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Women empowerment through KVK interventions: A review of skill development and entrepreneurship

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Abstract

Women empowerment has been regarded as an important factor in achieving sustainable rural development and inclusive growth in developing countries such as India due to the significant contributions made by women to agriculture and allied industries. Even though women are actively engaged in agricultural practices, livestock rearing, food processing, and nutrition in the family level, rural women still suffer from gender inequality in the aspects of education, productive assets, financial services, technologies, markets, and decision-making. Under these circumstances, Krishi Vigyan Kendras (KVKs) have become essential grassroots institutions that play an important role in empowering rural women using vocational training, entrepreneurship development, and technology transfer. This study attempts to review the available literature on the contribution of KVK interventions to women empowerment through enterprise oriented capacity-building programs in order to improve socio-economic conditions among women. Some of the main areas of training offered include food processing, mushroom cultivation, dairy farming, poultry farming, tailoring, bee keeping, vermicomposting, handicrafts, nutritional gardening, and value addition industries. According to some studies, KVKs have been successful in improving the technical skills, entrepreneurships, confidence levels, leadership qualities, incomes, and decision making of women. The review also stresses the significance of SHGs, digital literacy, institutional convergence, and market-oriented training for making the women-led businesses stronger and diversifying their livelihood sources. But there are certain obstacles which affect the sustainability and efficacy of women empowerment initiatives in terms of social constraints, lack of institutional credit, weak market connectivity, poor digital literacy, and absence of proper post-training mentoring. Thus, the study concludes that efforts to improve gender-responsive extension methodologies, digital entrepreneurship, financial inclusion, market integration, and continuous mentoring mechanisms will contribute positively to the role played by the KVKs in empowering women and transforming rural areas in India.

Keywords: Women empowerment, Krishi Vigyan Kendra, rural entrepreneurship, skill development, extension education, Self-Help Groups, livelihood diversification, rural development

1. Introduction

Empowerment of women has come to play an important role in the process of sustainable rural development, social inclusion and economic transformation in developing countries. In the rural economies, women undertake several economic activities such as agriculture, animal husbandry, food processing, nutritional activities, natural resource management and activities of families which makes them perform multiple productive and reproductive roles. Even though they have a huge involvement, women face inequalities in resource ownership, access to education, financial services, technology, institutional support, and market opportunities which affect their socio-economic empowerment and decision-making power (Samantroy & Tomar, 2018; Khokhar, 2019; Kumari & Kumar, 2024) [37, 21, 24]. The drive to promote entrepreneurship and skill development has gained growing importance as effective ways of enhancing women's economic roles and reinforcing women's involvement in rural development mechanisms. According to recent studies, apart from generating income,

women entrepreneurship also stimulates self-confidence of women, leadership development, participation in social life and decision making power in households (Prabha *et al.*, 2025; Knox *et al.*, 2025; Sushma & Fakhruddin, 2025) [31, 22, 47].

Women empowerment is multi-faceted and involves economic, social, psychological and political aspects. One of the key areas of emphasis on economic empowerment is on building women's access to productive resources, job opportunities and entrepreneurship abilities. It is observed in the contemporary literature that entrepreneurial activities serve as a way for women's financial independence, which enhances their role in family and community-level decision making (Khokhar, 2019; Kumari & Kumar, 2024; Prabha *et al.*, 2025) [21, 24, 31]. Secondly, reviews from the past few years indicate that other support services like business training, capital availability, use of technology and mentoring are significantly contributing parameters to entrepreneurial success among women (Knox *et al.*, 2025; Gochhait *et al.*, 2025) [22, 15].

Women's empowerment is also a key priority and goal of the global development agenda, with an emphasis on this issue as a strategy to achieve inclusive growth and sustainability. Women's empowerment is of fundamental importance to achieve long-term development outcomes, in terms of Sustainable Development Goals (SDGs) including gender equality, poverty eradication, decent work and economic growth. Research shows that improving the involvement of women in entrepreneurship has levers to impact family welfare, child education, impact on health outcomes and grip on community development (Samantray & Tomar, 2018; Knox *et al.*, 2025) ^[37, 22]. Further, research is also showing that introducing interventions that combine entrepreneurial education with social and institutional support deliver more powerful and sustainable empowerment outcomes than doing so alone (Sushma & Fakhruddin, 2025; Knox *et al.*, 2025) ^[47, 22].

Agriculture extension systems and rural development institutions are key in empowering rural women and their livelihoods in India. The various institutions include Krishi Vigyan Kendras (KVKs) which provide technology assessment, technology enhancement, line technology demonstration, and vocational training in the local area and promotes technology transfer. As a part of the increasing activities of KVKs emphasis has been given to interventions for women with a focus on enhancing their technical knowledge and improving livelihoods by building their skills and promoting entrepreneurship. Training on food processing, mushroom cultivation, dairy management, tailoring, value addition, handicraft, nutrition enterprises, home-based industries and small scale income-generating activities.

KVK programme on skill development plays a significant role as it enables the acquisition of skills and entrepreneurial skills in rural women. The interventions help to build technical skills, self-confidence, leadership, communication and business management competencies to aid in establishing businesses and initiating entrepreneurship. Entrepreneurship-oriented activities also facilitate women access to local value-chain systems and micro-enterprises and self-help groups as a way to diversify livelihoods and grow household income. Increasingly, businesses that involve entrepreneurship training, financial resources, market access, technological resources, and other support are recognized as conducive to sustainable women entrepreneurs (Kumari & Kumar, 2024; Prabha *et al.*, 2025; Gochhait *et al.*, 2025) ^[24, 31, 15].

Myriads of challenges still remain in the way of girl's empowerment and their growth in entrepreneurship even after making significant strides in the rural areas. Women's businesses flourish yet remain constrained in their sustainability and growth by various factors, including limited access to credit, limited market links, socio-cultural barriers, digital exclusion, and poor levels of mobility, as well as unequal access to productive assets (Khokhar, 2019; Sushma & Fakhruddin, 2025) ^[21, 47]. Hence there is greater need to comprehend the contribution of KVK intervention towards the strengthening of the skills and entrepreneurial capacity among the rural women. With this context, the present review seeks to bring together existing literature on KVK-based interventions and explore role of KVKs in fostering women empowerment through skill development

and enhancing entrepreneurship.

