Self-Help Groups (SHGs) and their empowering impact on women. SHGs play a vital role in promoting participatory development in rural areas of India as well as Odisha, where active community involvement is crucial for progress. Through SHGs, women farm personnel, especially those disadvantaged by factors like income, gender, caste, or education gain a platform to influence and shape decisions affecting their lives. This section also highlighted, SHGs have proven to be an effective strategy for supporting vulnerable and marginalized groups. By working together, women in SHGs can access loans and earn income within their communities, giving them financial independence and the ability to contribute to their households and communities. Phase Four of this chapter examines the challenges facing agriculture in Odisha.

Overall, this chapter provides a detailed exploration of the role of women in rural development through the lens of agriculture's feminization. It emphasizes the urgent need to introduce modern farming technologies and ensure that all farmers, especially women, receive adequate training to use them effectively. Additionally, the chapter highlights the importance of gender budgeting as a key factor in supporting the development of women farmers in India and Odisha. Empowering women with resources, knowledge, and technology will strengthen their role in agriculture and contribute significantly to rural and national progress.

Chapter Three, Profile of the Study Area, provides an overview of the study area, focusing on the districts of Koraput and Malkangiri. It begins with an introduction, followed by a detailed district profile of Koraput and Malkangiri. Additionally, it examines the agricultural growth in both districts, highlighting key trends and developments.

Chapter Four, Analysis of Data and Interpretation, presents the analysis and interpretation of data collected for the study. It begins with an introduction, followed by an examination of the socio-economic profile of the respondents. A comparative analysis of women labourers and farmers is conducted to understand their roles and challenges. The chapter further explores the gender gap in agriculture and its implications. The relationship between women's empowerment and agricultural development is discussed, along with the significant role women play in this sector. The empowerment of women in agriculture is analysed, with a focus on Self-Help Groups (SHGs) and their impact on farm women. Additionally, the challenges faced by farm women are highlighted. A case study is included to provide deeper insights, and the chapter concludes with an overall assessment of the findings.

Chapter Five, Summary, Findings, Conclusion, And Policy Needs, provides a comprehensive overview of the study, beginning with an introduction. It presents a summary of the key aspects covered in the research, followed by a discussion of the major findings. The conclusion highlights the key insights drawn from the study. The chapter also identifies the problem dimensions and emphasizes the need for policy interventions to address them. Additionally, it outlines the limitations of the study and suggests potential areas for further research.

5.3 Major Findings based on the research objectives and Research Questions

The major findings have been elaborated in alignment with the research objectives and research questions. They provide a comprehensive understanding of the roles, challenges, and contributions of women in agriculture in Koraput and Malkangiri.

Objective 1

To study the profile of women agricultural labourer and farm worker in Koraput and Malkangiri districts of Odisha.

Research question 1

What is the study profile of women agricultural farm workers in Koraput and Malkangiri districts of Odisha?

In both Koraput and Malkangiri districts, the younger generation increasingly prefers

to leave their families and hometowns in pursuit of better-paying jobs and higher incomes. Conversely, as people grow older, their attachment to their native land strengthens, often leading to reverse migration back to their roots.

Primary and upper primary school attendance is higher among the respondents in these areas due to supportive programs. However, economic challenges lead many families to see higher education as impractical, opting instead for immediate income over continued schooling.

The data indicates that while most agricultural workers in both districts enjoy farming, certain issues need attention to enhance overall job satisfaction. An intriguing insight from the data shows that, despite the relatively low wages in agricultural labour, many workers express high job satisfaction. This suggests that their commitment to farming goes beyond financial reasons, driven instead by a profound cultural and emotional connection. For many, farming is a way to stay connected to their homeland, preserving their traditional lifestyle, community bonds, and relationship with nature.

Limited innovation and financial support in agriculture result in many individuals working as labourers, relying on traditional, labour-intensive farming methods without access to resources that could enable them to become independent farmers.

The majority of women, regardless of their role in agriculture, do not want their children to continue in farming, reflecting a broader concern about the sustainability and profitability of the agricultural sector. To make farming more attractive to future generations, there is a need to address the underlying challenges, such as improving access to stable markets, ensuring fair crop prices, and providing greater financial support and security to those in the agricultural industry.

Objective 2

To assess the socio-economic conditions of women agricultural labourer through the gender wage gap in Koraput and Malkangiri districts of Odisha

Research question 2

What are the socio-economic conditions of women farm workers of two KBK district?

In a patriarchal society, household work is largely seen as women's responsibility, leading to an unequal division of labour. Women in agriculture face a double burden, balancing both farm and domestic duties, which increases their workload and often goes unrecognized. This imbalance places significant time pressure on them, impacting their health, limiting opportunities for economic growth, and hindering skill development. Every day, there is a significant difference in working hours between genders, regardless of the type of work (agricultural- worker or farmer) with women consistently shouldering more responsibilities.

In rural areas like Koraput and Malkangiri, women face systemic challenges that hinder their ability to achieve equal pay. These challenges are often tied to limited access to higher-paying roles, fewer educational opportunities, and societal norms that confine women to lower-wage positions.

Data indicate broader accessibility challenges that extend beyond gender, further restricting women's participation in formal agricultural markets. Lengthy official procedures and delays in payment deter farmers, especially women, from selling their crops at government procurement centers. Additionally, transportation difficulties and complex documentation requirements limit their involvement in Minimum Support Price (MSP) schemes. Consequently, small intermediaries frequently purchase crops directly from the fields, offering immediate payment.

Kalia Yojana has effectively reached a wide audience in the district, achieving full recognition among the surveyed population. The equal awareness levels across both males and females highlight the success of the communication and outreach efforts, demonstrating that the community has been well-informed about the benefits and objectives of the Kalia Yojana.

In both Koraput and Malkangiri districts, there is a significant gender gap in crop insurance awareness. Women farmers have very limited knowledge about the crop insurance process, making them less likely to access this financial protection.

Access to training, resources, and modern technology plays a crucial role in the gender divide in agriculture. Men generally have more opportunities to attend workshops and training sessions on modern agricultural practices and machinery use,

giving them an advantage in adopting new techniques and improving productivity compare to women farm person.

The data from both Koraput and Malkangiri highlights the pervasive gender gap in mobile phone ownership, which has significant implications for women's economic empowerment.

The very low rate of mobile phone ownership among women in Malkangiri and Koraput severely limits their access to essential information on agriculture, employment, and economic opportunities. Mobile phones are crucial for connecting with markets, checking weather forecasts, finding jobs, and accessing government programs. Without them, women are more likely to be excluded from these opportunities, deepening their economic and social vulnerabilities.

In Malkangiri and Koraput, traditional gender roles strongly shape decision-making dynamics. Men are typically seen as the main decision-makers for financial investments, crop choices, and adopting modern technology, while women are expected to handle household duties and assist with farming tasks without input on major agricultural decisions. This pattern remains prevalent in both districts. In some cases, women in Malkangiri and Koraput are increasingly participating in collective decision-making processes within their communities. Because in some cases men are dependent upon the women for asking to take financial aid from the SHG.

While men have time to relax and recharge, women remain in a continuous cycle of unpaid work, widening the gender gap in terms of well-being, time, and respect within the household. Addressing this imbalance is essential to achieving gender equity, as it affects not only women's health but also their opportunity for personal growth and rest.

Objective 3

To study the contribution of women's work involvement as labourer and farmers in agriculture.

Research question 3

What is the magnitude of work involvement of women as labourer and farmers in agriculture?

Farming knowledge and risk-taking tend to be inversely related. As individuals transition from labourers to farmers, their specialized, hands-on farming skills often diminish, while their exposure to risk increases. This shift places them at greater vulnerability to factors such as fluctuating market prices, labour shortages, equipment failures, and policy changes, all of which can significantly impact farm profitability.

In Koraput and Malkangiri, awareness of crop insurance among women in agriculture remains notably low. This gap points to limited efforts to promote crop insurance in rural areas, leaving women agricultural workers both labourers and farmers financially vulnerable to crop failures, natural disasters, and market fluctuations. The lack of knowledge, especially among labourers, underscores their high susceptibility, while farmers also miss crucial opportunities to safeguard their operations. Targeted initiatives through local networks, agricultural services, and self- help groups are essential to improving access to crop insurance, enabling women in agriculture to better manage risks and build financial resilience.

