



The Role of Mushroom Cultivation in Enhancing Rural Livelihoods and Women's Empowerment in the Kegalle District, Sri Lanka

Iresha Jayasinghe



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Iresha Jayasinghe

Supervisor:	Stephanie Leder-Buttner, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
Examiner:	Linley Chiwona-Karlton, Swedish University of Agricultural Sciences, Department of Urban and Rural Development
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Swedish University of Agricultural Sciences

Faculty of Natural Resources and Agricultural Sciences
Department of Urban and Rural Development
Division of Rural Development

Abstract

This study aims to provide a comprehensive understanding of the socio-economic potential and role of mushroom cultivation in rural Sri Lanka, specifically focusing on the Gender Empowerment Perspectives. Addressing a lack of comprehensive empirical research concerning mushroom cultivation's effects on income generation and gender dynamics within rural households, the research investigates its potential to empower marginalized communities, especially women, and improve the economic conditions of smallholder farmers. The study was conducted with cultivators in the Rabukkana and Kegalle Divisional Secretariat divisions, Kegalle District.

The research is grounded in a constructivist epistemology and utilizes a phenomenological research design to explore the "lived experiences" and socioeconomic realities of mushroom farmers. A qualitative approach was employed, relying on methodological triangulation via semi-structured interviews, focus group discussions (FGDs), and direct observations. The theoretical framework integrates Kabeer's Empowerment Theory (Resources, Agency, and Achievements) with Giddens' Structuration Theory (Structure and Agency) and Bourdieu's Theory of Practice (Habitus, Capital, and Field).

The findings confirm that mushroom cultivation serves as a viable and accessible livelihood strategy for small-scale and women-led enterprises due to its low land and capital requirements, short production cycle (approximately 2.5 months), and capacity for year-round income. This economic viability establishes the financial contribution as the foundation for agency. The resultant economic independence translates into greater negotiating power, increased autonomy, and active participation in household decision-making regarding expenditures and resources, which are measured as significant Achievements. This enhanced socioeconomic status results in greater respect and visibility for women within their families and the broader community.

However, the primary conclusion is that this transformation involves an incremental shift rather than a fundamental transformation of deeply embedded social structures. The division of labor remains gendered: while women overwhelmingly handle core production tasks (e.g., harvesting, watering, bag filling), men typically retain control over tasks requiring mobility, external negotiation, and capital investment (e.g., sterilization, transportation, and marketing). This confirms that individual agency is constrained by the Habitus (ingrained norms) that restricts women's mobility and access to the market Field. Furthermore, the success achieved is unequal, as it is fundamentally mediated by the farmer's pre-existing Human Capital (educational attainment).

Finally, the long-term sustainability of the enterprise is undermined by persistent structural constraints and policy deficits. Farmers unanimously identified critical gaps, including the lack of cold storage facilities and post-harvest management knowledge, alongside exploitation by middlemen who impose low, non-negotiable prices. The study provides actionable insights for the Agricultural Extension Service (AES) and development organizations, emphasizing that sustained intervention is essential to address these structural barriers and strengthen farmers' collective agency and human capital through targeted training and loan schemes.

Keywords: Mushroom farming, women's empowerment, rural livelihoods, Sri Lanka, agricultural extension services, gender roles, market access

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Abbreviations

Abbreviation	Description
AES	Agriculture Extention Service
AI	Agriculture Instructor
CBSL	Central Bank of Sri Lanka
DOA	Department Of Agriculture
EDB	International Non-Government Organization
FAO	Food and Agriculture Organization
IFAD	International Fund for Agricultural Development
INGO	Export Development Board
NGO	Non-Government Organization
SAAG	Swedish Society for Anthropology and Geography
SLU	Swedish University of Agricultural Sciences
UNDP	United Nations Development Program

1. Introduction

Agriculture has historically served as the bedrock of rural livelihoods in Sri Lanka, where approximately 80% of the population resides in rural areas and relies on farming as their primary source of income (IFAD, 2023). Despite its pivotal role in the national economy, the rural agricultural sector in Sri Lanka faces a multitude of interconnected challenges, including reliance on traditional farming methods, land degradation, unpredictable climate conditions, and fluctuating market prices (IFAD, 2023). Alongside these environmental pressures, socioeconomic factors, particularly access to livelihood resources, significantly influence land use systems and rural development pathways (Scoones, 1998). Access to markets for products, inputs, labor, and finance is critical for the success of rural households. Rural poor households are particularly vulnerable to fluctuations in prices and quantities in these markets, which significantly affect profitability and economic outcomes for rural producers (Khan, 2000). Given this context, the need for innovative and sustainable farming practices capable of strengthening food security, enhancing household income, and supporting rural livelihoods has become increasingly critical (Bauman, 2000; Turton, 2000). There are large gender disparities in access to and control over resources (e.g., land, water, and inputs), access to markets, and access to skills training, all of which are critical for agricultural production and livelihoods in Sri Lanka (FAO, 2018). Among the emerging solutions, mushroom farming has garnered significant attention due to its low input costs, short growth cycle (Chadda & Sharma, 1995; Chen et al., 2022), and high nutritional value (Rachna et al., 2013). Furthermore, mushroom cultivation offers the advantage of being practiced throughout the year, irrespective of seasonal changes, providing a substantial benefit over conventional, climate-dependent agricultural practices (Martín et al., 2023). Moreover, mushroom farming supports agricultural diversification, thereby mitigating the risks associated with an over-reliance on a single crop and creating opportunities for farmers to augment household income (Mabuza, 2013; Madusanka et al., 2025).

This study endeavors to explore the socioeconomic role of mushroom cultivation in rural Sri Lanka, with a particular emphasis on its potential to empower marginalized communities, especially women, and improve the economic conditions of smallholder farmers. Despite its increasing relevance, there remains a lack of comprehensive empirical research on how mushroom cultivation contributes to rural livelihoods within the country. In particular, there is limited evidence concerning its effects on income generation and gender dynamics within rural households. This research aims to address this gap by investigating the role of mushroom farming as a viable livelihood strategy in rural Sri Lanka.

1.1 Research Aim and Objectives

This study aims to provide a comprehensive understanding of the socio-economic potential of mushroom cultivation in rural Sri Lanka. Specifically, it focuses on mushroom cultivators within the Rabukkana and Kegalle Divisional Secretariat divisions, Kegalle District, located in the Sabaragamuwa Province of Sri Lanka. These areas were selected due to the observed growing interest in alternative agricultural practices and the increasing number of smallholder farmers engaging in mushroom production.

The following research questions guide this study:

1. What is the role of mushroom cultivation in contributing to household income and employment in the Kegalle District, Sri Lanka?
2. In what ways does mushroom farming empower women and marginalized groups in rural communities?
3. How can policy interventions and institutional support help scale up mushroom farming as a sustainable livelihood for rural communities?