2. Conceptual Understanding of Women Empowerment and Role of Krishi Vigyan Kendra (KVKs) in Rural Development

Empowerment of women is a multidimensional process which reinforces the role and place of women in the decision making process in the areas of economics, society, politics and institutions. Empowerment promotes the expansion of women's uses of productive resources, their access to education, their livelihood and their engagement in community affairs in rural development. Although rural women play a crucial role in agriculture, livestock management, household survival and food systems, their role in development processes is limited due to socio-economic inequalities and inadequate resources at their disposal, to name a few factors (Tripathi *et al.*, 2025) ^[48].

The capacity of women to make decisions in the household, build confidence and autonomy increases as they get economically empowered through the involvement with economic activities and entrepreneurship. Engagement in Self-help Groups (SHGs), community groups and livelihood organizations also helps develop leadership and social engagement and financial autonomy as a group. Likewise, women's productivity and entrepreneurial body gets boost by their access to technology, scientific knowledge, and skill development opportunities (Sharma & Sejwal, 2025) ^[40].

Krishi Vigyan Kendras (KVKs) supported by Indian Council of Agricultural Research has become essential and important units functioning at the district level in India for agricultural development and women empowerment. KVKs emphasize vocational training based on participatory and practical approaches, up to frontline demonstrations, technology assessment and entrepreneurship development. Food processing, mushroom cultivation, livestock farmers enter into dairy and poultry business, tailors, train on handicrafts, nutrition gardening, value addition activities are some interventions provided to women.

In addition, KVKs also organise Entrepreneurship Development Programmes (EDPs) and tie up with SHGs to build leadership skills, financial management, marketing skills and enterprise building. In recent years KVK efforts have tended towards becoming more market oriented, more digital literate, and more climate forward when it comes to being more sustainable and profitable (Sharma & Sejwal, 2025; ICAR, 2024) ^[40, 1]. Still, issues like lack of infrastructure, finance and insufficient post training assistance and disparities between different geographical areas continue to impact the effectiveness of KVK interventions.

3. Skill development interventions by KVK towards the rural women

Skill development has become one of the successful methods of enhancing the socio-economic empowerment of rural women and sustainable livelihood opportunities. Traditional knowledge that rural women often have includes aspects of food preservation, animal husbandry, handicrafts and management of household affairs. However, they have very limited power to pursue them into viable businesses due to their lack of scientific training, guidance from the

institutions and market exposure. Vocational education and practical training programmes have been an important area of service because of the contribution of Krishi Vigyan Kendras (KVKs) in this particular field for the linkage of indigenous knowledge and modern opportunities for entrepreneurship.

3.1 Skill Development Approaches: Need Based and Participatory Approaches

The main thrust of KVK efforts is to undertake need-based interventions based on the local resource base, agro-climatic conditions, cultural and market practices existing in and around the areas. These programmes focus on learning from doing and authentically learning experiences, and not on thinkers. Participatory extension methods such as Demonstration, practical work, exposure visit, field school and peer learning activities enhances the programme effectiveness through better understanding and technology uptake among the women. These types of strategies allow interaction and bring participants into contact with extension personnel and successful entrepreneurs to increase confidence and motivation.

3.2 Food Processing and Value Addition Training

One of the key training field opportunities supported by KVK intervention is food processing and value addition. Women are trained in Making and Preserving products like Pickles, Jams, Jellies, Squashes, Millet based snacks, Dehydrated Vegetables, Bakery products and Ready to cook products. These activities greatly help to minimize post harvest losses, add value to product and create new household income generating activities. Women who work in value-addition enterprises also have better livelihood security and economic participation via income generating home-based enterprises (IGHBEs) (Bhai et. al., 2026) ^[9].

3.3 Agriculture and Allied Enterprise Skill Development

The KVKs carry out promotion of various agriculture related and allied livelihood businesses such as mushroom cultivation, Dairy farming, Poultry farming, Goat farming, Fisheries and Bee keeping. Because mushrooms require low land acreage, little investment and give only slightly better monetary returns, mushroom cultivating has become a very important activity. In the same way, livestock based activities boost household income and livelihoods resilience of small and marginal farmers' families. Women involved in these programmes learn technical aspects of breeding, disease control, feeding, vaccination, production aspects, processing and enterprise planning. Diversification in Enterprise also serve as less seasonal agricultural employment (Bora and Mahanta, 2022) ^[10].

3.4 Non-Farm vocational skill development

All other than farming related activities, the KVKs conduct non-farm vocational training programs which include tailoring, embroidery, making handicrafts, making candles, painting of fabrics and developing home-decorating products. This can be especially important for women in rural areas in countries primarily affected by food insecurity, who are frequently excluded from credit and employment opportunities through formal markets and are working as homeworkers. Homeworkers and landless

women in very food-stressed countries would benefit greatly from such interventions as they offer opportunities for diversified income generation and home based employment. Additionally, skill strengthening in non-farm activities also improves financial independence and market participation of women and promotes creativity (parveen, 2023; Mgomozulu et al., 2024) ^[30, 25].

3.5 Nutrition-Oriented and Health-Focused Skill Development

Social orientation programmes focusing on nutrition are also a part of the educational programmes implemented by KVK. Kitchen gardening, nutrition oriented agriculture, preparation of balanced diet, food hygiene and low cost, nutrition technologies are taught to women. These courses assist with diversifying one's diet and enhancing nutrition and health security awareness among family members. The women who have received training in nutritional gardening provide positive lessons in enhancing child food security and nutrition outcomes and often observe that their household vegetable production is increased due to the training. Often trained women are reported to incorporate increase production of vegetables in their households, which in turn presents positive lessons in enhancing child food security and nutrition outcomes (Mishra, 2023) ^[26].