Agricultural labourers, who are often among the most economically vulnerable, are generally reluctant for their children to continue in farming. This reflects the precarious nature of their work, as they face seasonal, low-paying jobs with little job security or opportunity for advancement. Their reluctance underscores the difficult working conditions and financial hardships they endure, motivating them to seek more stable and better-paying careers for their children outside of agriculture.

Women in Koraput and Malkangiri have become pivotal in agriculture, enhancing local economies and promoting sustainable farming. Women now take on greater responsibilities, benefiting from support programs like self-help groups (SHGs), crop insurance, and other services that provide financial security and help manage agricultural risks. Data indicates that women in Koraput and Malkangiri have a strong grasp of crop and cropping system management. However, notable gaps remain in their knowledge of soil management, fertilizer selection, and pest control as well as effective storage and protection practices in both the districts. Bridging these knowledge gaps through improved access to information and targeted training could

significantly enhance agricultural productivity and sustainability in these districts, while most have no knowledge of irrigation systems, despite Koraput and Malkangiri being facing irregularity in rainfall. Empowering women with comprehensive agricultural knowledge would not only bolster crop yields but also contribute to more sustainable farming practices, benefiting both their communities and the local economy.

Women farmers in Koraput and Malkangiri have extensive knowledge of their local ecosystems, allowing them to use agricultural practices well-suited to the environment. However, climate change impacts them disproportionately.

Their expertise includes understanding soil types, native crops, seasonal weather patterns, and water conservation techniques. This knowledge enables them to choose drought-resistant crops, adjust planting schedules based on seasonal cues, and use natural pest control methods. These strategies are essential for adapting to the unpredictable climate in these drought-prone regions, highlighting the importance of supporting women farmers in mitigating climate-related challenges.

In these regions, men typically do not engage in certain agricultural tasks that are primarily managed by women, underscoring a clear gender-based division of labour. Women are highly skilled in activities like planting, weeding, and harvesting, which enables them to oversee daily farming operations with efficiency and sustainability. However, they are less involved in tasks such as ploughing, fertilizing, and irrigation, which are more commonly performed by men but women assist them in all these works. This division reflects traditional roles in agriculture and limits women's involvement in some key areas of farm management.

Koraput and Malkangiri districts have bank accounts plays a crucial role in enhancing agricultural development. Here's this financial inclusion contributes positively to the agricultural sector such as: Having a bank account allows women to access credit facilities, such as loans for purchasing seeds, fertilizers, and equipment. Those who sell crops at MSP they get paid through their account directly.

The high level of awareness also indicates that the government's efforts to promote the scheme of "KALIA YOJANA" have successfully reached both men and women,

empowering more individuals to improve their livelihoods through financial aid.

Women's participation in Minimum Support Price (MSP) sales marks progress toward bridging the gender gap in access to agricultural resources and markets, demonstrating their ability to succeed in areas traditionally dominated by men. Their extensive contributions through agricultural labour, long working hours, farm management, and securing household food supply position them as essential agents of rural development. By engaging in MSP sales, women are not only asserting their economic roles but also strengthening the foundations of rural economies.

Objective 4

To analyse the role of Self-Help Groups in the development of the farm women of the study area and

Research question 4

How SHGs play an important role in farm-women development?

Self-Help Groups (SHGs) are the main source of financial support for women in agriculture in Koraput and Malkangiri. These groups are important for rural economies. Farm women in these regions have limited access to bank loans. This shows the need for better financial policies for rural women in agriculture. Women face barriers like lack of collateral, credit history, and financial education. Giving women fair access to financial resources can improve their productivity in agriculture. It also helps them become more economically independent, which leads to agricultural development.

Data shows that Self-Help Groups (SHGs) are the primary source of financial support for women in all agricultural roles both labourers and farmers in Koraput and Malkangiri. This reliance on SHGs points to a growing disillusionment with farming as a career among women in these areas. Limited knowledge of financial protections, especially among labourers, leaves them highly vulnerable. Farmers, too, often lack the information needed to protect their operations, further highlighting the need for greater support and awareness in the agricultural sector.

In Koraput and Malkangiri, women's input is valued in household financial decisions, partly because they have easier access to loans compared to men.

Traditionally, decision-making power rests with the male members of the households. Their knowledge and experience in farming practices, along with access to financial aid from Self-Help Groups (SHGs), are gradually allowing women to participate in family decision making process.

In both Koraput and Malkangiri, a majority of women are not utilizing the MSP system to sell their crops. It reflects the broader challenges women face in fully benefiting from agricultural development initiatives.

Leadership in community decision-making is one of the most neglected areas of women's empowerment in Koraput and Malkangiri.

Through the interventions of Self-Help Groups (SHGs), women in Koraput and Malkangiri are taking on responsibilities beyond their traditional roles at home, challenging existing stereotypes. By visiting the bank monthly and attending SHG meetings, they are gradually building their confidence to venture out independently. This shift not only enhances their financial literacy and decision-making skills but also empowers them to assert their presence in the community, contributing to a broader movement toward gender equality.

SHGs offering pre-training can empower women to take calculated risks that improve their farming operations. Although a smaller percentage of women have received pre-training through SHGs, those who did are in a better position to contribute to agricultural development. Pre-training equips women with essential skills, reduces farming risks, and promotes sustainability.

In Koraput and Malkangiri, traditional barriers have historically restricted women's roles in agriculture and community life. Leadership opportunities are now providing women with the means to challenge these norms and gain respect as decision-makers. Self-Help Groups (SHGs) can play a critical role in bridging communication gaps. SHGs could serve as intermediaries, facilitating dialogue between women and agricultural officers, organizing collective meetings, and ensuring women receive relevant updates and information from district or block authorities.

Objective 5

To find out the problems and challenges of rural women farm worker and suggest remedial measures.

Research question 5

What are the problems and challenges faced by the rural women in agricultural sector?

A critical issue highlighted by the researcher is menstruation. Many women experience severe menstrual cramps yet continue to perform these duties and also go for work without support or care from family members. Compounding this issue, many women lack access to menstrual hygiene products, such as sanitary napkins.

Labourers in both regions are among the most financially vulnerable, relying on low wages and seasonal work, which often leaves them unable to meet basic household needs. While women farmers generally fare slightly better than labourers, but most still find their agricultural income insufficient for covering household expenses. Increasing land productivity, improving access to resources like seeds, fertilizers, and water, and securing fair market prices could help these women attain greater financial stability.

Cultural expectations and entrenched gender roles present a major significant barrier for women in agriculture. This restricts their participation in agricultural decision-making processes and their ability to contribute fully to farming operations.

For women, seasonal migration adds further complexity, as they often juggle responsibilities at the new job location while managing household duties if they stay back. Those who migrate face additional challenges, including limited access to healthcare, insecure housing, and disruption of their children's education.

Limited access to land and resources is a major barrier for farmers, especially women, who often lack secure land rights and face difficulty obtaining essential agricultural inputs.

Women farm personnel in Koraput and Malkangiri, especially among tribal communities, rely heavily on traditional farming methods, which are not always compatible with modern market needs. In the districts, lack of and limited access to information remains a major challenge for women farmers.

5.4 Conclusion

In conclusion, empowering women with skills, mobility, and leadership in agriculture is transforming Koraput and Malkangiri. As women gain independence and knowledge, they advance sustainable agricultural development, fostering stronger rural economies and a brighter future for the districts. Women farm personnel in Koraput and Malkangiri, especially among tribal communities, rely heavily on traditional farming methods, which are not always compatible with modern market needs. Women in Koraput and Malkangiri have made remarkable strides in agriculture, gaining expertise in farming practices and strengthening their financial independence through training programs, SHGs, and bank access. These advancements not only improve crop productivity but also foster economic stability for their families and communities.

Access to financial resources empowers women to save, invest, and manage agricultural risks more effectively, allowing them to explore new opportunities and contribute significantly to the agricultural economy. A dedicated cell should be established in each village or block where women agricultural labourers can register their concerns. Wage rates for women agricultural labourers should align with government standards.

