

Women's Empowerment Through Sustainable Development: A Study of Karbharwadi

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Abstract- The current study looks at how women's empowerment influences rural development in Karbharwadi village. It highlights development efforts like drip irrigation, jaggery processing, Gerbera cultivation, agro-processing industries, and women's self-help groups. These initiatives have boosted agriculture, created job opportunities, and supported sustainable rural development. Women are actively involved in agro-processing units, flower farming, spice-making, vermicelli production, and other income-generating activities. Their participation has led to greater financial independence, improved saving habits, enhanced leadership skills, and active roles in decision-making. While job opportunities for women remain limited, Karbharwadi has consistently worked to create livelihoods through community-based businesses and cooperative farming. The study concludes that women's empowerment has played a key role in the village's socio-economic development, making it an essential element of sustainable rural growth.

Keywords- Rural Development, Women Empowerment, Sustainable Development, Self-Help Groups, Agro-Processing Industry, Collective Farming, Karbharwadi.

I. INTRODUCTION

Sustainable development means meeting today's needs without compromising the ability of future generations to meet theirs. It emphasises balanced growth through economic progress, social well-being, and environmental care. Rural development and women's empowerment are key components of sustainable development, especially in developing countries like India. India is primarily a rural country. Rural development seeks to improve the economic and social conditions of people living in villages through teamwork and community involvement. Agriculture is the backbone of the Indian economy, providing a significant portion of jobs and rural incomes. However, agriculture alone is often insufficient to guarantee a sustainable income, making value addition and agro-based industries crucial for rural development. Women play a significant role in rural

economies and agricultural work. They are engaged in farming, food processing, managing livestock, and household tasks. Despite their contributions, rural women frequently face limited economic opportunities and low involvement in decision-making. Therefore, empowering women through jobs, skill training, and entrepreneurship has become a key goal of sustainable development. The current study, titled "Women's Empowerment Through Sustainable Development: A Study of Karbharwadi," looks into how sustainable development efforts in the village have helped empower women and foster socio-economic progress.

Objectives

1. To explore the idea of rural development.
2. To examine how women's empowerment contributes to rural development in Karbharwadi.
3. To investigate women-led businesses in Karbharwadi.

Research Methodology

The current research uses the Case Study Method as its research approach.

Data Collection

1) Primary Data Collection: Primary data collection includes interviews, observations, personal interviews, and telephone interviews. For this study, primary data is gathered to understand how rural development has occurred in Karbharwadi village. The focus is mainly on the role of development communication in achieving rural development, empowering women, and promoting sustainable development through various government schemes, training programs, public participation, and community involvement. The research also examines how awareness, communication, and people's participation have contributed to social and economic development, particularly by empowering women and encouraging sustainable practices in the village. To answer questions related to these topics, different

methods of primary data collection will be used, including observation, questionnaires, and personal interviews.

Personal Interviews

Dr. Netaji Patil

Deputy Sarpanch – Tejaswini Patil

Secondary Data Collection

Secondary data collection includes books, research articles, and reports available on websites. These sources provided background information, theoretical understanding, and supporting references on rural development, women's empowerment, sustainable development, and development communication.

Review of Literature

Sustainable development is how we must live today if we want a better tomorrow: meeting present needs without compromising the chances of future generations to meet their own. The survival of our societies and our shared planet depends on a more sustainable world. (Goals, 2026)

According to the 2011 census, 68.84% of India's population lived in rural areas, while 31.16% lived in urban areas. Rural Development (RD) is a process which aims at improving the well-being and self-realisation of people living outside the urbanised areas through a collective process. According to Agarwal (1989), rural development is a strategy designed to improve the economic and social life of the rural poor. The Commission on Sustainable Development (CSD) first reviewed Rural Development at its third session in 1995, noting with concern that, even though some progress had been reported, disappointment was widely expressed at the slow progress towards sustainable agriculture and rural development in many countries. Sustainable agriculture was also considered during the five-year review of the implementation of Agenda 21 in 1997. At that time, Governments were urged to attach high priority to implementing the commitments agreed at the World Food Summit, especially the call to at least halve the number of undernourished people in the world by the year 2015. This goal was reinforced by the Millennium Declaration adopted by Heads of State and Government in September 2000, which resolved to halve by 2015 the proportion of the world's people

who suffer from hunger. (Department of Economic and Social Affairs, 2026)

Rural women comprise 43 per cent of the agricultural workforce worldwide, and in some regions, about 70 per cent. They are on the front lines of climate change, managing natural resources to feed their families and communities. (Women, 2012)

Rural communities are the backbone of our nation. Rural development initiatives can unlock tremendous economic potential by empowering local communities, creating sustainable livelihoods, and reducing poverty. Rural areas represent a vast untapped market for products and services. By investing in rural development, corporations can help improve infrastructure, enhance connectivity, and boost the purchasing power of rural communities.