1.2 Definition of Gender in this Study

In this study, gender is conceptualized through the lens of societal constructions, labor dynamics, and social roles that shape participation and empowerment in the rural agricultural sector. The analytical framework employs Bourdieu's Theory of Practice and Giddens' Structuration Theory to examine how prevailing socioeconomic structures and deeply embedded social norms influence rural women's decisions and participation in mushroom cultivation. The empirical focus is on analyzing the distinct roles and contributions of men and women in rural economies.

The study further explores the relationship between social structure and individual agency, assessing whether mushroom cultivation enables rural women to gradually challenge and transform established social norms or whether it primarily reinforces existing patterns of gender relations (Kabeer, 1999). Consequently, this thesis treats gender as a system of socially constructed roles and relations that determine the division of labor, access to resources, and decision-making power within household and community contexts (Kabeer, 2012).

1.3 Significance of the Study

The significance of this study lies in the detailed, localized empirical evidence gathered from the Kegalle District in Sri Lanka. In this specific context, traditional agriculture is constrained by hilly terrain and fragmented land ownership. By situating the analysis within the Kegalle District, the research provides practical and actionable insights for policymakers, agricultural extension services (AES), and development organizations seeking to enhance rural livelihood opportunities and gender inclusion in agriculture.

The research is crucial for establishing the role of mushroom cultivation as a viable pathway for empowerment. Its home-based and low-capital characteristics allow women to participate in income-generating activities without transgressing prevailing social and cultural norms. The study's focus on gender equality and the empowerment of marginalized groups is contextualized primarily in relation to rural women, particularly those who face exclusion from formal labor markets due to social expectations and caregiving responsibilities.

The concept of empowerment is defined operationally as the process through which women enhance their socioeconomic status, decision-making power, and control over income and productive resources within both household and community spheres. The study addresses this through an integrated theoretical framework:

- It uses Giddens' Structuration Theory and Bourdieu's Theory of Practice to examine whether women's participation in mushroom cultivation facilitates agency that gradually challenges and reshapes entrenched social structures.
- It contributes rigorous, context-specific evidence of incremental socioeconomic transformation, particularly the enhancement of women's bargaining power, agency, and household decision-making capacity.

These findings offer grounded insights that can inform policies and programs aimed at advancing gender-equitable and inclusive rural development in Sri Lanka. The study's significance lies in providing concrete, context-specific recommendations derived directly from the synthesized conclusions, focusing on enhancing sustainability, market access, and addressing structural barriers such as the lack of cold storage facilities.

2. Literature Review

2.1 Rural Livelihoods in Sri Lanka

As of 2023, approximately 82% of Sri Lanka's population resides in rural areas, underscoring the nation's predominantly agrarian demographic (IFAD 2023). These rural economies are largely characterized by smallholder farming, informal labor markets, and a significant dependency on natural resources (Illukpitiya, 2005). The informal nature of rural employment often results in limited social security coverage and income instability, further exacerbating rural poverty (Canagarajah and Sethuraman, 2001; Gunatilleke et al., 1992). Moreover, rural areas frequently face systemic issues such as weak institutional support, inadequate market access, and underdeveloped public services, including health, education, and transportation (Khan, 2000; Yu et al., 2024).

Agriculture remains central to rural livelihoods in Sri Lanka, employing approximately 28% of the labor force, with small-scale farmers contributing the majority of the country's agricultural output (Institute of Policy Studies, 2022). Paddy farming is dominant, with smallholder farmers managing 75% of the 890,000 hectares dedicated to rice cultivation (Karunaratne, 2019). Beyond rice, rural households also engage in cultivating vegetables, fruits, and plantation crops such as tea, rubber, and coconut. The agricultural sector contributes significantly to food security, household income, and employment generation, particularly among women and marginalized groups (Weerasekara et al., 2020; Kalansooriya and Chandrakumara, 2014; FAO, 2018).

Sri Lanka's rural agricultural sector confronts multifaceted challenges that impede its productivity and sustainability. Climate variability, including an increased frequency of droughts and floods, has adversely affected crop yields and amplified the vulnerability of rural farmers (IFAD, 2023). The sector is also constrained by structural issues such as fragmented landholdings, inadequate irrigation infrastructure, limited access to credit and extension services, and outdated farming techniques (Institute of Policy Studies, 2022). Market-related challenges, including price volatility, a lack of market information, and exploitative middlemen, further marginalize small-scale producers (Weeratunge and de Silva, 2001). Additionally, rural youth are increasingly viewing agriculture as an unattractive livelihood option due to limited economic returns, leading to rural-urban migration and labor shortages (Rathnayake, 2024). Policy-level inconsistencies, such as the abrupt transition to organic farming in 2021 without adequate preparation, resulted in significant declines in crop yields and heightened food insecurity (Bandara et al., 2024). Addressing these complex challenges necessitates a multi-dimensional approach that integrates technological

advancement, institutional reform, climate resilience measures, and inclusive rural development strategies.

2.2 Mushroom Cultivation: A Global and Regional Overview

A mushroom is often defined as a macrofungus with a large fruitbody, which can be located above or below ground and is sufficiently large to be observed with the naked eye and picked by hand (Chang and Miles, 1992). Similar to plants, mushrooms exhibit diverse features and applications. They can serve as delicious food (edible mushrooms), possess healing properties (medicinal mushrooms), have toxic effects (poisonous mushrooms), induce hallucinations (psychotropic mushrooms), and constitute a large group with yet-to-be-studied properties (other mushrooms).

Approximately 1.5 million species of fungi inhabit the earth, with about 14,000 species falling under the category of mushrooms (Hawksworth 2001). Macrofungi thrive in diverse climates, ranging from the highly temperate arctic region to the highly tropical deserts such as the Sahara and Kalahari (desert truffles, *Terfizia* spp.) (Hawksworth 1 2001). The Indian subcontinent, with its extremely diverse climate spanning temperate, subtropical, tropical, and arid zones, harbors high variability of macrofungi (Singh et al., 2012).

According to (Pandey and Kumaran, (2023), global mushroom production reached 10.37 million tonnes, with China contributing a dominant 73.57% of the world's production (Table 1). Despite India's substantial potential for mushroom production, estimated at over 7 million tonnes based on the availability of diverse agricultural residue, a cheap workforce, and a suitable diverse climate, its current contribution is a mere 0.27% of the global production.

Mushroom cultivation possesses a long and varied history, with its origins tracing back to ancient civilizations. Historical records suggest that mushrooms were cultivated in China as early as 600 AD, primarily for medicinal and culinary purposes (Bertelsen, C. D. 2013).