3.6 Development of digital technology integration and capacity building

Digital tools and communication technologies are becoming more and more a part of KVK's vocational training programmes. The women are exposed to mobile advice services, digital payment systems, and online learning platforms among other things. They are also introduced to social media marketing as well. Digital skills enhance the women's ability to benefit from government schemes, market information and entrepreneurial opportunities. At the same time, there is a capacity building programme in place, which builds communication, leadership and decision making capability. Women engaged in these programmes often gain more confidence in dealing with financial institutions, market agents and local government bodies (Alao et al., 2022; Salhi et al., 2025) ^[7, 36].

3.7 Impact of Skill Development Programmes

Research in various parts of the country has shown that encouraging women to participate in various skill development programmes of KVKs positively impacts their knowledge enhancement, entrepreneurial attitude, empowerment and financial inclusion. Women are more likely to adopt innovation, have diversified earning portfolios, have better savings practices and gain self-confidence from attending vocational programmes than those who do not. Vocational students are more likely to adopt innovation, to have diversified earning portfolios, good saving habits and self-confidence than non-participants (Ahmad et al., 2025) ^[3].

3.8 Constraints Affecting Skill Development Programmes

Even though they can be said to have good effects, various socio-economic and institutional factors impact the effectiveness of skill development programmes. Weak

institutional coordination, low literacy rates, household responsibilities, limited mobility, transportation challenges, lack of access to markets and raw materials, and irregular follow-up support remain a challenge for women's enterprise growth and sustainability (Singh *et al.*, 2022) ^[44].

4. Entrepreneurship Development through KVK Interventions

Entrepreneurship development has been shaping itself as an important approach towards empowering women, providing livelihood generation, and inclusive rural development in India. Rural women are known to have strong traditional knowledge, contributions in labor, and managerial skills, but they are seldom able to translate these into a sustainable enterprise, largely due to lack of institutional support and poor market access and limited entrepreneurial exposure. Within this context, Krishi Vigyan Kendras (KVKs) have also served as significant educational facilitators for skill empowerment via vocational education, dissemination of technology, and livelihood intervention to promote entrepreneurship (Sharma & Sejwal, 2025) ^[40].

4.1 Entrepreneurship Development Programmes and Promotion of Locally Adaptable Enterprises

The main thrust of entrepreneurship programmes under KVKs is to motivate the women to undertake business activity by utilising the locally available and market opportunities on the large scale as microentrepreneurs. The objectives of such programmes are to build entrepreneurial traits like innovativeness, leadership, communication skills, financial management, risk taking behaviour and business planning skills. An important advantage of KVK entrepreneurship interventions is that they focus on "low investment-businesses" that are economically viable to rural households and are locally adaptable. The women who are trained under Entrepreneurship Development Programmes (EDPs) are imparted training not only on the methods of production, but also training in enterprise sustainability and market competitiveness (Singh *et al.*, 2022) ^[43].

4.2 Food Processing and Value-Addition Enterprises

Food processing industries have proven to be very successful entrepreneurship in India because of low investment in the enterprises and the industries can be started from home. It is imparting training to the women entrepreneurs in pre-processing, preservation, packaging, labelling, branding and marketing various items like pickles, papad, bakery products, spice mixing, millet based products, dehydrated products etc. Value-addition activities greatly extend shelf life of the product, make it more valuable to the market and create an income chain for the women (Dahiya *et al.*, 2021; Sly *et al.*, 2023) ^[12, 45].

4.3 Agriculture and Livestock Based Entrepreneurship

Along with the agricultural activities, KVKs actively support the women of rural areas with farm businesses like cultivation of mushroom, dairy, goats, poultry and bee keeping. The mushroom growing industry is very interesting due to its low production price, short rotation time and high market demand. Likewise, livestock operations are deemed to be women friendly in that they can be done within the household and offer a regular income source. The overall

impact of the training on women includes enhancing technical skills in various areas such as scientific cultivation methods, feed management, breed selection, disease control, processing techniques, and market linkages, which improves their enterprise sustainability (Bardhan *et al.*, 2024) ^[8].

4.4 Promotion of Non-Farm and Collective Entrepreneurship

KVKs have helped to promote nonfarm activities including tailoring, embroidery, handicrafts, bamboo, herbal, decorative items and rural artisanal activities. These types of interventions are particularly advantageous for women who cannot access land and weaker sections of society, who are economically weaker or poorer, as such interventions offer them alternative avenues of self-employment. Further, Collective entrepreneurship models facilitated by Self-Help Groups (SHGs) and Women Producer Organizations (WPOs) greatly enhance the sustainability of enterprises by enhancing institutional credit access, provision of raw materials, infrastructure, and providing collective marketing systems. The membership of the collective enterprise also facilitates peer learning, social cohesion and negotiation skills among the women entrepreneurs (Santhosh Kumar & Aithal, 2024) ^[38].

4.5 Market-Oriented Entrepreneurship and Financial Literacy

Increasingly, KVKs are stressing market-oriented entrepreneurship development with a view to enhancing the commercial viability and sustainability of the enterprises. Women are trained on market assessment, how to deal with customers, quality check, product diversification, branding and on ecommerce strategies. Exhibitions, Trade fairs, Exposure visits, buyer-seller interactions at various venues give education to the entrepreneurs about market changes and consumer preference. Entrepreneurship development programmes now embrace financial literacy as an important facet as well. Women entrepreneurs are educated on banking practices, book keeping, insurance schemes, enterprise registration, credit utilization and government subsidy schemes. Minding the money helps them to get institutional finance and to plan for the long-term development of the business (Pandey & Ghosh, 2024) ^[28].

4.6 Integration of Digital Technologies in Entrepreneurship Development

Entrepreneurship programmes started to incorporate digital technologies, leading to new opportunities for women entrepreneurs. The KVKs are gradually pushing on the women to use digital payment systems, online marketing platforms, mobile based advisory services and social media promotional channels to grow their entrepreneur business. Entrepreneurship in Digital India boosts market access and also increased their technological confidence & independence in business management (Shukla *et al.*, 2025) ^[41].