Agriculture is a cornerstone of India's economy, accounting for approximately 16% of GDP and employing nearly 46% of the workforce. (Finance, 2024-25)

Achieving Sustainable Development Goal of Women Empowerment: A Study among Self-help Groups in India. The research highlights that SHG interventions positively contribute to the economic and socio-cultural empowerment of rural women through entrepreneurship and income-generating activities. (Seema Ghosh, 2023)

Impact of Self-Help Groups on the Empowerment of Rural Women: A Case of Kudumbasree Programme in Kerala. *Indian Journal of Extension Education*, 47(3&4), 14–19. The study found that SHGs significantly enhanced women's confidence, economic participation, and social empowerment in rural Kerala. (V K Sajesh, 2022)

Self-Help Group and Socio-Economic Empowerment of Women in Rural India. *Indian Journal of Science and Technology*, 9(27). The article discusses how SHGs support financial independence and improve the socio-economic status of rural women in India. (Vaijyanthi, 2016)

Female and Male Community-Level Empowerment: Capability Approach-Based Findings for Rural India.

The European Journal of Development Research, 34, 754–784. This study examines empowerment from a community perspective and highlights the importance of women’s participation in rural development. (Melinda Schmidt, 2022)

The Power of the Collective Empowers Women: Evidence from Self-Help Groups in India. World Development, 146, 105579 (2021). The study found that SHG membership improves women’s control over income and credit decisions, as well as their collective participation in rural communities. (N Kumar, 2021)

Public Decision Making by Women’s Self-Help Groups and its Contributions to Women’s Empowerment: Evidence from West Bengal, India. World Development Perspectives, 33, 100549 (2024). This research explains how SHGs help women challenge patriarchal norms and actively participate in community-level decision-making. (Jennifer Zavaleta Cheek, 2024)

Kolhapur District- Kolhapur city is situated on the banks of the Panchganga River and is surrounded by the Sahyadri mountain ranges of Maharashtra, India. (Maharashtra, 2026)

Karbharwadi: Karbharwadi is a small Village/hamlet in Karveer Taluka, Kolhapur District, Maharashtra State, India. It comes under Karbharwadi Panchayat. (Office, 2025)

Discussion

Rural Development Projects in Karbharwadi

Computerised Drip Irrigation Management

Before 2015, Karbharwadi faced severe problems of soil salinity, waterlogging, and declining agricultural productivity. To address these issues, the *Late Shiva Rama Patil Water Supply Society* implemented a community-based computerised drip irrigation project in 2015. Farmers were trained through farm schools and exposure visits to successful projects in Sangli district.

The project covers nearly 100 acres and is managed through an automated computer system. Water and fertilisers are supplied directly through drip lines, reducing production costs and improving efficiency. A WhatsApp group is used to communicate daily irrigation schedules to 132 member farmers.

The project has significantly improved agricultural productivity. Sugarcane yield increased from 27 tons per acre to 47 tons per acre, while water consumption decreased from 11 million litres to 5.5 million litres per acre, resulting in nearly 50% water savings. The project has also reduced electricity consumption and improved farm income.

Increased Income through Intercropping

Farmers have adopted intercropping practices, cultivating vegetables and flowers alongside major crops. This has generated an additional annual income of approximately ₹1.25 lakh to ₹1.50 lakh per acre. Modern farming knowledge is promoted through training programs, projector-based learning, and a village library.

Improved Sugarcane Cultivation Techniques

The village has organized agricultural workshops under the guidance of the District Agriculture Department and IFFCO. Farmers received training in modern sugarcane cultivation, particularly the Single-Bud Planting Method. As a result, the requirement of sugarcane seed material has been reduced to about 400 buds per acre, lowering cultivation costs and improving resource efficiency.

The Modern Jaggery Processing Unit in Karbharwadi Group farming in Karbharwadi started in 2011. It began as a collective effort to carry out various agricultural and community activities. The main goal of this initiative has been to turn the village into a self-sufficient and sustainable community. Along with agricultural growth, the focus has also been on social, economic, and educational progress. It became clear that just growing crops would not improve farmers’ livelihoods. So, the group decided to work on adding value through agricultural processing. Kolhapur district is known for its traditional jaggery processing units (Gurhal) and has received a Geographical Indication (GI) tag for its jaggery. The taste and quality of Kolhapuri jaggery stand out for their high standards. Considering this advantage, and instead of selling sugarcane to large sugar factories, the group farming initiative proposed in 2019 establishing a modern jaggery processing unit. The aim was to process the high-quality sugarcane from Karbharwadi and nearby villages. During this time, the group connected with Milind Patil from Kolhapur, who was