Over time, mushroom cultivation has evolved from small-scale, traditional practices to a highly specialized agricultural enterprise (Institute of Policy Studies, 2022). Technological innovations, such as climate-controlled cultivation houses and improved spawn quality, have significantly enhanced yield and efficiency (Higgins et al., 2017). Today, mushrooms are commercially cultivated in over 100 countries, catering to both domestic and international markets. The development of new strains, the expansion of cultivated edible species, and the increasing awareness of mushrooms' nutritional and medicinal benefits continue to drive the global growth of the industry (Institute of Policy Studies, 2022).

Table 1: Country wise mushroom annual production and its percentage contribution to the world production (2014)
Source: (Pandey and Kumaran, 2023)

Asia remains the global leader in mushroom production, contributing over 75% of the total world output (Singh, et al., 2021; Institute of Policy Studies, 2022). Within the region, countries such as India, Thailand, Vietnam, and Indonesia have experienced notable expansion in mushroom cultivation. This growth is attributed to a combination of favorable climatic conditions, rising consumer demand for plant-based protein sources, and increased governmental support for agro-based enterprises (Institute of Policy Studies, 2022).

2.2.1 Status of Mushroom Farming in Sri Lanka

History and Institutional Background : While the global history of mushroom cultivation dates back to ancient civilizations, with records suggesting cultivation in China as early as 600 AD, commercial mushroom cultivation was introduced to Sri Lanka in 1985 by the United Nations Development Program (UNDP) (Karunaratna et al., 2017). Following this initial intervention, the Sri Lanka Export Development Board (EDB) played a supportive role by establishing spawn laboratories and dedicated mushroom houses. Currently, the Department of Agriculture (DOA) serves as the leading state institution responsible for research and development (R&D) activities related to mushrooms.

Types, Uses, and Consumption Patterns: A range of mushroom varieties is cultivated in Sri Lanka. The popular types presently include American Oyster, Abalone, and Button Mushrooms. Other varieties commonly cultivated include Bhutan Oyster Mushrooms, Paddy Straw Mushrooms, and Milky White Mushrooms (Rajapakse, 2011; Rajapaksha et al., 2007; Fernando, 2022). Mushrooms are recognized for their high nutritional value. They are utilized as delicious food (edible mushrooms) (Valverde et al., 2015), and some possess healing properties (medicinal mushrooms) (Breene, 1990). The increasing global demand for ready-to-eat and ready-to-cook products further elevates the popularity of mushrooms as a food source, extending beyond fresh consumption.

Production is concentrated in districts such as Kandy, Kegalle, Nuwara Eliya, and Kurunegala (Fernando et al., 2022). Mushroom farming has gained prominence as an accessible agribusiness venture, particularly for rural households and women-led enterprises seeking diversification from traditional crops. Women often drive the cultivation efforts as it is a low-capital, high-labor enterprise that allows them to balance domestic responsibilities with income generation. The Sri Lankan mushroom market is progressively becoming more organized, witnessing increasing interest from supermarkets, hotels, and export-oriented businesses. **Production Data and Statistics:** Although comprehensive national production statistics for Sri Lanka are limited, evidence supporting the industry's viability and scale can be drawn from localized data and potential: Mushroom cultivation is financially rewarding due to its low input costs, short growth cycle, and relatively quick returns (first yield harvested within approximately 2.5 months). This efficient use of space allows for higher income generation in a smaller area compared to traditional crops. Sri Lanka possesses a high potential to grow and market numerous tropical mushroom products to both local and international markets. This potential is largely attributed to the large volume of agricultural waste generated in the country (such as sawdust,

paddy straw, banana leaves, and coir pith) and a climate suitable for cultivating tropical mushrooms.

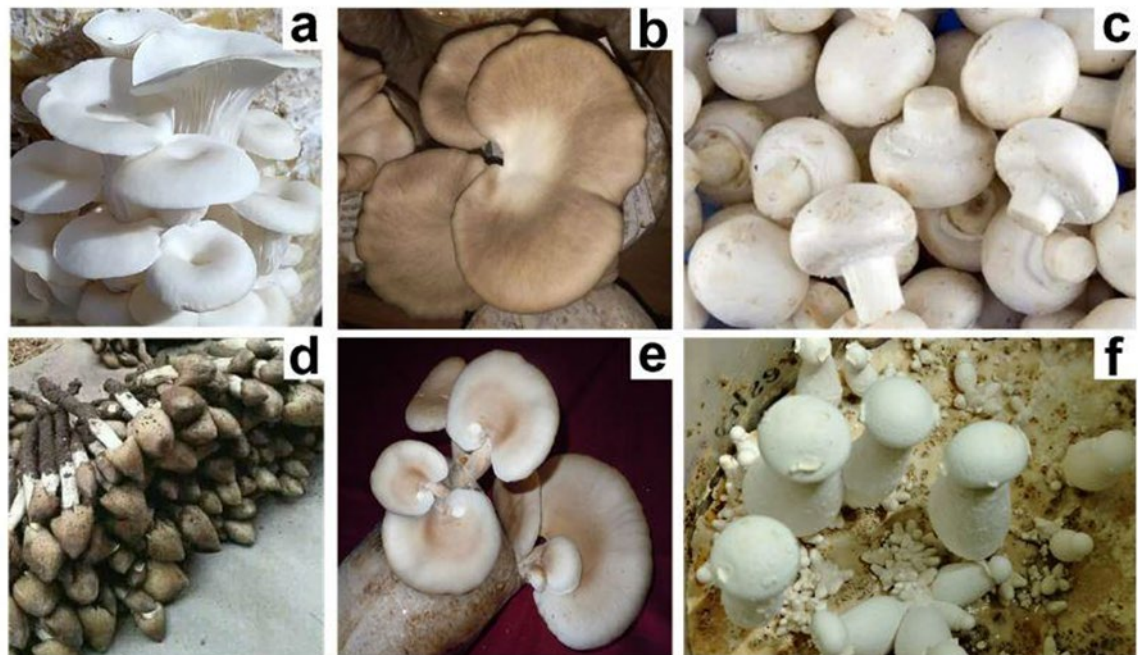


Figure 1: Commonly cultivated mushroom varieties in Sri Lanka (a: American Oyster Mushrooms, b: Bhutan Oyster Mushrooms, c: Button Mushrooms,, d: Paddy Straw Mushrooms, e: Abalone Mushrooms, f: Milky White Mushrooms.

Nevertheless, Sri Lanka possesses a high potential to grow and market numerous tropical mushroom products to both local and international markets, owing to the large volume of agricultural waste generated and a climate suitable for cultivating tropical mushrooms (Rajapakse et al., 2007). Despite the potential, challenges hinder large-scale production, including the limited adoption of novel technologies, a low number of value-added products, a lack of technical knowledge among growers, and limited market accessibility. Efforts are needed to stabilize markets, introduce new varieties with longer shelf lives, and offer group loans to scale operations.