4.7 Strengthening Social and Psychological Resilience through Entrepreneurship

Women's social and psychological empowerment has greatly been reinforced by entrepreneurship interventions. Being engaged in entrepreneurial activities is likely to

enhance communication skills, as well as self-confidence, leadership traits and decision-making power. The greater role that economic activity plays in household income increases the bargaining power of women, and boosts social recognition of women in the household and social sphere (Digan *et al.*, 2019) ^[14].

4.8 Impact of Entrepreneurship Development Programmes

Available research evidence from various parts of the country suggests that the women benefited from KVK trainings in various aspects of income generation, livelihood security, financial inclusion and diversification of enterprises. Entrepreneurship programmes also play an important role in the reduction of rural unemployment, reducing migration by providing employment opportunities for women and youth. Thus KVK support has been instrumental in enabling rural women as unpaid labourers to become independent entrepreneurs and economic drivers of their villages (Ongachi and Belinder, 2025) ^[27].

5. Impact of KVK Interventions on Women Empowerment

5.1 Economic Empowerment

Better economic empowerment is one of the most important outcomes among rural women due to intervention of KVK. The training of women in enterprises like food processing, poultry rearing, mushroom production, and handicrafts, as well as the training of women in dairy farming has been found to have significantly positively impacted the household's income and savings. Engaging in income generating activities gives women financial independence and frees men from dependence on the women in their family to make the family's expenditure decisions. Research studies show that women entrepreneurs in KVK assisted businesses actively participate in family income generation, child development, healthcare costs of the family and investments in the household (Sharma & Sejwal, 2025) ^[40].

5.2 Livelihoods diversification and economic resiliency

Promotion of livelihood diversification through KVK programmes has improved economic resilience of rural household. Typically, a number of rural households were very reliant on seasonal agricultural employment and rain-fed agriculture, which often led to irregular income streams. Enterprise-focused trainings offer women alternative and year round livelihoods, alleviating livelihood vulnerability and also economic insecurity. Multi-enterprise activities like beekeeping, mushroom cultivation, vermicomposting, and value added food processing have positive impacts on income sources, which are more stable, and on economic security of households (Shukla *et al.*, 2025) ^[41].

5.3 Improvement in Technical Knowledge and Skill Competency

The technical knowledge and skill competency of women has been improved to a great extent due to KVK interventions. Women involvement in practical trainings, field demonstration, visits and experiential activities makes their scientific approach to agriculture, livestock rearing, food preservation and enterprise management. Women who are involved in KVK programmes tend to have greater

levels of technological adoption and productivity than those who do not participate in KVK programmes (Priya *et al.*, 2025; Adebayo and Worth, 2022) ^[34, 1].

5.4 Technological Empowerment

The technological empowerment is so important in a modern agricultural world and in entrepreneurship. KVKs advocate for scientific management in connection with better seed varieties, dairy farming, integrated farming system, organic farming, post-harvest practices and digital communication technologies. These technologies boost women's confidence in their ability to use modern method and innovative livelihood approach. The increased technological awareness also leads to better efficiency of the enterprises and decreases the reliance on traditional practices with low productivity (Singh *et al.*, 2024) ^[42].

5.5 Social Empowerment

Social empowerment is also one of the major effects of KVK initiative. Through vocational training programmes, agricultural fairs, exhibitions, any self-help groups, collective enterprise, women's communication skills, social mobility, and institutional interactions are enhanced. Women, previously largely involved in reproduction roles, start to play active roles in the development of communities and decision making processes in the locality. More social exposure has a positive impact on women's confidence, recognition, and leadership within communities (Singh *et al.*, 2024) ^[42].

5.6 Social Inclusion in the context of group based approaches

Inclusion of women in the social context has been reinforced and their identity strengthened through group based interventions carried out by Self Helps Groups and women producer organizations. Group enterprises foster interaction, learning from each other and support among women entrepreneurs. Collective action also increases women's bargaining power and allows for increased access to credit and training, market networks, and raw materials. Collective enterprises are also typically led by women, who just as often have stronger participation and leadership potential in institutions associated with these enterprises (Marzana *et al.*, 2023).

5.7 Psychological Empowerment

Another important dimension of the outcomes of KVK interventions is psychological empowerment. Women are empowered with self-esteem, self-confidence and decision making capacity through entrepreneurship development & skill training programmes. Raising income contribution is an indicator of women's role and ability in decision-making in education, healthcare, agriculture and social issues. Because of KVK programmes, women who are trained are often more confident with public speaking, dealing with markets and institutions.

5.8 Leadership Development

There has been significant enhancement in the leadership among the rural women women in activities supported by KVK. Female members of the SHGs, producers organizations, co-operatives, and trainings programmes

regularly turn into community leaders, local resource persons and the group coordinator (Ahmad, 2026) ^[3]. Providing leadership opportunities promote women's engagement within communities and strengthens their voice in community governance and development processes. These kind of changes play a major role in building gender equality and social change in the rural context, on the long term.

5.9 Nutritional Empowerment and Household Well-being

KVK interventions have also brought positive changes in nutrition empowerment and households' wellbeing. Nutrition based interventions such as kitchen gardening, balanced diet, food hygiene and food processing for nutrition augment the access of rural households to nutrition and broaden their dietary diversity and nutritional awareness. Nutritional gardening initiatives are typically led or participated by women and can serve to boost women's consumption of fruits, vegetables and protein rich foods, improving food and nutritional security in households. This is especially crucial for enhancing maternal and child health outcomes (Priya *et al.*, 2026) ^[33].

5.10 Promotion of Sustainable and Climate-Resilient Livelihoods

KVKs have improved opportunity for enhancing livelihood of rural women by promoting climate-resilient and environmental sustainable enterprises. Environmental sustainable livelihood development through training programme on organic farming, natural farming, integrated farming systems, vermicomposting, waste recycling and eco-friendly value-addition. These interventions build resilience to climate variation and enhance resource use efficiency and sustainability of enterprises in the long term (Santhosh Kumar and Aithal, 2024) ^[38].