involved in jaggery processing projects. He introduced them to the innovative work of Padmakar Chinchole in Jalgaon district. Mr Chinchole later came to Kolhapur, visited the proposed site for the jaggery unit, and helped guide the project's development. The modern jaggery processing unit greatly reduces the need for manual labour while ensuring higher-quality production. The new processing system reduces waste and aims to maximise jaggery yield. One important aspect of this unit is that it uses no chemical additives during production. Instead of direct heating, it uses an "oil-heating" method. This prevents the jaggery from burning and keeps its natural quality. As a result, the jaggery produced is entirely natural and high-quality. In its first year of operation, the village produced nearly 250 metric tons of jaggery, which sold at a good price. This success was due to the teamwork of the farmers and villagers. Due to the increasing demand for its quality, jaggery from Karbharwadi has also reached international markets. (Netaji, Karbharwadi Women Empowerment, 2026)

Collective Cultivation of Gerbera Flowers

A group of farmers in Karbharwadi started a shared Gerbera cultivation project under the Late Shiva Rama Patil Self-Help Group. All the farmers involved are from the marginal farmer category. To go beyond traditional cropping patterns and improve their income, these farmers chose to grow Gerbera flowers. They set up a one-acre greenhouse with help from the Maharashtra Government's Group Farming Scheme. Gerbera flowers, scientifically known as *Gerbera jamesonii*, are native to South Africa and grow well in temperate climates. These flowers come in many bright colours and are valued for their long shelf life and attractive look. Because of these qualities, Gerbera flowers are in high demand in domestic flower markets. The flowers grown in Karbharwadi are sent to major markets in cities like Mumbai and Hyderabad. Every day, about 8,000 to 10,000 flowers are harvested and shipped for sale. This floriculture project has also created jobs for local women, especially in harvesting, sorting, and packaging flowers. The women doing this work earn money based on the number of flowers they process, giving them a regular source of income. (Patil, 2025)

Women's Self-Help Groups

There are seven women's self-help groups actively working in the village. These groups are important for encouraging women's involvement in income-generating activities and rural business. By working together, the women run various agro-processing operations, such as spice-making units, flour mills, vermicelli-making machines, oil extraction units, and rice mills. They also handle the production and packaging of turmeric and cumin powders, as well as other spice products. (Tejaswini, 2026)

Each woman saves up to 100-200 rupees per month through a self-help group. The self-help groups have created job opportunities for rural women and improved their economic independence. Besides generating income, these groups have encouraged saving habits, teamwork, leadership skills, and decision-making abilities among women. Their active involvement in these activities has greatly helped women's empowerment and sustainable rural development in the village.

Agro-Processing Industry

The establishment of agro-processing industries in Karbharwadi has significantly boosted the rural economy, promoted self-reliance, and created sustainable job opportunities. The village realised that agriculture alone could not provide consistent year-round income. To address this, they embraced the idea of adding value through small-scale agro-processing units. These industries convert locally available agricultural products into marketable goods. This approach increases farmers' income, lowers post-harvest losses, and creates jobs within the village. Several agro-processing units now operate in Karbharwadi, including chilli-grinding, oil-extraction, vermicelli-making, fresh-spice preparation, and mini rice mills. Community involvement is strong, especially through women's self-help groups and collective farming efforts. Women's participation in these activities stands out as one of the most important results of the project. It greatly contributes to women's empowerment and the community's economic growth. The chilli grinding unit transforms chillies into high-quality chilli powder using clean and mechanical methods. Women take part in cleaning, drying, grinding, packaging, and labelling the products. This engagement allows rural women to develop practical

skills in production and managing small businesses. Similarly, the spice processing unit produces items like turmeric powder, coriander powder, and blended masalas from locally sourced agricultural products. Women's groups oversee various stages of production, helping them build financial confidence and entrepreneurial skills.

The oil extraction unit processes oilseeds like groundnut, sesame, and sunflower into fresh, chemical-free cooking oil. Women help with sorting, processing, packaging, and maintaining quality. The demand for natural, locally made oil has increased among consumers, leading to higher income for farmers and more jobs for women. The vermicelli-making unit has become a notable example of a women-led rural business. Local women are involved in preparing dough, operating machines, drying, packaging, and marketing the vermicelli. This initiative has created steady jobs for women, allowing them to contribute financially to their households. The income from this work has improved their economic independence and strengthened their influence in family decision-making.