In Sri Lanka, mushroom cultivation has gained increasing prominence over the past two decades as a viable income-generating activity, particularly among rural households and women-led enterprises (Thilakarathna et al., 2020). Mushrooms are typically grown using variety of agricultural waste materials (Fernando, 2022; Ranathunge et al., 2010). The process involves preparing and sterilizing the substrate, then inoculating it with mushroom spawn and allowing it to incubate in humid, shaded environments, often simple huts or rooms built from local materials. After 20–30 days of incubation, mushrooms begin to fruit and can be harvested within a few days. This short production cycle and minimal land requirement make mushroom farming particularly attractive for small-scale rural

producers, especially women who can manage cultivation alongside household duties (Rajapakse et al., 2007)

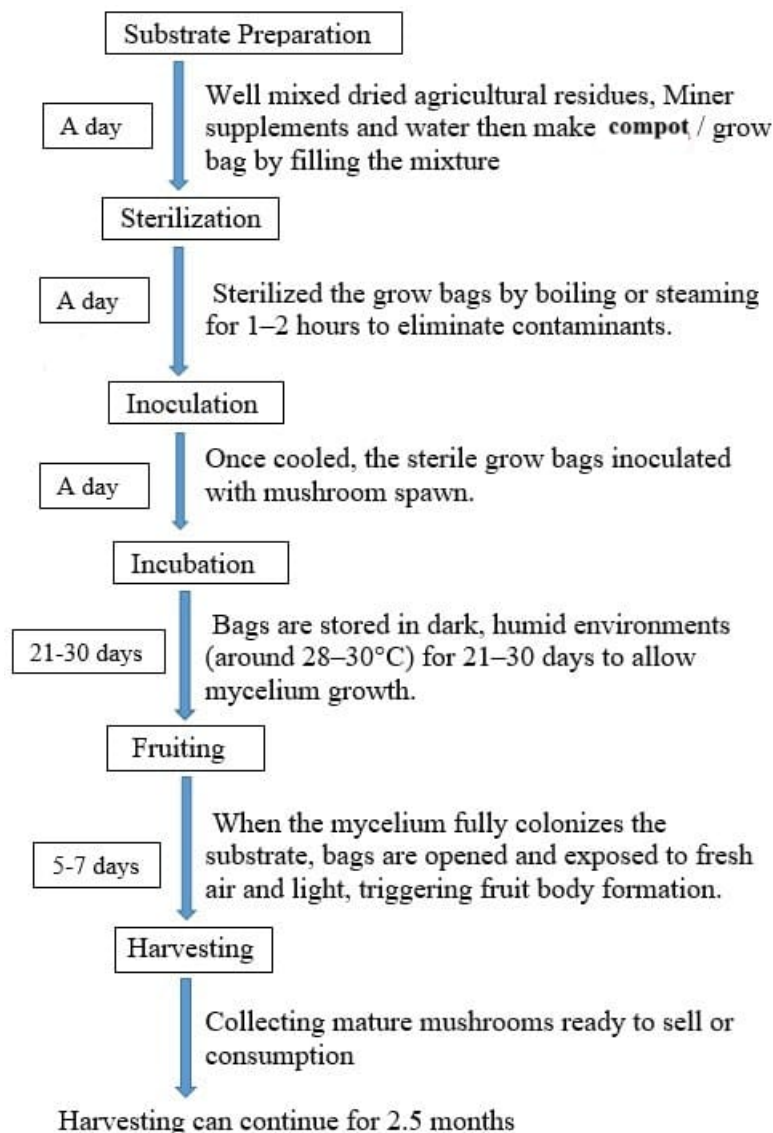


Figure 2; General process of mushroom cultivation in Sri Lanka

The cultivation process involves six key stages: substrate preparation, sterilization, inoculation, incubation, fruiting, and harvesting. Farmers primarily use locally available agricultural residues such as paddy straw and sawdust as substrate materials. The short production cycle (approximately 2.5 months,) and low infrastructure requirements make this process suitable for small-scale and women-led farming enterprises (Rajapakse et al., 2007; Department of Agriculture, 2023).

2.3 Socioeconomic Contributions of Mushroom Cultivation

2.3.1 Income Generation and Employment Opportunities

In global mushroom production, China, the United States, the Netherlands, Poland, and Spain contribute nearly 70% of the total output while, other Asian countries like Japan, India, Indonesia, Vietnam, and Korea also play significant roles in mushroom production (Markam 2014). The increasing demand for ready-to-eat and ready-to-cook products further elevates the popularity of mushrooms as a food source, beyond just fresh consumption.

Mushroom cultivation is vital in improving the economic landscape, especially for small-scale farmers and rural communities. Utilizing inexpensive agricultural waste as mushroom substrates allows farmers to reduce production costs, thereby increasing profitability. Furthermore, mushroom farming does not necessitate extensive land or high initial investment, making it accessible to a wider range of farmers (Rathnayake et al., 2023). In regions such as South and Southeast Asia, mushroom cultivation has contributed to poverty alleviation by offering year-round income through short production cycles and relatively quick returns on investment (Itubochi et al., 2025).

Due to its low land requirement and the ability to utilize agricultural residues, mushroom farming provides a cost-effective livelihood option for smallholder farmers, women, and youth (Jayaraman et al., 2024; Madusanka et al., 2025; Jayasinghe et al., 2022). In Sri Lanka, mushroom cultivation has been recognized as an accessible agribusiness venture, particularly for women-led households and agrarian communities seeking diversification from traditional crops (Fernando et al., 2022; Jayasinghe et al., 2022).

The majority of mushroom farmers in Sri Lanka are domestic growers with small-scale investments and profit generation. As the yield from mushroom production is high relative to input costs, farmers can increase their profit margins while reducing operational expenses. Farmers can achieve relatively quick returns, with the first yield harvested within approximately 2.5 months. The efficient use of space allows for higher income generation in a smaller area compared to traditional crops, and the fact that no chemical pesticides are required further reduces expenses (Ranathunge et al., 2010). Moreover, many farmers benefit from free technical advice and support provided by agricultural programs (Ranathunge et al., 2010). In Sri Lanka, the mushroom market is progressively becoming more organized, witnessing increasing interest from supermarkets, hotels, and export-oriented businesses. Government and institutional support through training programs, subsidies, and the promotion of cooperative models has played a significant role in strengthening the local mushroom economy (Thilakarathna et al., 2020).