5.11 Strengthening Financial Inclusion

One more relevant implication of KVK interventions is improving financial inclusion of rural women. Savings practices, banking procedures, insurance services, digital transactions and microcredit systems are subjects in which women reporting greater improvements enable them to access formal financial institutions. Financial inclusion has a positive impact on business growth as well as on the security and asset formation of women-led households.

5.12 Digital Literacy and Market Connectivity

Women have been given access to information and markets through digital literacy programmes, erected through KVKs. Prospective female entrepreneurs who have learned online payment systems, application of mobile communication tools, digital marketing platforms, and platforms for communication about e-commerce exhibit higher competitiveness of entrepreneurs and market connectivity. Digital inclusion enables WSMEs to reach out to more customers, gain information about markets, and become more actively involved with modern value chains (Sowmya and Pai, 2025) ^[46].

6. Constraints and Challenges in Women Empowerment through KVK Interventions

6.1 Socio-Cultural Barriers and Gender Discrimination

The current gender discrimination and patriarchal social norms are among the main constraints to women empowerment in the rural areas. In most cases, socio-cultural norms limit women's roles in any economically productive activity outside the home, and give preference to domestic duties, child rearing, taking care of the elderly and unpaid work in agriculture. Often this results in the loss of time that extends opportunities for women to attend training courses and undertake entrepreneurial activities. In addition, poor family and community support can limit the confidence and mobility of women as well as their involvement in financial and social decisions. Resistance to travelling, interacting with markets, and starting a business may also compromise women's entrepreneurial intentions and leadership capabilities (Prabhakar, 2023; Hanan, 2022) ^[32, 16].

6.2 Educational and Digital Limitations

Poor level of literacy and limited education of rural women seriously hampers the effectiveness of KVK interventions. Less educated women frequently struggle to grasp scientific advice, to handle business documents, to make use of digital tools and to access institutional services. Beyond that, digital literacy and lacking technology availability have proven to be big obstacles in the current business landscape. Rural women have fewer smartphones and internet access, as well as less digital skills, needed to effectively use ecommerce channels, digital payments, ecommerce services and social media marketing. Women from remote villages, tribal areas and poor households face these problems especially as they tend to get married at an early age and face greater pressures to become mothers (Aiswarya and Sangeetha 2025) ^[6].

6.3 Financial and Market-Related Constraints

Limited resources remain a major challenge for building sustainable women entrepreneurship. Many rural women haven't access to productive assets and collaterals for institutional credits. Enterprise development is also hindered by the non-availability of loans or loan conditions take time to issue, the bureaucracy of banks and the lack of knowledge about financial programs. The enterprise sustainability is also greatly influenced by market-related issues. Women working in the rural areas often face challenges related to transport, storage, branding, packaging, market access, and intermediaries. Not only that, but there is only limited exposure to consumer preferences, and with that, branded products are also taking a big portion of the business which is limiting the enterprises' growth and profitability (Agrawal, 2018) ^[2].

6.4 Institutional and Infrastructural Challenges

Extension systems experience institutional/instructural constraints which can affect the impact and effectiveness of extension KVK interventions. Poor training facilities, high technical prospective staffing deficits, lack of financial

resources and bad transport infrastructure impact the programmes quality and outreach. Ineffective synergy and coordination between KVKs, banks, NGOs, rural development agencies and cooperatives can result in broken systems and duplication of effort. Lack of coordination among institutions can be a barrier to women getting training, financial services, infrastructure and marketing support (Ahmed *et al.*, 2025) ^[4].

6.5 Women-Led Enterprises Sustainability & Scalability

The sustainability and growth of the enterprises that are created under the sales of KVKs are always a big concern. The ever changing market demands along with irregular supply of raw materials, seasonal production and less business planning skills are major challenges that are faced by many women businesses. Investment capacity, lack of market integration and inadequate product standardization issues are the common problems faced by the women entrepreneurs to start their enterprises. Non-stop mentoring/incubating support also plays a significant factor in the long term profitability and survival of an enterprise (Rani and Sundaram, 2024) ^[35].

6.6 Influence of regional disparities and inequalities on access

The empowerment of women is unequal from region to region in India due to disparities. Women living in the tribal areas, isolated villages, arid regions and disadvantaged communities often suffer from multiple vulnerabilities such as low literacy, lack of institutional assistance, poor infrastructure and limited market access. This imbalance helps in achieving unequal empowerment results and unequal outreach of the programmes.

6.7 Climate Variability and Environmental Challenges

Climate variability and environmental uncertainties have grown to be a major concern with the rural women entrepreneurs who rely on agriculture and allied activities. Agricultural productivity and enterprise profitability is negatively affected by irregular rainfall, droughts, pest outbreaks, and a reduction in natural resources. Women entrepreneurs are especially at risk due to limited capital and low levels of insurance. Rural households' livelihood insecurity is also exacerbated by the lack of enterprise planning that would also be resilient to climatic variability.

6.8 Overall Implications for Women Empowerment Programmes

The KVKs have been able to take up promotions of women empowerment and rural entrepreneurship despite these issues. In order to overcome these constraints, gender responsive extension system, digital inclusion, financial aid, institutional convergence, market integration, and regular mentoring are necessary. Increasing the potential of these dimensions can significantly enhance the effectiveness, sustainability and inclusiveness of the KVK intervention for women.