Mini rice mills in the village have reduced farmers' reliance on distant markets for processing paddy. Women also participate in cleaning, grading, packaging, and handling post-processing activities. Having local processing facilities has cut transportation costs, decreased waste, and ensured better returns for farmers. The strong involvement of women in these agro-processing industries has brought about significant social and economic changes in Karbharwadi. Many women who once focused solely on domestic duties are now financially independent and actively involved in productive work. Their participation in self-help groups and agro-processing ventures has boosted their confidence, leadership skills, and involvement in community development efforts. They have also learned about banking processes, savings, and small-scale entrepreneurship, enhancing their decision-making abilities within families and the community. Moreover, these industries have helped reduce rural unemployment and migration by creating year-round jobs. The collective efforts of farmers and women's groups have strengthened social bonds and encouraged community-based development. Through

agro-processing initiatives, Karbharwadi has demonstrated a successful model of sustainable rural development, in which agriculture, value addition, women's involvement, and economic empowerment converge to enhance the overall quality of life in the village.

1.1 Women's employment in Karbharwadi

Sr. No.	Name of Project	Number of women employed	Days for working
1.	Jaggery Processing Unit	5	100
2.	Cultivation of Gerbera Flowers	7-8	365
3.	Agro-Processing Industry	2	365
4.	Masala Unit	7	50

Women's job opportunities in Karbharwadi show the village's progress in rural development and women's empowerment through agro-based industries and agricultural work. Various local projects have created jobs for women, enabling them to support their families and participate in the village economy. The Jaggery Processing Unit hires 5 women for nearly 100 working days each year. This unit offers seasonal jobs and helps women develop skills in traditional agro-processing. The cultivation of Gerbera flowers provides year-round work for 7 to 8 women, ensuring they have a steady daily income. This activity encourages women to take part in floriculture and modern farming practices. Likewise, the Agro-Processing Industry employs 2 women full-time for 365 days. It helps create stable jobs in processing and value-adding for agricultural products, contributing to sustainable livelihoods. The Masala Unit hires 7 women for about 50 working days each year. Women are involved in preparing and packaging spice products, which supports small-scale entrepreneurship and self-employment. Overall, these projects are key to boosting women's economic participation in Karbharwadi. They help promote women's empowerment, self-sufficiency, and sustainable rural development by creating jobs within the village. Dr Netaji Patil noted that while there are few specific job opportunities for women in the village, Karbharwadi is working hard to develop livelihood options through various agricultural and agro-based activities. This effort is a positive step toward women's economic empowerment, enabling them to engage in income-generating activities and support their households. Such initiatives not only foster financial independence for women but also promote their active involvement in rural and sustainable development. (Netaji, Women Employment in Karbharwadi, 2026)

Major Findings

The development projects in Karbharwadi provide a strong model for sustainable rural development through community involvement, modern farming methods, and agro-based industries. Initiatives such as the drip irrigation system, a modern jaggery processing unit, Gerbera flower farming, women's self-help groups, and agro-processing industries have greatly improved the village's socio-economic conditions.

These projects have increased agricultural productivity and added value, while also creating job opportunities for rural women. The active participation of women in agro-processing, flower cultivation, and self-help groups has improved their financial independence, leadership skills, and decision-making participation. Although job opportunities for women in the village are still limited, Karbharwadi has made steady efforts to create livelihoods through community-based and agro-industrial projects. These efforts represent a positive move toward women's economic empowerment and inclusive rural development. The village has effectively demonstrated how collective farming, local entrepreneurship, and sustainable resource management can enhance the quality of life for rural communities, reduce migration, and encourage self-reliance. Thus, Karbharwadi stands as an inspiring example of integrated rural development, where agriculture, sustainability, and women's empowerment are closely linked.

Conclusion

1. The study finds that rural development is a complex process that involves agricultural growth, economic progress, social development, infrastructure improvements, and better quality of life for rural residents. In Karbharwadi, rural development has been achieved through collective farming efforts, sustainable water management, agro-processing industries, flower cultivation, and community involvement. The village has adopted modern farming methods and value-added activities, which have boosted the rural economy and encouraged self-reliance among farmers.
2. The study shows that women's empowerment has been crucial in the rural development of Karbharwadi. Through self-help groups and jobs in agriculture, women have taken an active role in both economic and community development. Their work in spice-making, vermicelli production, oil extraction, flower cultivation, and agro-processing has improved their financial independence, leadership skills, savings habits, and decision-making abilities. While job opportunities for women are still limited, the village's efforts to create sustainable livelihoods have positively impacted women's economic empowerment and inclusive rural development.

3. The study concludes that women-led businesses in Karbharwadi have become key players in the village economy. Self-help groups and small agro-processing units run by women have created jobs, fostered entrepreneurship, and boosted local production and value addition. Businesses such as spice units, vermicelli-making operations, flour mills, oil extraction units, and participation in Gerbera flower cultivation have enabled rural women to play an active economic role. These businesses have not only increased household incomes but also strengthened women's confidence, social involvement, and entrepreneurial abilities, thereby supporting sustainable rural development in the village.

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