Beyond income and employment creation, mushroom cultivation also contributes to household nutrition and food security through direct consumption. Many small-scale producers retain a portion of their harvest for family meals, providing an affordable source of high-quality protein, fiber, vitamins, and essential minerals (Valverde, Hernández-Pérez and Paredes-López, 2015; Breene, 1990). Regular consumption of mushrooms enhances dietary diversity,

particularly in rural areas where access to animal protein may be limited (Weerasekara et al., 2020). Thus, mushroom farming supports both economic empowerment and nutritional well-being, reinforcing its role as a sustainable livelihood strategy.

2.4 Gender Dimensions in Mushroom Cultivation

The role of gender in agricultural enterprises has received increasing attention, particularly within the context of rural development (FAO 2018). Analyzing gender dimensions in mushroom cultivation provides valuable insights into the distinct roles and contributions of men and women in rural economies, as well as the challenges and opportunities for empowerment and socioeconomic development. While men often dominate certain agricultural sectors, women's involvement in mushroom cultivation has been highlighted as a potential pathway for empowerment, especially in rural areas where alternative livelihood options may be limited (Chambers & Conway, 1991). Gender-sensitive analysis can also illuminate the specific barriers that women face and the necessary support structures required to enhance their productivity and participation in agribusiness (Alston & Whittenbury, 2013).

Three gender dimensions in mushroom cultivation have been discussed in the literature: Women's participation, empowerment and barriers in mushroom farming.

2.4.1 Women's Participation and Distinct Roles in Cultivation

Women's participation in mushroom farming is increasingly recognized for its potential to enhance rural livelihoods, particularly in developing countries. Studies indicate that women are frequently engaged in low-capital, high-labor agricultural enterprises such as mushroom cultivation, which allows them to balance their domestic responsibilities with income-generating activities (Joseph et al., 2024). However, their involvement can be constrained by traditional gender roles that limit their access to crucial resources such as land, credit, and education (Gustavsson et al., 2013). Despite these challenges, women's participation in mushroom farming has been linked to improved household food security and income generation, contributing to both local and national economies (Hait et al.,; Nkoko, 2020). Mushroom cultivation is recognized as an accessible agribusiness venture, particularly for women-led households and agrarian communities seeking diversification from traditional crops (Fernando et al., 2022; Jayasinghe et al., 2022). This linkage to improved household food security and income generation is attributed to the activity's low input costs, short growth cycle (first yield harvested within approximately 2.5 months), and the resulting high yield relative to input costs, allowing farmers to increase their profit margins. Beyond income, direct consumption of mushrooms contributes to household nutrition by providing

an affordable source of high-quality protein and vitamins, particularly in rural areas where access to animal protein may be limited.

2.4.2 Economic Empowerment and Social Contribution

In this study, the concept of women's empowerment is defined and applied based on the framework of Kabeer (1999; 2012). Empowerment is defined operationally as the process through which women enhance their socioeconomic status, decision-making power, and control over income and resources within both household and community spheres. This process is facilitated because mushroom cultivation is a home-based, low-capital enterprise, which allows women to engage in income-generating activities without transgressing prevailing social expectations. The resultant economic independence is linked to increased negotiating power within the family unit and greater autonomy.

Engagement in agricultural enterprises such as mushroom farming can serve as a powerful tool for women's empowerment. The economic independence derived from mushroom cultivation enables women to make more informed decisions regarding household expenditures, invest in the education of their children, and ultimately improve their overall standard of living (Mayanja and Tipi, 2017; Dey et al., 2020). Furthermore, participation in agricultural activities allows women to develop valuable skills and build social networks, which can lead to greater political and social autonomy (Kabeer, 2016). Within the context of mushroom cultivation, women's empowerment is facilitated through both individual capacity-building initiatives and collective action, where groups of women collaborate in cooperatives or other forms of supportive social networks (Bryant, Miller and Stearns, 2016).

2.4.3 Gender-Specific Barriers and Constraints

While mushroom farming presents significant opportunities for women, several persistent barriers limit their full participation in the agribusiness sector. Gender-specific constraints, such as limited access to land, capital, and technology, remain significant challenges for women entrepreneurs (Bryan et al., 2021; Abraham and Pingali, 2020). Moreover, women often encounter difficulties in obtaining essential agricultural inputs, accessing markets effectively, and overcoming ingrained socio-cultural norms that restrict their mobility or decision-making power (Ete et al., 2021; Ogediran et al., 2020). These barriers not only impede their entrepreneurial potential but also affect the sustainability and scalability of their mushroom farming businesses. Addressing these multifaceted barriers necessitates a gender-sensitive approach that incorporates policy reforms, improved access to critical resources, and targeted support services designed to meet their specific needs.

2.5 Institutional, Technical, and Market Constraints in mushroom farming

In the following, three major constraints of mushroom farming are addressed. These entail access to proper training, essential agricultural inputs, and finance as critical factors in the success of mushroom cultivation endeavors.

Firstly, many farmers, particularly those in rural and resource-constrained settings, face significant challenges in acquiring the necessary skills and technical knowledge required to optimize mushroom production (Higgins et al., 2017). Technological innovations, such as improved strains of mushrooms, advanced cultivation techniques, and efficient post-harvest processing methods, are often beyond the reach of smallholder farmers due to their limited access to effective extension services, affordable credit facilities, or adequate infrastructure (Kitinoja et al., 2011; Sangeeta et al., 2024). As a direct consequence, the overall productivity and profitability of mushroom farming remain constrained, particularly for marginalized groups such as women and the rural poor (Dey et al., 2020; Mayanja and Tipi, 2017). Extension services, which are crucial for providing farmers with timely advice on best agricultural practices, emerging market trends, and relevant technological innovations, are frequently underfunded or poorly implemented in many rural areas (Swanson, 2008).

Secondly, access to essential agricultural inputs, such as substrate, spawn, and packaging materials is consistently identified as a key barrier for smallholder mushroom farmers. The fluctuations in the cost and availability of these inputs can significantly affect production efficiency and profitability.

Finally, access to credit is often limited due to perceptions of high risk associated with the venture, a lack of suitable collateral, and an absence of financial products specifically tailored to the needs of smallholder farmers (Marr et al., 2016). These limitations collectively result in a low adoption rate of sustainable farming practices and consequently hinder the broader expansion and development of the mushroom sector. Strengthening both financial support mechanisms and the provision of effective extension services is essential for overcoming these significant constraints and improving the overall productivity and sustainability of mushroom farming.