7. Strategies and recommendations for the future

7.1 Adoption of Gender-Sensitive and Inclusive Extension Systems

To boost women empowerment, KVK interventions should

involve gender responsive women-centric extension systems that take into consideration socio cultural reality, educational status of the women, their role and responsibilities in the rural household (Jaiswal *et al.*, 2024) ^[19]. Training programmes need to be developed in a flexible timeline, involve local learning centres, participatory approaches and demonstrations based on local conditions of the resource and capacities of the learners. Tribal women, widows, landless labourers, migrant households and disadvantaged groups need to be considered and targeted of technologies, training and institutional support and financial resources in an equitable manner. Since participation is considered as the key factor to raise beneficiaries' confidence, the active participation of the female extension worker and the successful women entrepreneurs can contribute to it. Greater involvement of women extension personnel and successful women entrepreneurs can further empower participation and confidence of beneficiaries as it is considered as a key factor for beneficiaries' confidence building (Pandey *et al.*, 2025) ^[29].

7.2 Entrepreneurship-Oriented Skill Development and youth engagement

There is a need for various entrepreneurship skill oriented training programs other than traditional vocational training to be taken up by future KVK intervention. There is a need to combine technical skills, enterprise management, financial literacy, business planning, branding, packaging and value-chain management into programmes. In addition, engaging young women in rural areas is a crucial aspect in a successful entrepreneurship programme for the future, as their potential adaptability to innovation and digital technology needs to be promoted. Youth entrepreneurship can help provide jobs in the agribusiness sector and food processing industry; agri-tech businesses, such as those from the Mobile Laboratory, and rural service businesses, like rural tourism, can increase employment and diminish unemployment and rural migration.

7.3 Digital Empowerment and Technological Integration

For the empowerment of women to be effective in engaging with modern agricultural and entrepreneurial systems, digital empowerment has become a necessity. KVKs should conduct Digital literacy courses on Smartphone Applications, Digital Payment, Online Banking, e-Commerce, Social Media Marketing and Information and Communication Technologies (ICTs). Digital competency can enable women entrepreneurs to more effectively access broader markets, government services, online learning opportunities, weather data and virtual opportunities for business. Along with better infrastructure and low-cost internet access, this is also essential to minimize the gender based digital divide (Chakraborty and Biswal, 2023) ^[11].

7.4 Strengthening Market Linkages and Promotion of Value-Added Enterprises

Market linkage development should be integrated into women empowerment programmes as a key activity in the future. KVKs will have to build better applications between the women entrepreneurs and the agribusiness companies, cooperatives, rural markets, retail chains and ecommerce and establish structured marketing systems for women

entrepreneurs. At the same time, income-enhancing promotion of value added and agro-processing millet enterprises such as dairy products, medicinal plants, nutraceuticals, organic products, traditional foods and eco-friendly products will have the potential to significantly boost income. Enterprises can improve their competitiveness in accessing regional and urban market by product diversification and quality enhancement (Segantini and Dicks, 2021) ^[39].

7.5 Financial Inclusion and Promotion of Collective Entrepreneurship

Gain an understanding of financial inclusion and the promotion of collective entrepreneurship. Understand financial inclusion and promotion of collective entrepreneurship. Access to finance and institutional credit still remains important in achieving sustainable enterprise growth. Future interventions should be to enhance the linkages among women entrepreneurs and banks, SHGs, co-operatives, MFIs and government support schemes. At the same time, strengthening the economies of scale and bargaining power, collective entrepreneurships like clustering and women producer organizations (WPOs) and SHG federations should be encouraged. All these strategies can enhance women's social investment, leadership and institutional involvement (Rizvi & Thakur, 2025).

7.6 Continuous Mentorship, Incubation, and Post-Training Support

To enhance sustainability of enterprise system among the rural women entrepreneurs continuous mentoring and post training support is required. Technical direction, troubleshooting, business incubation and business advisory services to the markets are some of the services that many female entrepreneurs need once finished the training programmes. Thus, creation of enterprise incubation centers and enterprise mentorship network in KVK systems can enhance the survival rate of enterprises and motivate innovation and sustainability (Sharma & Sejwal, 2025) ^[40].

7.7 Climate Resilient, Nutrition Sensitive and Sustainable Livelihood Approaches

The following recommendations are for future intervention to focus on environmentally sustainable and climate resilient livelihood strategies and address nutrition through women entrepreneurship programs. Training activities on various topics such as climate-smart farming, integrated systems of farming, recycling of waste, organic farming, nutritional gardens, millets products and green businesses can reinforce the livelihood resilience, food security and environmental sustainability at the same time. Women entrepreneurs can also play a major role in the promotion of awareness of nutrition and sustainable food table nutrition in the community (Mishra, 2023) ^[26].

7.8 Policy Convergence and Institutional Coordination

Achievement of policy convergence and inter-institutional coordination is crucial for effective KVK interventions. Closer cooperation between the KVKs, Agricultural universities, NGOs, financial institutions, women development agencies, private sector organizations and rural development departments can help to improve the utilization

of resources and programme outreach. A comprehensive approach that entails entrepreneurship development and capacity building, digital empowerment, financial inclusion and access to markets is more likely to achieve sustainable empowerment outcomes (Kumar *et al.*, 2020) ^[23].

7.9 Supporting research and impact assessment

Water research and impact evaluations are needed to be enhanced in relation to women empowerment programs. There is a need for a Longitudinal study, participatory assessment, gender audit, and monitoring frameworks that have been grounded in evidence to measure the long term impact of the interventions implemented by KVKs. Evidence of the successful entrepreneurs, innovative enterprise models and region-specific optimal performance can help facilitate replication and be part of the guidance for formulating policies across various regions of India (Hasan Emon and Nisa Nipa, 2024) ^[17].

8. Conclusion

Women empowerment through the development of skill sets and entrepreneurship is significant for enhancing rural livelihoods and fostering sustainable development. The role played by KVKs is highly significant as they provide training, entrepreneurship development programs, technology transfer, and capacity building initiatives for rural women. As a result of such interventions, there has been an improvement in women's technical skills, incomes, confidence levels, leadership qualities, and decision-making in households and communities.

KVK programs have also contributed to greater economic independence, social inclusion, financial knowledge, and diverse livelihood opportunities among women. However, factors such as social-cultural issues, lack of finance, poor market linkages, and digital divide still limit the sustainability of women-owned businesses. Future strategies need to be aimed at fostering digital empowerment, financial inclusion, market linkage initiatives, and mentorship to enhance empowerment outcomes. In summary, KVKs can be credited for the transformation of rural women into economically independent and empowered participants in rural development processes.