Women should also have access to nutritious food, basic medical assistance, and educational resources. Female officers should be appointed to handle complaints from women farmers and workers to prevent gender-based wage discrimination. Wage rates for women agricultural labourers should be raised to match those of their male counterparts. Workplaces should provide sanitation facilities and childcare for children. This progress underscores the transformative impact of empowering women in rural areas, highlighting their essential role in building resilient and sustainable communities. Women in Koraput and Malkangiri have made

remarkable strides in agriculture, gaining expertise in farming practices and strengthening their financial independence through SHGs, and bank access. These advancements not only improve crop productivity but also foster economic stability for their families and communities.

Access to financial resources empowers women to save, invest, and manage agricultural risks more effectively, allowing them to explore new opportunities and contribute significantly to the agricultural economy. This progress underscores the transformative impact of empowering women in rural areas, highlighting their essential role in building resilient and sustainable communities.

Empowering women in Koraput and Malkangiri through knowledge, mobility, autonomy, and leadership is transforming the agricultural landscape, driving sustainable development and strengthening rural economies. As women gain skills and independence, they play a crucial role in building resilient communities and ensuring a brighter future for these districts. Providing women farmers with access to resources, financial services, technical training, and market connections will not only enhance their individual livelihoods but also support the overarching goal of sustainable agricultural progress in rural Odisha. Without these interventions, the potential of women farmers to contribute meaningfully to the agricultural economy may remain unrealized, reinforcing cycles of poverty and inequality in these vulnerable areas, government should provide loans, subsidies, land, equipment, financial support, and other resources to help female agricultural labourers establish their own industries and create employment opportunities.

Enforcing Tenancy Acts and Inheritance Laws to ensure equal rights for women in agricultural land ownership. Additionally, a verification mechanism must be established to ensure that women are receiving equal pay. Any neglect of this requirement should be considered a serious offense. Women's agricultural skills can be enhanced by promoting the adoption of new farming techniques. Comprehensive training should be provided to women farmers on operating advanced farming equipment such as tractors, threshers, and harvesters. Furthermore, social barriers that prevent women from using these modern machines should be eliminated.

Women empowerment in the Koraput and Malkangiri districts is crucial for fostering sustainable development and improving community resilience. Despite facing challenges such as limited access to resources, education, and decision-making roles, women in these districts play an essential role in agriculture and local economies. Efforts to enhance women's participation through targeted programs, skill development initiatives, and access to credit can significantly uplift their status and contribute to broader socio-economic progress. By addressing gender disparities and promoting inclusive policies, the potential of women as catalysts for change can be fully realized, leading to improved livelihoods and stronger, more equitable communities in Koraput and Malkangiri.

5.5 Problem Dimensions and Policy needs

Table 5.1 Problem Dimensions and Policy Needs

Sl. No	Problem dimensions	Policy needs
1	Patriarchy	Integrating Gender Equity into Policy Frameworks
2	Limited Access to resources	Financial inclusion
3	Indebtedness	Institutional financial support
4	Overburdened of work and health issues	Work sharing by family members
5	Limited access to Market	Improving market access and strict implementation of MSP
6	Socio-Cultural Constraints	Empowerment through Policy Information
7	Lack of agricultural training	Targeted training programs
8	Low Youth involvement in agriculture	Offering financial incentives for agro farming and Inclusion in Policy Planning
9	Forced Migration	Employment generation at Local level. MNREGA implementation
10	Insufficient Agricultural income	Implementing fair pricing policies,

		productive participation in SHGs
11	Communication barriers with agri-officers	Involvement of KVK and mediation through VLWs, Strengthening Communication Channels
12	Invisibility of household responsibilities	Create awareness through NGOs
13	Maximum dependency on traditional Farming	Building Capacity for Sustainable Farming, Breaking Traditional Barriers through Leadership
14	limited knowledge of agricultural machinery and modern technology	Targeted training programs, Enhancing Farming Skills
15	Inadequate self-care	Create awareness through NGOs
16	Lack of cold storage facilities	Construction of adequate cold storage
17	Lack of care for pregnant and lactating mother	Anganwadi workers need to be on watch and guard
18	Dependence for Mobility	Gender sensitivity, security for women
19	Implementation difficulties of Government Programme	Periodic monitoring and evaluation at the local level

Source Field Survey conducted on 16th June, 2022

This analysis outlines the numerous challenges faced by women in agriculture, in rural areas of Koraput and Malkangiri, and suggests policy solutions to address each issue. Below is a comprehensive review of each problem dimension with potential policy interventions: Traditional patriarchal norms in many rural areas limit women's roles and decision-making power, making it difficult for them to achieve social and economic independence. Patriarchal structures often dictate strict gender roles, where women's work in agriculture, household duties, and even their decision-making capacity are undervalued. Enforcing gender equity policies and mainstreaming gender equality in rural community norms and practices can help create more inclusive environments. Programs focused on gender awareness and equality should

promote women's active participation in decision-making, improving both their status and self-reliance.

Women often face restricted access to critical resources like land, financial services, and farming inputs, which are essential for agricultural productivity. This limitation not only reduces women's income potential but also hinders rural development, as women represent a significant part of the agricultural workforce. Financial inclusion policies, such as promoting women's access to credit and loans, can empower them economically. Ensuring women's rights to land ownership, inheritance, and access to inputs like seeds and fertilizers can directly enhance their productivity and earnings.

Many women in agriculture earn low incomes and lack financial independence, which restricts their decision-making abilities. Limited economic power often results from sporadic employment opportunities and low wages in agriculture, coupled with lack of ownership or control over land and resources. Policies that promote women's self-sufficiency, inheritance rights, and decision-making autonomy can strengthen their economic position. Additionally, supporting women's economic independence through skill-building and resource access can positively impact their status within households and communities.

Many women in rural farming communities of Koraput and Malkangiri are burdened by debt, especially in regions with limited economic opportunities. This often leads to a cycle of poverty and debt dependency, particularly in cases where women have no access to formal financial services. Institutional financial support through accessible, affordable loans or debt-relief programs can help women regain financial stability. Microcredit and low-interest loans tailored to rural women can support their business ventures, reducing dependence on high-interest loans.

Rural women often juggle numerous responsibilities, from household duties to labour-intensive farming tasks, leading to physical and mental strain. This double burden not only affects their health but also limits their productivity and quality of life. Policies promoting work-sharing within families can help alleviate the pressure on women. Family members sharing farming and household responsibilities would enable women to better manage their workload and health.

Many women farm personnel face barriers in accessing local and formal markets in Koraput and Malkangiri, which restricting their ability to sell produce at fair prices. They often rely on middlemen, resulting in lower returns for their agricultural products. Improving women's access to markets, enforcing fair pricing through Minimum Support Price (MSP) policies, and establishing direct links to buyers can help them secure better prices. Women's cooperatives and market awareness training would further empower them to participate fully in the market.

Socio-cultural barriers often restrict women from participating in economic and community activities. Gender norms, expectations, and biases limit women's ability to engage in activities that could enhance their economic and social standing. Raising awareness of women's rights and entitlements through policy education can help farm women break through these barriers. Programs that educate communities about the value of women's contributions to agriculture and development can foster a supportive environment.

Many farm women lack access to agricultural training, limiting their productivity. Without training, they may lack knowledge of advanced farming practices and modern tools that could enhance productivity. Providing women with targeted training on modern farming techniques and technology can improve their efficiency. Training programs on crop management, soil health, and sustainable practices can equip women with the skills needed to increase yields.

Youth are often reluctant to pursue agriculture due to limited incentives and job security, which results in an aging workforce and lack of innovation in farming practices in both Koraput and Malkangiri districts. Financial incentives and training for youth in agro-farming can attract a younger workforce. Such programs should focus on entrepreneurship in agriculture and provide capital or subsidies to encourage youth to consider farming as a viable career path.

Due to low agricultural income, many households are forced to migrate, disrupting rural communities and leaving women to handle household and farming responsibilities alone. Local employment programs like MNREGA can provide stable job opportunities, reducing migration. Ensuring the availability of jobs could help

maintain community stability and ease the burden on women left behind.