2.5.1 Market Access and Value Addition Challenges

Market access and the capacity for value addition represent significant challenges for mushroom farmers, particularly those located in remote rural areas. Mushroom production is characterized by its highly perishable nature, and farmers often lack the necessary infrastructure to effectively store and transport their products, leading to substantial post-harvest losses (Sangeeta et al., 2024; Shankar et al., 2024). Furthermore, limited access to formal markets and the dominance of intermediaries or middlemen in the supply chain can significantly reduce the prices that farmers receive for their harvested mushrooms (Mabuza, 2013). In many instances, the absence of processing and value addition options means that farmers are unable to fully capitalize on the economic potential of their mushroom crops. Therefore, expanding market access, improving supply chain

logistics, and actively supporting value-added processing initiatives are critical steps for enhancing the overall profitability and long-term sustainability of mushroom farming enterprises.

2.6 Theoretical and Conceptual Frameworks

This study employs to figure out how individuals and communities handle the opportunities and difficulties that come with small-scale mushroom farming in rural livelihood in Sri Lanka. This requires considering not only the bigger forces that shape life in rural areas but also the everyday actions people take in response to, reinforcing, or even changing those forces. To achieve this, the study specifically draws on two main sociological theories, Bourdieu's Theory of Practice and Giddens' Structuration Theory.

Bourdieu's Theory of Practice offers a way to analyze things through concepts like habitus, capital, and field. It helps understand how farmers' ingrained ways of doing things (habitus), their access to different resources (capital), and their place within the rural community structures (field) influence whether they get involved in mushroom cultivation Bourdieu, (1977).

Giddens's structuration theory emphasizes the dynamic, back-and-forth relationship between social structure and individual action, or agency. Giddens provides a dynamic view of how people in rural areas both affect and are affected by the institutional and economic structures they live Giddens, (1984).

The sources highlight that these two theories are seen as complementary. A key reason for choosing them together is that they both reject the idea of a rigid split between individual actions and the larger social structures.

To fully address the core research objective, analyzing women's empowerment, the framework is supplemented by Kabeer's Empowerment Theory. This integration provides the essential conceptual foundation for defining and measuring empowerment through its three dimensions: resources, agency, and achievements (strategic choice).

By integrating these frameworks, the study is better equipped to capture how individual practices are embedded within broader social contexts and how there's a reciprocal influence between what people do (human agency) and the conditions of the social structures they face. This combined theoretical approach allows for a more layered and sensitive understanding of why mushroom cultivation becomes a workable way to make a living for some people in rural Sri Lanka,

and how their participation expands their socioeconomic status and decision-making power.

2.6.1 Bourdieu's Theory of Practice: Habitus, Capital, and Field

This study employs Bourdieu's Theory of Practice as part of an interdisciplinary theoretical framework to analyze the multifaceted socioeconomic dynamics of mushroom cultivation on rural livelihoods in the Kegalle District, Sri Lanka. This framework aims to provide a nuanced understanding of the complex relationship

between mushroom cultivation and rural livelihoods by considering the interplay of social structures, individual agency, and various forms of capital. Specifically, the theory focuses on the interconnected concepts of habitus, capital, and field.

Habitus, according according to Bourdieu, refers to the set of deeply ingrained values, beliefs, and dispositions that individuals develop as a result of their social experiences. It is described as a durably installed generative principle of regulated improvisations, history turned into nature, and a socially constituted system of cognitive and motivating structures. Habitus produces practices that tend to reproduce the regularities inherent in the objective conditions from which it arose. It functions as an organizing principle for actions and exists in a practical state within agents' practices. In the context of this study, habitus is instrumental in explaining how prevailing socioeconomic structures and deeply embedded social norms influence the decisions of rural women to engage in mushroom cultivation and their responses to challenges within this livelihood strategy. Furthermore, understanding habitus is critical to assessing the exercise of individual agency by rural women.

Capital is viewed broadly in Bourdieu's theory to include material and symbolic goods considered rare and worthy of pursuit in a given social formation. The theory discusses the interconvertibility of economic and symbolic capital and the objectification of accumulated social and cultural capital. This study utilizes Bourdieu's concept of capital by integrating economic capital, social capital, and symbolic capital into its analytical lens. Access to these various forms of capital is examined to understand how it shapes rural women's decisions and facilitates their agency. The integration of these forms of capital provides a comprehensive perspective through which to examine the dynamics of mushroom farming on women's empowerment and social mobility within rural communities.

The concept of Field in Bourdieu's theory refers to structured social spaces where practices occur and are influenced by prevailing norms and positions. The broader agricultural sector can be analyzed through Bourdieu's concept of field. The theory is also used to understand the interplay between structural limitations (like social norms and market constraints) and individual agency within rural communities involved in mushroom cultivation. The concepts of Habitus and Field are essential because they reveal how deeply embedded social norms influence women's decisions to engage in the cultivation process, and how restrictions on women's mobility can constrain their access to the market Field.

By considering the interplay of social structures (analyzed through the lens of field and the influence on habitus), individual agency (facilitated by access to capital and also explored through Giddens' theory), and various forms of capital, this theoretical and conceptual framework allows for a nuanced understanding of the socioeconomic dynamics of mushroom cultivation as a livelihood strategy.

2.6.2 Giddens' Structuration Theory: Structure and Agency

Anthony Giddens' structuration theory offers a valuable perspective on how rural women exercise agency amidst prevailing societal restrictions, providing a nuanced understanding of the intricate relationship between structure and agency. Giddens (1984) argues that social practices both create and are shaped by social structures, implying that while individuals are influenced by these structures, they also actively work to reproduce and potentially transform them.

In the context of this study, structuration theory is particularly useful for examining how rural women might utilize mushroom growing as a means to achieve greater autonomy within patriarchal family and community institutions. For instance, in many Sri Lankan households, men often predominantly control agricultural revenue, while women's contributions may be unpaid or limited to domestic tasks. However, through financial independence gained from mushroom farming, women may acquire greater negotiating power within the family unit. This economic shift can also reshape broader social dynamics, potentially challenging traditional power relations within rural households and communities.

Giddens' theory also enables an analysis of whether mushroom cultivation ultimately empowers rural women to gradually alter established social structures or if it primarily reinforces existing norms. For example, mushroom farming might initially be perceived as a supplementary household activity that is compatible with women's traditional roles in caregiving and subsistence farming. However, as mushroom growing evolves from a domestic activity to a significant source of financial independence, driven by women's acquisition of knowledge and income, traditional gender roles within rural societies may begin to shift.

Structuration theory is valuable because it acknowledges rural women as active agents with the capacity to effect social change, rather than simply passive recipients of structural forces. However, a potential limitation of this perspective is that it might overemphasize agency while potentially undervaluing the significant social and economic constraints that continue to restrict rural women's ability to fully manage and benefit from mushroom farming operations. Moreover, structuration theory can be challenging to operationalize in specific rural contexts, where deeply entrenched structural factors such as a lack of market access or limited financial resources can significantly impede individual agency. In the context of this study, structuration theory is particularly useful for examining how rural women might utilize mushroom growing as a means to achieve greater autonomy within patriarchal family and community structures. For instance, in many Sri Lankan households, men often predominantly control agricultural revenue, while women's contributions may be unpaid or limited to domestic tasks. However, through financial independence gained from mushroom farming, women may acquire greater negotiating power within the family unit. This economic shift can also reshape broader social dynamics, potentially challenging traditional power relations within rural households and communities.