References

1. Adebayo JA, Worth SH. Women as extension advisors. Research in Globalization. 2022;5:100100. doi:10.1016/j.resglo.2022.100100.
2. Agrawal R. Constraints and challenges faced by women entrepreneurs in emerging market economy and the way forward. Journal of Women's Entrepreneurship and Education. 2018;(3-4):1-19. doi:10.28934/jwee18.34.pp1-19.
3. Ahmad SAS. Empowering rural women through technology-enhanced education and indigenous knowledge systems. 2026. <https://ipistrans.lppmi.or.id/index.php/proceeding/article/view/42>
4. Ahmed A, Meena M, Kabir S. A case study of rural women's political empowerment through Panchayati Raj Institutions. International Journal of Rural Development, Environment and Health Research. 2025;9(2):1-11. doi:10.22161/ijreh.9.2.1.

5. Ahmed T, Wasim J, Usman M, Akhtar MW. Female entrepreneurial vocational training and entrepreneurial behavior: a longitudinal study. *Journal of Asia Business Studies*. 2025;19(4):893-913. doi:10.1108/jabs-03-2024-0172.
6. Aiswarya S, Sangeetha S. Bridging the digital divide: empowering rural women entrepreneurs through digital inclusion. *International Research Journal of Education Technology*. 2025;7.
7. Alao A, Brink R, Chigona W, Lwoga ET. Computer technologies for promoting women entrepreneurship skills capability and improved employability. In: *Progress in IS*. Cham: Springer International Publishing; 2022. p. 81-117. doi:10.1007/978-3-031-15420-1_5.
8. Bardhan D. Rapporteur's report on sustaining livelihoods: the role of livestock, poultry and fisheries in rural economy. *Indian Journal of Agricultural Economics*. 2024;79(3):874-887. doi:10.63040/25827510.2024.03.036.
9. Bhai S, Rathore V, Kumari A, Yadav RK, Chand K, Kumar A, *et al.* A review of the economic impact of value addition and food processing on farmers' income: an extension perspective. *Journal of Experimental Agriculture International*. 2026;48(3):1-13. doi:10.9734/jeai/2026/v48i34097.
10. Bora D, Mahanta A. Rural livelihood diversification among tribal communities of North-Eastern Region of India: a systematic review. *Journal of Asian and African Studies*. 2022;59(3):842-857. doi:10.1177/00219096221123747.
11. Chakraborty U, Biswal SK. Impact of social media participation on female entrepreneurs towards their digital entrepreneurship intention and psychological empowerment. *Journal of Research in Marketing and Entrepreneurship*. 2023;25(3):374-392. doi:10.1108/jrme-03-2021-0028.
12. Dahiya R, Rani S, Kaushik S. Entrepreneurship development of rural women through value added dairy products. *Asian Journal of Agricultural Extension, Economics and Sociology*. 2021;39(5):10-15. doi:10.9734/ajaees/2021/v39i530573.
13. Das U, Ansari MA, Ghosh S. Measures of livelihoods and their effect on vulnerability of farmers to climate change: evidence from coastal and non-coastal regions in India. *Environment, Development and Sustainability*. 2023;26(2):4801-4836. doi:10.1007/s10668-023-02911-z.
14. Digan SP, Sahi GK, Mantok S, Patel PC. Women's perceived empowerment in entrepreneurial efforts: the role of bricolage and psychological capital. *Journal of Small Business Management*. 2019;57(1):206-229. doi:10.1111/jsbm.12402.
15. Gochhait S, Lenka R, Salamzadeh A. Application of technology to empower women in social entrepreneurship: a review. *Entrepreneurial Business and Economics Review*. 2025;13(2):123-137. doi:10.15678/eber.2025.130207.
16. Hanan K. Socio-cultural barriers to female entrepreneurship in rural areas. *Zenodo*. 2022. doi:10.5281/zenodo.14035269.
17. Hasan Emon M, Nisa Nipa M. Exploring the gender dimension in entrepreneurship development: a systematic literature review in the context of Bangladesh. *Westcliff International Journal of Applied Research*. 2024;8(1):34-49. doi:10.47670/wuwijar202481mhemmn.
18. Indian Council of Agricultural Research. Annual report 2023-24. New Delhi: Indian Council of Agricultural Research; 2024.
19. Jaiswal JK, Kumar B, Kumari P. Women empowerment through self-help groups: a systematic review and research agenda. *Journal of Management and Entrepreneurship*. 2024;18(2):99-115. doi:10.70906/20241802099115.
20. Keerthi P, Arundhathi C, Reddy KA. Capacity building and skill development in agricultural extension. In: *Transforming Agriculture through Modern Extension Education Techniques*. 2025. p. 145.
21. Khokhar AS. What decides women entrepreneurship in India? *Journal of Entrepreneurship and Innovation in Emerging Economies*. 2019;5(2):180-197. doi:10.1177/2393957519862465.
22. Knox S, Gok A, Aydogdu E, Carter S, Levie J, Shaw E. Empowering women's entrepreneurship: an evidence synthesis of policy and practice in developing countries. *Entrepreneurship and Regional Development*. 2025;38(3-4):410-434. doi:10.1080/08985626.2025.2503145.
23. Kumar S, Kumar D, Sengupta K, Giri TK. Through convergence and governance: embedding empowerment in community development interventions. *Community Development Journal*. 2020;57(2):295-318. doi:10.1093/cdj/bsaa055.
24. Kumari R, Kumar D. Women entrepreneurship: a bibliometric review from 2012 to 2022. *Vision: The Journal of Business Perspective*. 2024. doi:10.1177/09722629241264438.
25. Mgomezulu WR, Dar JA, Maonga BB. Gendered differences in household engagement in non-farm business operations and implications on household welfare: a case of rural and urban Malawi. *Social Sciences*. 2024;13(12):643. doi:10.3390/socsci13120643.
26. Mishra D. Gender gap in food security and nutrition: special case of India in the G20. *India Quarterly: A Journal of International Affairs*. 2023;79(4):564-574. doi:10.1177/09749284231203324.
27. Ongachi W, Belinder I. Agricultural extension as a pathway to livelihood diversification and sustainable development in rural communities: a systematic review. *BMC Agriculture*. 2025;1(1). doi:10.1186/s44399-025-00005-x.
28. Pandey DK, Ghosh S. KVKs at 50: nurturing the needs and aspirations of rural communities through tailored intervention. *Current Science*. 2024;127(5).
29. Pandey MK, Yuvaraj C, Pooja V, Kumari J, Paliwal H, editors. *New frontiers in agricultural extension strategies*. Textify Publishers; 2025. doi:10.69973/tp/2025/58.
30. Parveen R. Vocational skill development imperative for women empowerment in India. *Journal of Women Empowerment and Studies*. 2023;33:15-24. doi:10.55529/jwes.33.15.24.