Income from small-scale farming often does not meet household needs, forcing women to take on multiple roles to supplement family income. Policies ensuring fair pricing, along with women's involvement in Self-Help Groups (SHGs), can support stable incomes. Through SHGs, women can pool resources, access credit, and undertake income-generating projects collectively.

Many women face difficulties in communicating with agricultural officers, limiting their access to information, resources, and support for farming activities. Village-Level Workers (VLWs) and Krishi Vigyan Kendras (KVKs) can serve as intermediaries to facilitate communication between women farmers and agricultural officers. Establishing dedicated women-oriented communication channels can bridge the gap.

Women's contributions to household labour are often undervalued, despite their critical impact on family well-being and community stability. NGOs can raise awareness of the importance of unpaid household work, fostering community respect and acknowledgment of women's role in the household economy.

Reliance on traditional farming methods limits productivity and income potential, as it does not adapt to environmental changes or market demands. Policies that promote sustainable, modern farming and encourage leadership roles for women can boost productivity. Support for innovation in farming, such as eco-friendly techniques, can also ensure long-term sustainability.

Women often lack training in using agricultural machinery, reducing productivity and making farm work more labour-intensive. Targeted training on machinery and technology use can improve productivity and ease the physical demands on women. Skill-building workshops on the safe and effective use of machinery can encourage women to adopt modern tools.

Due to work and household demands, many rural farm women neglect self-care, impacting their physical and mental well-being. Awareness initiatives run by NGOs can encourage

women to prioritize self-care and educate them about the importance of health and

wellness in sustaining productivity.

Limited storage facilities force women to sell perishable produce at low prices to avoid spoilage, impacting income and reducing profitability. Investing in local cold storage infrastructure would allow women to store their produce longer, enabling them to sell at better prices and reduce post-harvest losses.

Pregnant and lactating mothers in rural areas often lack access to proper health care, affecting both maternal and child health. Anganwadi workers can monitor and support pregnant and lactating mothers, providing essential healthcare services, supplements, and nutritional support.

Many women rely on male family members for mobility, limiting their ability to independently access resources, markets, or social networks. Gender sensitivity training and improved security for women can promote independent mobility. Providing secure transport options can further reduce their reliance on male relatives.

Women often face challenges accessing government programs due to poor implementation and lack of information. Local-level monitoring and evaluation of government programs can ensure they are accessible to women, with adjustments made based on community feedback. Awareness campaigns on available programs and benefits can also increase participation.

Each policy recommendation targets a unique barrier that women face in agriculture and rural development. By addressing these issues systematically, these policies can support gender equality, improve agricultural productivity, and foster sustainable development in rural communities of Koraput and Malkangiri.

5.6 Limitations of the Study

The fieldwork has allowed the researcher to gain a meaningful experience during the collection of ground level information regarding women workers who are engaged in agriculture in the study district. The study is limited to only two districts and it is a one-time study. Study uses purposive, non-probability sampling. My fieldwork was a self-organized effort and a real learning experience for me. I have developed a

feeling of confidence in my ability to carry on large-scale interview. I have collected some information related to my research work from the women agriculture workers of the study area, but the researcher face lots of problems during the field survey in collecting the information. Most of the Women cannot talk freely, because male members of the family sitting with them during the entire interview. They never tell the real income of the family; researcher observe the income by the housing conditions of the women agriculture workers.

5.7 Scope for Further Research

Scope for further research provide recommendations for future studies based on the findings of this research. This study has identified several gaps regarding the role of women in agricultural development. This study suggests the following ideas that can inform future research:

A study is required to be done on women's roles in agricultural development by including additional KBK (Kalahandi, Balangir, Nabarangpur, Rayagada, Nuapada, and Sonepur) districts. Expanding the study to these districts would provide a more comprehensive understanding of the unique challenges and contributions of women in agriculture within this region. This broader scope could also inform more effective, region-specific policies to support women's empowerment and participation in agricultural development.

A focused study is needed on the unique structure and functioning of Krishi Vigyan Kendras (KVKs) in promoting agricultural development in rural Odisha, particularly in relation to women's participation. This research would examine how KVKs are designed to support rural communities and the extent to which they encourage and facilitate the involvement of women in agriculture. Insights gained could help optimize KVK programs to further empower women and enhance their contributions to agricultural growth.

The scope of the study should be expanded to examine sharecropping practices in agricultural operations managed by women in the KBK (Kalahandi-Balangir-Koraput) districts. This research would provide insights into the unique challenges and opportunities women face in sharecropping arrangements within these regions.

Understanding these dynamics could inform policies that better support women-led agricultural initiatives and promote more equitable practices in sharecropping.

A study is needed to compare the roles of women in agricultural development across the tribal and coastal districts of Odisha. Such research would highlight regional differences in women's contributions, challenges, and access to resources in agriculture. By examining these variations, the study could provide valuable insights into how local factors influence women's roles in these distinct areas. This information could, in turn, inform targeted policies to support and empower women in agriculture in Odisha.

An evaluative study is needed to assess the impact of access to resources, skills, and technology on the effectiveness of rural women's contributions to agriculture in the tribal and coastal districts of Odisha. This research would explore how these factors influence productivity, sustainability, and empowerment among women in these regions.

There is a need to examine the coping strategies employed by women engaged in agricultural operations in response to natural disasters in the KBK and coastal districts of Odisha. This study would shed light on the resilience and adaptive methods these women use to sustain agricultural activities under challenging conditions. Understanding these strategies could help in designing targeted support systems and resources to enhance disaster preparedness and recovery for women in these vulnerable regions.

**Interview Schedule for Respondents from Malkangiri and Koraput Districts of
Odisha
(Purely for Academic Purposes)**

1. Name:

1. Gender:

(a) Male (b) Female (c) Others

2. Age group:

(a) 15-25 (b) 25-40 (c) 40-50 (d) 50 and above

3. Marital status:

(a) Married (b) Unmarried

4. Education:

(a) Illiterate (b) Primary (c) Upper Primary (d) Higher education

5. How you connected with farming:

(a) Farmer (b) Labourer

6. What types of agricultural operations do you perform on a daily basis?

7. What types of knowledge and skills do you have on agricultural management practices?

8. How many hours have you been working per day?

9. What is your average daily income from farming?

10. Do you feel satisfied with your work:

(a) Yes (b) No

11. In your opinion, is agricultural income sufficient to meet your household expenditure (a) Yes (b) No

12. How have you gained knowledge about farming practices and Risk-taking management

13. Have you heard about the term crop insurance

(a) Yes (b) No

14. What are your main sources of financial aid for farming and household activities?

(a) Bank (b) SHG (c) Local money lender

15. Do you want your children to be a farmer

(a) Yes (b) No

16. Do you have knowledge of how to adapt your farming practices to ensure climate resilience?

(a) Yes (b) No

17. What are the challenges have you faced in practicing farming?

18. Do you have bank account?

19. Do you sell your crops to the government purchase centre (MSP), and why?

20. Are you a beneficiary of Kaila yojana?

(a) Yes (b) No

21. Do you use of Modern Technology in Farming (a) Yes (b) No

22. Do you find it difficult to communicate with block or district officers?

(a) Yes (b) No

23. If yes, then what types of difficulties have you faced to communicate with the block or district agricultural officers?

24. Do you have a personal mobile phone?

- (a) Yes (b) No
25. Do you participate in family Decision-Making Process?
- (a) Yes (b) No
26. How has improved mobility empowered you?
27. Have you a member of any SHG?
- (a) Yes (b) No
28. Do you get Pre training for farming through SHG?
- (a) Yes (b) No
29. Through SHGs, how have you developed leadership skills in community decision- making process?
30. Has joining SHG impacted on your economic well-being?
- (a) Yes (b) No
31. Do you consider SHG as a tool for empowerment?
- (a)Yes (b) No
32. Does participation in SHGs help you in agricultural development overall?
- (a)Yes (b) No
33. Tell me five important problems faced by women in agriculture in your locality?
34. What are your expectations from the present government?