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and subsistence farming. However, as mushroom growing evolves from a domestic activity to a significant source of financial independence driven by women's acquisition of knowledge and income traditional gender roles within rural societies may begin to shift.

2.6.3 Kabeer's Empowerment Theory: Resources, Agency, and Strategic Choice

Building upon the preceding discussions on structure and agency, this subsection applies Kabeer's Empowerment Theory (1999; 2012) as the central analytical framework for understanding how access to resources, the exercise of agency, and the realization of achievements together explain women's empowerment in the context of mushroom cultivation.

Kabeer's work provides the essential conceptual and operational foundation for defining and measuring women's empowerment in this study. This theory begins with the understanding that empowerment is fundamentally about the process by which those who have been denied the ability to make strategic life choices acquire such an ability. Empowerment, therefore, entails a process of change. The ability to exercise choice is conceptualized through three inter-related dimensions that are indivisible in determining the validity of an empowerment measure: resources, agency, and achievements.

Resources: This dimension encompasses not only material resources in the conventional economic sense, but also the various human and social resources that serve to enhance the ability to exercise choice. Resources are acquired through social relationships in institutional domains, and access reflects the governing rules and norms. For the purposes of this thesis, access to resources, such as credit, land, and education, is analyzed as a prerequisite for empowerment.

Agency: This refers to the ability to define one's goals and act upon them. While often operationalized as "decision-making," agency encompasses less measurable manifestations such as bargaining, negotiation, deception, and subversion. In the positive sense of the "power to," agency is the capacity of individuals to define their own life-choices and pursue their own goals. The thesis utilizes the concept of agency to explore whether rural women leverage their position in mushroom farming to challenge traditional roles and improve their socio-economic standing.

Achievements: These are the valued ways of "being and doing" that are realized, serving as well-being outcomes. The critical measure of achievement relates to strategic life choices which are critical for people to live the lives they want, such as choice of livelihood. In line with this theory, empowerment is defined operationally in this study as the process through which women enhance their socioeconomic status, decision-making power, and control over income and resources within both household and community spheres. The unique characteristic of mushroom cultivation, being a home-based, low-capital enterprise, allows women to engage in income-generating activities without transgressing prevailing social expectations, a factor that facilitates the exercise of agency within existing cultural structures (Kabeer, 1999; 2012).

2.7 The Conceptual Framework

This study is guided by a conceptual framework that positions mushroom cultivation as a pathway to enhancing rural livelihoods in Sri Lanka. The framework identifies two primary domains through which mushroom farming contributes to development: economic contribution and socioeconomic empowerment. These domains are directly aligned with the study's objectives and reflect the broader goals of achieving sustainable rural transformation and gender-inclusive agricultural development.

At the core of this framework lies the central concept of enhancing rural livelihood through mushroom cultivation. Mushroom farming, characterized by its low input requirements, short production cycles, and adaptability to limited space, offers a viable and inclusive livelihood strategy for smallholder farmers.

1. Economic Contribution

The economic contribution component of the framework specifically focuses on how mushroom farming influences household income and employment opportunities. It allows rural farmers to engage in consistent income-generating activities throughout the year, thereby mitigating seasonal income fluctuations and enhancing overall financial stability. Additionally, mushroom cultivation supports crucial job creation through direct production activities and through employment opportunities along the entire value chain, including spawn preparation, processing, packaging, and sales.

2. Socioeconomic Empowerment (Incorporating Kabeer's Dimensions)

This domain emphasizes the critical role of mushroom farming in promoting gender equity and broader social transformation. It generates opportunities for women and other marginalized groups to gain access to essential resources, actively participate in local markets, and assume leadership roles within their households and communities. The conceptualization of empowerment in this framework is analytically structured around Kabeer's three core dimensions:

Resources: Drawing on Bourdieu's concept of Capital and Kabeer's framework, Access to Capital is identified as a crucial element for success. This includes ensuring women gain access to economic capital (e.g., credit, savings) and social capital (e.g., co-operatives, peer networks). This access is viewed as a prerequisite for enhancing their capacity to exercise choice.

Agency: Mushroom cultivation facilitates women's individual agency. As analyzed through Giddens' Structuration Theory, the activity provides women with greater negotiating power and influence over household expenditures, leading to active participation in decisions regarding household budgeting and savings.

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Strategic Choice (Achievements): The financial benefits gained from mushroom farming lead to Socioeconomic Empowerment. This is measured by achievements such as women's enhanced socio-economic status, greater

involvement in decision-making, and increased control over income and resources within both household and community spheres.

The framework also accounts for the significance of community dynamics, including cooperation among farmers, the formation of social capital, and the enhancement of social cohesion through collaborative cultivation and marketing initiatives.

This conceptual framework directly informs the qualitative methodological approach employed in this study. The alignment with Bourdieu's Theory of Practice and Giddens' Structuration Theory captures the dynamic interaction between social structure and individual human agency, providing valuable insight into how rural women utilize mushroom farming to negotiate and potentially transform existing gendered roles within their communities. Ultimately, the combined positive effects of both the Economic contribution and the Socioeconomic Empowerment achieved through mushroom cultivation culminate in enhanced rural livelihoods in Sri Lanka.