31. Prabha SA, Palanichamy NV, Murugananthi D, Shivakumar KM, Kalpana M, Balakrishnan M. Research trends and dynamics in women entrepreneurship: a comprehensive bibliometric review. *Future Business Journal*. 2025;11(1). doi:10.1186/s43093-025-00446-5.
32. Prabhakar S. Role of women entrepreneurs in work-time management and decision-making process in agricultural microenterprise. *International Journal of Agriculture Environment and Biotechnology*. 2023;16(3). doi:10.30954/0974-1712.03.2023.9.
33. Priya NK, Patel K, Abrol P, Babu NN, Kavyasree K, Bijoy D, *et al*. A review of gender-responsive extension approaches for enhancing women's participation and empowerment in food technology systems. *Archives of Current Research International*. 2026;26(1):261-280. doi:10.9734/acri/2026/v26i11720.
34. Priya NK, Patil SS, Vishwakarma SK, Saikanth DRK, Mishra I, Tripathi S, *et al*. Digital innovations in extension education: a review of emerging technologies and their impact on agricultural knowledge dissemination. *Journal of Experimental Agriculture International*. 2025;47(5):408-423. doi:10.9734/jeai/2025/v47i53430.
35. Rani VS, Sundaram N. Opportunities and challenges faced by women entrepreneurs for sustainable development in India. *Revista de Gestão Social e Ambiental*. 2024;18(3). doi:10.24857/rgsa.v18n3-073.
36. Salhi ATHA, Salman MAL. Practice reality of the extension managers for participatory leadership in the agricultural extension system/Iraq. *Iraqi Journal of Agricultural Sciences*. 2025;56(6):2256-2266. doi:10.36103/ktnxcs94.
37. Samantroy E, Tomar JS. Women entrepreneurship in India: evidence from economic censuses. *Social Change*. 2018;48(2):188-207. doi:10.1177/0049085718768898.
38. Santhosh Kumar K, Aithal PS. Empowerment dynamics: exploring the impact of self-help groups on rural women. *Zenodo*. 2024. doi:10.5281/ZENODO.11379606.
39. Segantini M, Dickes LA. An examination of rural and female-led firms: a resource approach. *Journal of Small Business Strategy*. 2021;31(4). doi:10.53703/001c.29472.
40. Sharma R, Sejwal K. The incubator effect: how incubation centers' challenges can disadvantage women entrepreneurs. *Adhyayan: A Journal of Management Sciences*. 2025;15(1):40-47. doi:10.21567/adhyayan.v15i1.06.
41. Shukla T, Nirban VS, Das M, Nadig RS, Buttan D. Cultural negotiations of digital transformation: womenpreneurs and social media in rural India's domiciliary enterprises. *Journal of Cultural Analysis and Social Change*. 2025;10(4):2619-2633. doi:10.64753/jcasc.v10i4.3297.
42. Singh G, Pathak R, Ambulkar PL, Patel AK, Masram S. Impact assessment of KVK interventions in tribal districts of Madhya Pradesh. *Journal of Krishi Vigyan*. 2024;12(3):550-555. doi:10.5958/2349-4433.2024.00097.7.
43. Singh N, Bhardwaj N, Raj K, Gupta M. Constraints faced and opinions of farm women regarding vocational trainings conducted under KVK Jeolikote. 2022. doi:10.21203/rs.3.rs-1489136/v1.
44. Singh S, Rana A, Sharma N, Kumar M. A review on women agri-entrepreneurship: roles and opportunities in agriculture for sustainable growth in India. *Shanlax International Journal of Arts, Science and Humanities*. 2022;10(2):56-67. doi:10.34293/sijash.v10i2.5117.
45. Sly BC, Weir TL, Cunningham-Sabo L, Leisz SJ, Stull VJ, Melby CL. Increasing household diet diversity and food security in rural Rwanda using small-scale nutrition-sensitive agriculture: a community-engaged proof-of-concept study. *Nutrients*. 2023;15(14):3137. doi:10.3390/nu15143137.
46. Sowmya B, Pai R. Digital inclusion of women entrepreneurs in the unorganized sector – a systematic review. *Advances in Consumer Research*. 2025;2(1):71-85. <https://www.acr-journal.com/article/digital-inclusion-of-women-entrepreneurs-in-the-unorganized-sector-a-systematic-review-879/>
47. Sushma B, Fakhruddin. Demographic and social capital influences on women entrepreneurs' empowerment: evidence from women-led ventures in India. *Journal of Asia Entrepreneurship and Sustainability*. 2026;22(1S):281-290. doi:10.66635/hvz10k05.
48. Tripathi S, Mishra BP, Gupta B, Verma AP, Singh JK, Patel D, *et al*. Economic and social transformation: self-help groups as catalysts for women's empowerment in rural India. *Journal of Scientific Research and Reports*. 2025;31(12):1-14. doi:10.9734/jsrr/2025/v31i123746.