**QUESTIONNAIRE FOR GOVERNMENT OFFICIALS ON
THE ROLE OF RURAL WOMEN
IN AGRICULTURAL DEVELOPMENT IN ODISHA**

1. What is your name? (Optional)
2. What is your designation and department?
3. How many years have you been working in the agricultural/rural
4. What is your perspective on the contribution of rural women to agricultural development in Odisha?
5. In which agricultural activities do rural women in Odisha participate the most?
6. What are the key government programs and policies aimed at empowering rural women in agriculture?
7. How effective are these programs in improving the livelihoods of women farmers?
8. What challenges do government agencies face in implementing these schemes?
9. Do you SHGs play an important role in rural women's development?
10. What are the major socio-economic and cultural barriers that rural women face in agricultural development?
11. How can government policies be improved to enhance the participation of rural women in agriculture?
12. What role can technology and digital tools play in empowering rural women in agriculture?
13. Do you have any additional suggestions or insights on improving the role of rural women in Odisha's agricultural development?

APPENDIX III

PHOTO GALLERY



Photo 1 Field Study Conducted on 08.08.2023
(at Women Managed Poultry Farm)



Photo 2 Field Study Conducted on
10.06.2023 (Women at Work)



Photo 3 Field Study Conducted on
06.09.2023 (Women Guarding Harvest)



Photo 4 Field Study Conducted on
17.03.2023 (Local ladies wear)

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ABSTRACT

**ROLE OF RURAL WOMEN
IN THE AGRICULTURAL DEVELOPMENT OF ODISHA**

**AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF
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Role of Rural Women in the Agricultural Development of Odisha

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INTRODUCTION

Gender identifies the social relations between men and women. It refers to the relationship between men and women, boys and girls, and how this is socially constructed. Gender is both a social construct and a personal identity. In socially constructed, it includes acceptance of men and women with their related power and value (Deaux, K., 1985). Gender or Personal identity refers to the specific roles, personality traits, attitudes, behaviours and dress that individuals use to express their personal opinion. This means gender is not only something socially made but also it is including the relationship between men and women (Ibid). Gender is derived from the Latin word “genus” referring to kind or race. It is defined as “a kind, sort, or class referring to the common sort of people” (Torgrimson & Minson 2005). As the feminist writer Simone de Behaviour puts it, “one is not born a man but becomes one” and, “one is not born a woman but becomes one” (Jenkins,2016). Sex is a word that refers to the biological differences between males and females: the visible differences in genitalia, and the related differences in procreative function (Oakley,1985). Sex is what we are born with; it is universal and not varied from culture to culture and from time to time (Little, 2016). The term sex has its biological origin, includes the structural, functional, and behavioural characteristics of living things determined by sex chromosomes. It is derived from the Latin word “sexus,” meaning either of two divisions of organic nature distinguished as male or female, respectively according to the Oxford English Dictionary, sex (noun) has define as “the sum of those differences in the structure and function of the reproductive organs on the ground of which beings are distinguished as male and female, and of the other physiological differences consequent on these; the class of phenomena with which these differences are concerned” (Torgrimson & Minson 2005).

Feminist thinkers and developmental theorists realize that gender inequality is one measure of social progress and the nation-building process. This led to the foundation of gender and the development approach. Around 1960 the women’s movement took its first step in the name of gender equality throughout the western world. In the period of 1950-60 most of the Asian African and Latin American countries are recently got their Independence and almost all the countries are

adopting the liberal approach and distributive justice in their policy formulation process. In this period poverty is playing a master role to bring the issues of gender inequality into the developmental approach. In the year of 1962, the United Nations General Assembly instructed a commission to make a report on women's role in development. In 1975 the first world conference on women was held in Mexico City which is again a major step bringing issues in the developmental approach, also this conference explains the women's condition in patriarchy and capitalist society. Then the South Asian Association of Regional Cooperation declared the year of 1991-2000 as the SAARC decade of the girl child. In 1995 the historic Beijing Declaration declared that participating in the decision-making process and accessing power can empower women. Followed by all this progress gender development was divided in two way one is GDI which mainly talks about the gender gap in education, income, and inequality in life expectancy. Other one is GEM which mainly talk about inequality in the area of political participation and decision-making process. The Feminist theory mostly focuses on gender politics, power relations and sexuality. Politically feminist deals with domestic violence, equal pay, sexual harassment, and discrimination. But developmental feminism discussed inequality between gender, absence of women in developmental policy or decision-making power (Mohanty, 2014).

Public administration is one of the primary institutions responsible for implementing national policy and tasks in which women should be included equally. Including women participation in public administration brings women priority in policy making and get equal access to public service. The gender development approach also ensures gender balance in workplace and support gender equality in policy framework. Also, public administration is guided by the principle of justice, fairness, and equality. So, ending gender gap in public administration is much more important for restore trust and faith in public institution and build confidence and enhance sustainability in responsive public policy (Demirbas, 2008).

Reflecting on the development history, agriculture has been a recurrent topic in global debates since the 1950s, marking the inception of global development cooperation. Initially, in the 1950s and early 1960s, manufacturing industries were

prioritized in development efforts, relegating agriculture to a secondary role. However, the narrative shifted soon after, placing agriculture at the forefront when addressing issues related to population growth and a global food crisis. During the 1960s and 1970s, within the classical paradigm of development economics, agriculture was viewed as a tool for driving industrialization. This era also marked the onset of the Green Revolution, which averted mass famine and saved countless lives. Agriculture continued to hold move slowly on the political agenda until the 1980s. However, by the late 1970s and early 1980s, there was a shift towards anti-agricultural policies and the promotion of import substitution industrialization. As the sustainability concept gained traction around the 1990s, agriculture for development began to be viewed beyond purely economic terms. Henceforth, ecological and social considerations had to be given equal importance alongside the economic dimension in development of agriculture (Herger, 31 may 2020). Since the publication of the World Development Report 2008 titled “Agriculture for Development,” agriculture has once again been thrust into the limelight as a key factor in addressing the global challenge of poverty alleviation and economic growth. William Nicholls posits that when agricultural productivity in the food sector reaches a sufficiently high level, a nation can achieve a significant food surplus. This surplus can be exported on favourable terms, which, in turn, can positively impact the balance of payments and support domestic industrialization (De Schutter, 2009). Many developing countries had previously overlooked agriculture in their development strategies, particularly since the advent of the Washington Consensus and the implementation of import substitution industrialization following the debt crisis. It's apparent that low-income agrarian economies often neglect the needs of food producers (Herger, 2020). When we are talking about agricultural development, we cannot ignore the role of women for decades. Globally 43percent of agricultural labour work is done by women (Doss, & Sofa, 2011). As women share half of the sky in a nation it is necessary to discuss about their wants and requirements for the development of a nation.

Feminization of Agriculture defines the increasing participation of women in every aspect of agricultural work. Women often get neglected in the process of policy formulation. But Feminization allows women to control their labour and their own

decision and participate in the process of decision-making, and when it comes to agricultural activities it can be interpreted as three-way in increasing the percentage of women who are economically actively participating in agricultural activities. Increasing the percentages of women labour in agricultural activities and increasing the percentages of women who control and enact the agricultural activities (Kelkar, 2007). Rural women are involving in agricultural activities since the invention of agriculture. This participation is varied from place to place. It is seen that Neo-liberal market policy and commercialization of agriculture both are the most important factor to increasing factors increasing women's participation (Ghosh, 2018). Across the geographical region, it is seen that women work longer hours compare to men. Especially the above sentence is more justified for rural areas. According to a report of United Nation on SDG the women make significant contributions every day from bringing an income to her household as an employed wage earner, to creating jobs as an entrepreneur, to taking care of her family and elders. However, a woman farmer, for instance, may not be able to make her crops thrive like a man can because she doesn't have the same access to seeds, credit, technology and extension services. She is very unlikely to own her land—only 20 percent of landowners globally are women (UN, 2018). The nature of women's participation in agriculture, no doubt, varies greatly from place to place. Even inside a region, their participation differs widely among different ecological sub-zones, farming systems, castes, and classes. But, apart from these variations, there is hardly any activity in agricultural production, except ploughing where women are not actively involved. In actual fact, they are the largest group of landless labourers, as most of the women do not have land. Although women work in the fields, homes, outside the farm, and at the markets but the decisions are always taken by their male partners in every sector (Agrawal, 2019). Therefore, in order to achieve overall sustainable development of agriculture, it is necessary to realise the important role of women in agriculture and try to minimise the problem faced by them. Due to gender discrimination, women farmer is neglected and they do not get what they deserve, which affect their socioeconomic status and also affect their decision-making power. Despite the very important role played by women workers, they fill inferior to their male counterparts. So, from the very grass-root level, the government should notice and realise their problem and try

to fix it. Gender equality is a necessity for the development of society because 50% of the human resources are under development and this 50% of the population could not get an equal share because it comes from the group called women. If the better half of the society could not get its due share properly it is impossible for a society to grow (Nelasco,2009).

Review of Literature

FAO, (2008), in the report, “Agriculture and Rural Development”, suggests that the role of women is crucial for agricultural development and achieving the Millennium Development Goals (MDGs). The Sourcebook defines gender as encompassing the economic, social, political, and cultural attributes and opportunities associated with being male or female. Women encounter significant gender-specific challenges and vulnerabilities in comparison to men, primarily due to prevailing structures within households and societies. A frequently mentioned barrier to effectively addressing gender issues is the lack of resources, knowledge, and effective practices among practitioners to incorporate gender perspectives into their work, particularly at a time when the sector is experiencing significant transformation.

World Bank, (2009), in the report, “Gender in Agriculture Sourcebook”, refers to the relationships between men and women, encompassing both social perceptions and material aspects. Unlike biological distinctions based on physical traits, gender is a socially constructed concept that plays a fundamental role in shaping societal structures. It influences various processes, including production, reproduction, consumption, and distribution. However, despite this broader definition, gender is often misunderstood as being solely concerned with women's advancement.

Razavi, (2012), in the report, “Gender equality and development-A commentary”, defines gender as the socially constructed traits of women, men, girls, and boy. These characteristics encompass the norms, behaviours, and roles linked to being female or male, as well as their interactions with each other. Since gender is a social construct, it differs across societies and can evolve over time.

Chapter Plan

Chapter one is INTRODUCTION chapter. This chapter provides a comprehensive introduction to the study, beginning with a general overview of the research context. It explores various theories on agricultural development, including Mellor's Model of Traditional Agriculture, Schultz's Theory of Human Capital, and Lewis's Model of Dualistic Economy, to establish a theoretical foundation. A review of relevant literature follows, covering key themes such as women's role in agriculture, their contributions to rural development, the impact of technology on rural women, gender disparities in agricultural wages, the role of Self-Help Groups (SHGs) in women's employment, and the specific challenges women face in agricultural operations. The chapter then identifies the research gap, articulates the statement of the problem, and discusses the scope and relevance of the study. It outlines the objectives and research questions guiding the study, followed by a detailed discussion on the methodology, including research design, sampling framework, data sources, pre-testing, data collection tools, processing and analysis techniques, and ethical considerations. Finally, the chapter concludes with an outline of the overall chapter plan, providing a structured approach to the study.

Chapter two Participation of Women in Agriculture and Rural Development this chapter explores the role of women in agriculture and rural development, beginning with an overview of agricultural development in India and Odisha. It examines the significance of rural development and highlights the crucial role women play in this process at both national and state levels. The discussion then shifts to the feminization of agriculture, analyzing women's participation in agricultural activities across India and specifically in Odisha. Furthermore, the chapter reviews various policies, programs, and schemes aimed at empowering women in agriculture, covering both national and state-level initiatives. The role of Self-Help Groups (SHGs) in enhancing women's economic empowerment is also discussed. Lastly, the chapter addresses key issues and challenges faced by women in agriculture and rural development, concluding with an overall summary that integrates the key insights from the discussion.

Chapter Three, Profile of the Study Area, provides an overview of the study area, focusing on the districts of Koraput and Malkangiri, focusing on the districts of Koraput and Malkangiri. It begins with an introduction to the geographical, socio-economic, and cultural context of the region. A detailed district-wise profile follows, outlining key demographic features, economic activities, and agricultural practices in Koraput and Malkangiri. The chapter further examines the trends in agricultural growth within these districts, highlighting the role of women in agricultural development and the challenges they face. This contextual understanding lays the foundation for analysing the participation of women in agriculture and rural development in the subsequent chapters.

Chapter Four, Analysis of Data and Interpretation, presents the analysis and interpretation of data collected for the study. It begins with an introduction, followed by an examination of the socio-economic profile of the respondents. A comparative analysis of women labourers and farmers is conducted to understand their roles and challenges. The chapter further explores the gender gap in agriculture and its implications. The relationship between women's empowerment and agricultural development is discussed, along with the significant role women play in this sector. The empowerment of women in agriculture is analysed, with a focus on Self-Help Groups (SHGs) and their impact on farm women. Additionally, the challenges faced by farm women are highlighted. A case study is included to provide deeper insights, and the chapter concludes with an overall assessment of the findings.

Chapter Five, Summary, major findings, Conclusion, And Policy Needs, provides a comprehensive overview of the study, beginning with an introduction. It presents a summary of the key aspects covered in the research, followed by a discussion of the major findings. The conclusion highlights the key insights drawn from the study. The chapter also identifies the problem dimensions and emphasizes the need for policy interventions to address them. Additionally, it outlines the limitations of the study and suggests potential areas for further research.

Statement of the Problem

Women in Odisha's KBK region have historically faced discrimination across various sectors. Despite the implementation of a 50 percent reservation policy for women in grassroots political institutions like Panchayats, the deeply rooted patriarchal societal structure often prevents them from fully exercising their authority. Female literacy in the KBK region remains alarmingly low, with only 29.1 percent of women being literate significantly below the state average of 50.5 percent and the overall literacy rate of 63.1 percent in Odisha as per the 2011 census (Mishra, 2020).

The region's high maternal mortality rate further highlights the challenges women face in accessing adequate healthcare. Additionally, there is a pronounced gender wage gap, with female workers earning considerably less than their male counterparts (Mishra, 2002). Employment opportunities for women in the KBK districts are predominantly irregular, seasonal, and casual, with most women lacking access to social security or employment benefits.

Under these conditions, it becomes crucial to assess the working conditions of women employed as farm labourers to gain insight into their role in agriculture and the challenges they encounter. Studies conducted in Odisha and other developing areas have repeatedly highlighted the significant contributions of women to agricultural production. Despite their vital role, their efforts often remain overlooked and underappreciated, emphasizing the importance of greater recognition and acknowledgment of their contributions.

Scope of the Study

This study examines the involvement of women from rural areas in agricultural development. Given the vast scope of the subject, the research focuses on the state of Odisha, specifically selecting Koraput and Malkangiri districts from the eight KBK districts. The KBK region is among the most underdeveloped and poverty-stricken areas, predominantly inhabited by Scheduled Castes and Scheduled Tribes. Additionally, the KBK districts have a largely rural demographic, with over 90 percent of the population residing in villages. A significant portion of the population

in these districts is directly engaged in agricultural activities for their livelihood. This study also aims to shed light on the various challenges and difficulties faced by rural women in agriculture.

Relevance of the Study

Firstly, this study is significant in highlighting the crucial role women play in all aspects of life, emphasizing the necessity of their development for overall human progress. Effectively managing and nurturing women's resources including their talents, interests, skills, and potential is essential for the advancement and utilization of human resources. Therefore, it is imperative to recognize and harness women's contributions to ensure their full participation in development efforts. Development of each citizen will result into sustainable development. The empowered citizen ensures better administration and governance. Development of women in rural area leads to a better society and we can also achieve the 5th goal of Sustainable Development goal (SDG) which is “Achieve gender equality and empower all women and girls”. Women’s overall and mostly economic empowerment helps reducing poverty for everyone. In fact, to achieve it, we need to first fix the current broken economic model which causes economic inequality by undermining gender equality. Secondly to promote rural development, there needs to be a shift in mindset that enables women to engage in economic activities on equal terms with men.

It is important for women to move beyond traditional roles focused primarily on homemaking and child-rearing, and instead take on more forward roles where their economic contributions to society are valued and encouraged. Thirdly, a growing number of rural women are gradually breaking free from the systems of oppression and exploitation that have existed for centuries. Today, they are making strides in nearly every sector of national activity. However, in many villages, most women continue to face severe inequalities, despite ongoing focus from both planners and policymakers. Their daily lives, both at home and in the field, remain challenging and demanding. This underscores the need for a renewed and intensified approach to developmental efforts. Fourthly, an important step towards building confidence in women and raising awareness of their development potential, as well as their rights and privileges, is the creation of various beneficiary-oriented programs across

different development sectors. Fifthly exploring the specific hardships faced by women in agriculture, the study supports broader efforts toward gender equality.

Highlighting the unique contributions and struggles of women in this field can drive efforts to secure equal rights, opportunities, and recognition for women in rural areas. These programs offer direct benefits to women who participate in them. Once involved in the development process, rural women can make significant contributions to both rural and national development.

Objectives of the Study

The major objectives of the study are:

1. To study the profile of women agricultural labourer and farm worker in Koraput and Malkangiri districts of Odisha.
2. To assess the socio-economic conditions of women agricultural labourer through the gender wage gap in Koraput and Malkangiri districts of Odisha
3. To study the contribution of women's work involvement as labourer and farmers in agriculture.
4. To analyse the role of Self-Help Groups in the development of the farm women of the study area and
5. To find out the problems and challenges of rural women farm worker and suggest remedial measures.

Research Questions:

The major Questions of the study are:

1. What is the study profile of women agricultural farm workers in Koraput and Malkangiri districts of Odisha?
2. What are the socio-economic conditions of women farm workers of KBK district?
3. What is the magnitude of work involvement of women as labourer and farmers in agriculture?
4. How SHGs play an important role in farm-women development?

5. What are the problems and challenges faced by the rural women in agricultural sector?

Major Findings

In both Koraput and Malkangiri districts, the younger generation increasingly prefers to leave their families and hometowns in pursuit of better-paying jobs and higher incomes. Conversely, as people grow older, their attachment to their native land strengthens, often leading to reverse migration back to their roots.

Primary and upper primary school attendance is higher in these areas due to supportive programs. However, economic challenges lead many families to see higher education as impractical, opting instead for immediate income over continued schooling.

Limited innovation and financial support in agriculture result in many individuals working as labourers, relying on traditional, labour-intensive farming methods without access to resources that could enable them to become independent farmers.

The data indicates that while most agricultural workers in both districts enjoy farming, certain issues need attention to enhance overall job satisfaction. An intriguing insight from the data shows that, despite the relatively low wages in agricultural labour, many workers express high job satisfaction. This suggests that their commitment to farming goes beyond financial reasons, driven instead by a profound cultural and emotional connection. For many, farming is a way to stay connected to their homeland, preserving their traditional lifestyle, community bonds, and relationship with nature.

Labourers in both regions are among the most financially vulnerable, relying on low wages and seasonal work, which often leaves them unable to meet basic household needs. While women farmers generally fare slightly better than labourers, but most still find their agricultural income insufficient for covering household expenses. Increasing land productivity, improving access to resources like seeds, fertilizers, and water, and securing fair market prices could help these women attain greater financial stability.

Farming knowledge and risk-taking tend to be inversely related. As individuals transition from labourers to farmers, their specialized, hands-on farming skills often diminish, while their exposure to risk increases. This shift places them at greater vulnerability to factors such as fluctuating market prices, labour shortages, equipment failures, and policy changes, all of which can significantly impact farm profitability.

In Koraput and Malkangiri, awareness of crop insurance among women in agriculture remains notably low. This gap points to limited efforts to promote crop insurance in rural areas, leaving women agricultural workers both labourers and farmers financially vulnerable to crop failures, natural disasters, and market fluctuations. The lack of knowledge, especially among labourers, underscores their high susceptibility, while farmers also miss crucial opportunities to safeguard their operations. Targeted initiatives through local networks, agricultural services, and self-help groups are essential to improving access to crop insurance, enabling women in agriculture to better manage risks and build financial resilience.

Self-Help Groups (SHGs) are the main source of financial support for women in agriculture in Koraput and Malkangiri. These groups are important for rural economies. Farm women in these regions have limited access to bank loans. This shows the need for better financial policies for rural women in agriculture. Women face barriers like lack of collateral, credit history, and financial education. Giving women fair access to financial resources can improve their productivity in agriculture. It also helps them become more economically independent, which leads to agricultural development.

Agricultural labourers, who are often among the most economically vulnerable, are generally reluctant for their children to continue in farming. This reflects the precarious nature of their work, as they face seasonal, low-paying jobs with little job security or opportunity for advancement. Their reluctance underscores the difficult working conditions and financial hardships they endure, motivating them to seek more stable and better-paying careers for their children outside of agriculture.

Data shows that Self-Help Groups (SHGs) are the primary source of financial support for women in all agricultural roles both labourers and farmers in Koraput and Malkangiri. This reliance on SHGs points to a growing disillusionment with farming as a career among women in these areas. Limited knowledge of financial protections, especially among labourers, leaves them highly vulnerable. Farmers, too, often lack the information needed to protect their operations, further highlighting the need for greater support and awareness in the agricultural sector.

The majority of women, regardless of their role in agriculture, do not want their children to continue in farming, reflecting a broader concern about the sustainability and profitability of the agricultural sector. To make farming more attractive to future generations, there is a need to address the underlying challenges, such as improving access to stable markets, ensuring fair crop prices, and providing greater financial support and security to those in the agricultural industry.

In a patriarchal society, household work is largely seen as women's responsibility, leading to an unequal division of labour. Women in agriculture face a double burden, balancing both farm and domestic duties, which increases their workload and often goes unrecognized. This imbalance places significant time pressure on them, impacting their health, limiting opportunities for economic growth, and hindering skill development. Every day, there is a significant difference in working hours between genders, regardless of the type of work (agri-worker or farmer) with women consistently shouldering more responsibilities.

In rural areas like Koraput and Malkangiri, women face systemic challenges that hinder their ability to achieve equal pay. These challenges are often tied to limited access to higher-paying roles, fewer educational opportunities, and societal norms that confine women to lower-wage positions.

Data indicate broader accessibility challenges that extend beyond gender, further restricting women's participation in formal agricultural markets. Lengthy official procedures and delays in payment deter farmers, especially women, from selling their crops at government procurement centers. Additionally, transportation difficulties and complex documentation requirements limit their involvement in

Minimum Support Price (MSP) schemes. Consequently, small intermediaries frequently purchase crops directly from the fields, offering immediate payment.

Kaliya Yojana has effectively reached a wide audience in the district, achieving full recognition among the surveyed population. The equal awareness levels across both males and females highlight the success of the communication and outreach efforts, demonstrating that the community has been well-informed about the benefits and objectives of the Kaliya Yojana.

In both Koraput and Malkangiri districts, there is a significant gender gap in crop insurance awareness. Women farmers have very limited knowledge about the crop insurance process, making them less likely to access this financial protection.

Access to training, resources, and modern technology plays a crucial role in the gender divide in agriculture. Men generally have more opportunities to attend workshops and training sessions on modern agricultural practices and machinery use, giving them an advantage in adopting new techniques and improving productivity compare to women farm person.

The data from both Koraput and Malkangiri highlights the pervasive gender gap in mobile phone ownership, which has significant implications for women's economic empowerment. The very low rate of mobile phone ownership among women in Malkangiri and Koraput severely limits their access to essential information on agriculture, employment, and economic opportunities. Mobile phones are crucial for connecting with markets, checking weather forecasts, finding jobs, and accessing government programs. Without them, women are more likely to be excluded from these opportunities, deepening their economic and social vulnerabilities.

In Malkangiri and Koraput, traditional gender roles strongly shape decision-making dynamics. Men are typically seen as the main decision-makers for financial investments, crop choices, and adopting modern technology, while women are expected to handle household duties and assist with farming tasks without input on major agricultural decisions. This pattern remains prevalent in both districts. In some cases, women in Malkangiri and Koraput are increasingly participating in collective

decision-making processes within their communities. Because in some cases men are dependent upon the women for asking to take financial aid from the SHG.

A critical issue highlighted by the researcher is menstruation. Many women experience severe menstrual cramps yet continue to perform these duties and also go for work without support or care from family members. Compounding this issue, many women lack access to menstrual hygiene products, such as sanitary napkins.

While men have time to relax and recharge, women remain in a continuous cycle of unpaid work, widening the gender gap in terms of well-being, time, and respect within the household. Addressing this imbalance is essential to achieving gender equity, as it affects not only women's health but also their opportunity for personal growth and rest.

Women in Koraput and Malkangiri have become pivotal in agriculture, enhancing local economies and promoting sustainable farming. Women now take on greater responsibilities, benefiting from support programs like self-help groups (SHGs), crop insurance, and other services that provide financial security and help manage agricultural risks. Data indicates that women in Koraput and Malkangiri have a strong grasp of crop and cropping system management. However, notable gaps remain in their knowledge of soil management, fertilizer selection, and pest control as well as effective storage and protection practices in both the districts. Bridging these knowledge gaps through improved access to information and targeted training could significantly enhance agricultural productivity and sustainability in these districts, while most have no knowledge of irrigation systems, despite Koraput and Malkangiri being facing irregularity in rainfall. Empowering women with comprehensive agricultural knowledge would not only bolster crop yields but also contribute to more sustainable farming practices, benefiting both their communities and the local economy.

Women farmers in Koraput and Malkangiri have extensive knowledge of their local ecosystems, allowing them to use agricultural practices well-suited to the environment. However, climate change impacts them disproportionately. Their expertise includes understanding soil types, native crops, seasonal weather patterns,

and water conservation techniques. This knowledge enables them to choose drought-resistant crops, adjust planting schedules based on seasonal cues, and use natural pest control methods. These strategies are essential for adapting to the unpredictable climate in these drought-prone regions, highlighting the importance of supporting women farmers in mitigating climate-related challenges.

In these regions, men typically do not engage in certain agricultural tasks that are primarily managed by women, underscoring a clear gender-based division of labour. Women are highly skilled in activities like planting, weeding, and harvesting, which enables them to oversee daily farming operations with efficiency and sustainability. However, they are less involved in tasks such as ploughing, fertilizing, and irrigation, which are more commonly performed by men but women assist them in all these works. This division reflects traditional roles in agriculture and limits women's involvement in some key areas of farm management.

Koraput and Malkangiri districts have bank accounts plays a crucial role in enhancing agricultural development. Here's this financial inclusion contributes positively to the agricultural sector such as: Having a bank account allows women to access credit facilities, such as loans for purchasing seeds, fertilizers, and equipment. Those who sell crops at MSP they get paid through their account directly.

The high level of awareness also indicates that the government's efforts to promote the scheme of "KALIYA YOJANA" have successfully reached both men and women, empowering more individuals to improve their livelihoods through financial aid.

Women's participation in Minimum Support Price (MSP) sales marks progress toward bridging the gender gap in access to agricultural resources and markets, demonstrating their ability to succeed in areas traditionally dominated by men. Their extensive contributions through agricultural labour, long working hours, farm management, and securing household food supply position them as essential agents of rural development. By engaging in MSP sales, women are not only asserting their economic roles but also strengthening the foundations of rural economies.

In Koraput and Malkangiri, women's input is valued in household financial decisions, partly because they have easier access to loans compared to men. Traditionally, decision-making power rests with the male members of the households. Their knowledge and experience in farming practices, along with access to financial aid from Self-Help Groups (SHGs), are gradually allowing women to participate in family decision making process.

In both Koraput and Malkangiri, a majority of women are not utilizing the MSP system to sell their crops. It reflects the broader challenges women face in fully benefiting from agricultural development initiatives.

Leadership in community decision-making is one of the most neglected areas of women's empowerment in Koraput and Malkangiri.

Through the interventions of Self-Help Groups (SHGs), women in Koraput and Malkangiri are taking on responsibilities beyond their traditional roles at home, challenging existing stereotypes. By visiting the bank monthly and attending SHG meetings, they are gradually building their confidence to venture out independently. This shift not only enhances their financial literacy and decision-making skills but also empowers them to assert their presence in the community, contributing to a broader movement toward gender equality.

SHGs offering pre-training can empower women to take calculated risks that improve their farming operations. Although a smaller percentage of women have received pre-training through SHGs, those who did are in a better position to contribute to agricultural development. Pre-training equips women with essential skills, reduces farming risks, and promotes sustainability.

In Koraput and Malkangiri, traditional barriers have historically restricted women's roles in agriculture and community life. Leadership opportunities are now providing women with the means to challenge these norms and gain respect as decision-makers. Self-Help Groups (SHGs) can play a critical role in bridging communication gaps. SHGs could serve as intermediaries, facilitating dialogue between women and agricultural officers, organizing collective meetings, and ensuring women receive relevant updates and information from district or block authorities.

Cultural expectations and entrenched gender roles present a major significant barrier for women in agriculture. This restricts their participation in agricultural decision-making processes and their ability to contribute fully to farming operations.

For women, seasonal migration adds further complexity, as they often juggle responsibilities at the new job location while managing household duties if they stay back. Those who migrate face additional challenges, including limited access to healthcare, insecure housing, and disruption of their children's education. Limited access to land and resources is a major barrier for farmers, especially women, who often lack secure land rights and face difficulty obtaining essential agricultural inputs. Women farm personnel in Koraput and Malkangiri, especially among tribal communities, rely heavily on traditional farming methods, which are not always compatible with modern market needs. In the districts, lack of and limited access to information remains a major challenge for women farmers.

Scopes for Further Research

Suggestions for further research provide recommendations for future studies based on the findings of this research. This study has identified several gaps regarding the role of women in agricultural development. This study suggests the following ideas that can inform future research:

A study is required to be done on women's roles in agricultural development by including additional KBK (Kalahandi, Balangir, Nabarangpur, Rayagada, Nuapada, and Sonepur) districts. Expanding the study to these districts would provide a more comprehensive understanding of the unique challenges and contributions of women in agriculture within this region. This broader scope could also inform more effective, region-specific policies to support women's empowerment and participation in agricultural development.

A focused study is needed on the unique structure and functioning of Krishi Vigyan Kendras (KVKs) in promoting agricultural development in rural Odisha, particularly in relation to women's participation. This research would examine how KVKs are designed to support rural communities and the extent to which they encourage and facilitate the involvement of women in agriculture. Insights gained could help

optimize KVK programs to further empower women and enhance their contributions to agricultural growth.

The scope of the study should be expanded to examine sharecropping practices in agricultural operations managed by women in the KBK (Kalahandi-Balangir-Koraput) districts. This research would provide insights into the unique challenges and opportunities women face in sharecropping arrangements within these regions. Understanding these dynamics could inform policies that better support women-led agricultural initiatives and promote more equitable practices in sharecropping.

A study is needed to compare the roles of women in agricultural development across the tribal and coastal districts of Odisha. Such research would highlight regional differences in women's contributions, challenges, and access to resources in agriculture. By examining these variations, the study could provide valuable insights into how local factors influence women's roles in these distinct areas. This information could, in turn, inform targeted policies to support and empower women in agriculture in Odisha.

An evaluative study is needed to assess the impact of access to resources, skills, and technology on the effectiveness of rural women's contributions to agriculture in the tribal and coastal districts of Odisha. This research would explore how these factors influence productivity, sustainability, and empowerment among women in these regions. Findings from the study could provide valuable guidance for policies aimed at enhancing women's roles and effectiveness in agricultural development.

There is a need to examine the coping strategies employed by women engaged in agricultural operations in response to natural disasters in the KBK and coastal districts of Odisha. This study would shed light on the resilience and adaptive methods these women use to sustain agricultural activities under challenging conditions. Understanding these strategies could help in designing targeted support systems and resources to enhance disaster preparedness and recovery for women in these vulnerable regions.

Limitations of the Study

The fieldwork has allowed me to gain a meaningful experience during the collection of ground level information regarding women workers who are engaged in agriculture in the study district. The study is limited to only two districts and it is a one-time study. Study uses non-probability sampling based on conveniences. My fieldwork was a self-organized effort and a real learning experience for me. I have developed a feeling of confidence in my ability to carry on large-scale interview. I have collected some information related to my research work from the women agriculture workers of the study area, but the researcher face lots of problems during the field survey in collecting the information. Most of the Women cannot talk freely, because male members of the family sitting with them during the entire interview. They never tell the real income of the family; researcher observe the income by the housing conditions of the women agriculture workers.

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