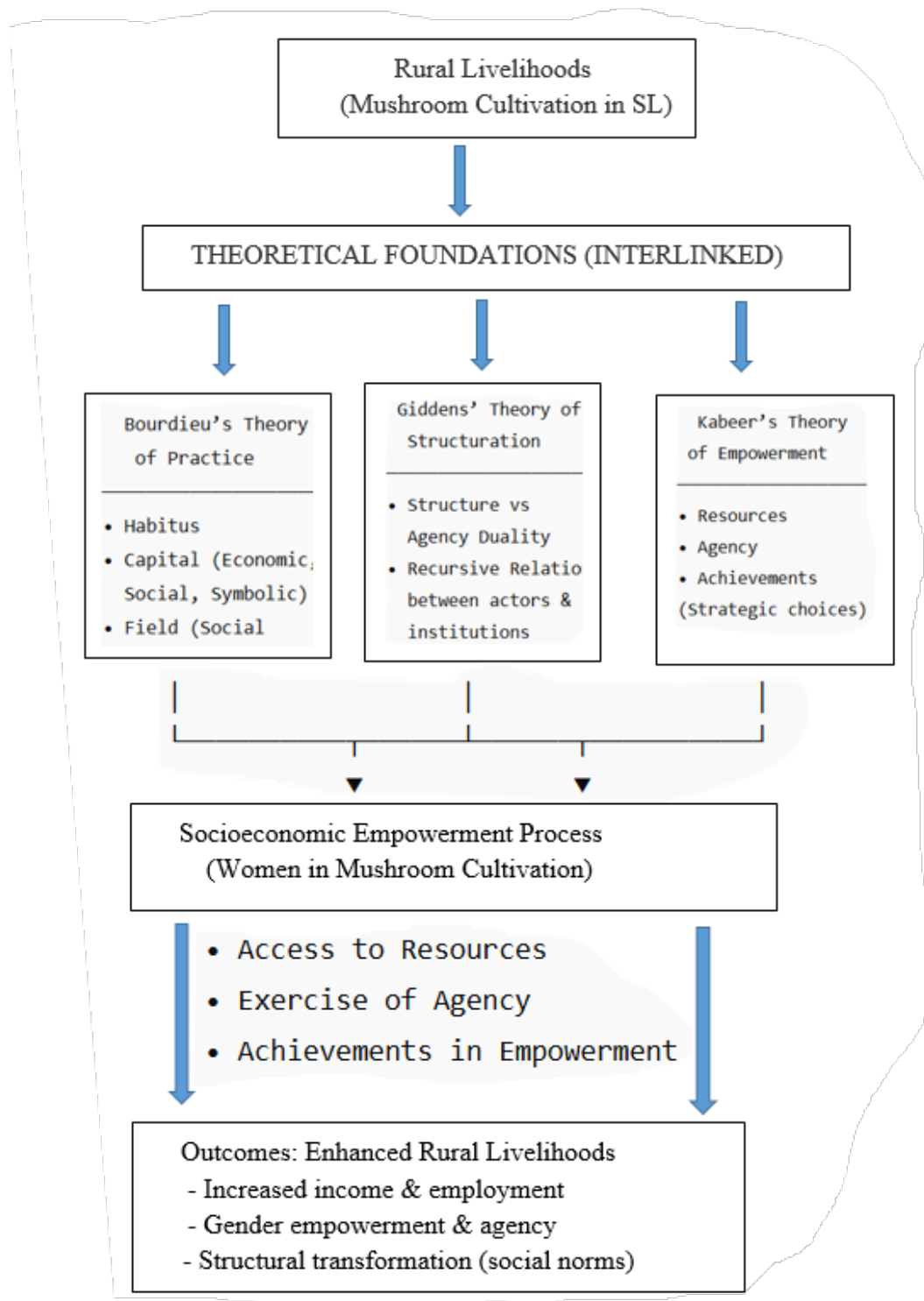


Figure 3: Schematic of analytical framework showing theories and interlinkages between them in relation to topics in this.

The conceptual flow begins by positioning mushroom cultivation as a pathway to enhancing rural livelihoods in Sri Lanka. The intervention is characterized by its low input requirements, short production cycles, and adaptability to limited

space, making it a viable and inclusive livelihood strategy for smallholder farmers. The ability of women to engage in this home-based, low-capital enterprise is noted as a factor that facilitates income-generating activities without transgressing prevailing social expectations.

The analytical process is guided by the understanding that success is mediated by Access to Capital, which is identified as a crucial element for success. Drawing on Bourdieu's concept of Capital, this framework integrates economic, social, and symbolic capital. This access is viewed as a necessary prerequisite for enhancing women's capacity to exercise choice, directly aligning with the Resources dimension of Kabeer's Empowerment Theory. Bourdieu's concepts are further utilized to analyze the influence of habitus and field in determining how deeply embedded social norms influence women's decisions to engage in the cultivation process.

The framework identifies two primary outcomes resulting from the livelihood strategy: Economic contribution and Socioeconomic Empowerment. The Economic contribution focuses on how farming influences household income and employment. The Socioeconomic Empowerment domain is defined and measured based on Kabeer's three core dimensions: resources, agency, and achievements (strategic choice). Mushroom cultivation facilitates women's individual agency, which, as analyzed through Giddens' Structuration Theory, results in women gaining greater negotiating power and active participation in decisions regarding household budgeting and savings.

Ultimately, the combined positive effects of Economic contribution and Socioeconomic Empowerment lead to enhanced rural livelihoods in Sri Lanka. The framework's alignment with Bourdieu's Theory of Practice and Giddens' Structuration Theory captures the dynamic interaction between social structure and individual human agency, providing valuable insight into how rural women utilize mushroom farming to negotiate and potentially transform existing gendered roles within their communities. Empowerment is measured by achievements such as women's enhanced socioeconomic status and increased control over income and resources within both household and community spheres.

3. Methodology

In this chapter, I will discuss and critically evaluate the research approach employed in this study, providing a detailed explanation of the selection process for the study sites and respondents. Furthermore, I will describe the specific methods and tools utilized for collecting field data, followed by an outline of the data analysis procedures.

3.1 Epistemology and Research Design

This study is grounded in a constructivist epistemology, which posits that social reality is actively constructed through the subjective experiences and interpretations of individuals (Creswell, 2014). When investigating the socioeconomic contributions of mushroom cultivation on rural livelihoods, it is paramount to understand the perspectives of the participants in their own terms. Consequently, a phenomenological research design was adopted to explore the "lived experiences" of mushroom farmers in Sri Lanka, with a particular emphasis on their social and economic realities (Creswell, 2014,).

Moreover, this research aligns with a transformative paradigm, acknowledging the inherent potential of mushroom cultivation to serve as a means of empowering marginalized rural communities, particularly women and smallholder farmers (Creswell, 2014). A qualitative research approach was deemed the most appropriate methodology, as it allows for a rich and detailed exploration of individual and community experiences and perceptions (Creswell, 2014).

To gather the necessary depth and complexity of data, I employed a combination of semi-structured individual interviews, focus group discussions, and direct observations. Furthermore, I utilized methodological triangulation to enhance the reliability and depth of the research findings (Flick, 2006).

3.2 Method

The findings presented in this thesis are based on a qualitative field study conducted in the Kegalle District of Sri Lanka over a six-week period, from March 1st to April 8th, 2025. Based on preliminary information gathering and discussions with the Department of Agriculture (DOA), Sri Lanka, regarding current initiatives to promote mushroom production within the nation, I strategically selected two primary sections to carry out this research. As illustrated in Figure 8, each section focuses on a distinct facet of the mushroom industry, specifically examining the socioeconomic empowerment and economic contributions associated with farming.

This research aimed to investigate the financial advantages and socioeconomic empowerment derived from mushroom cultivation. The study was conducted in

two distinct divisional secretariats, each involved in mushroom cultivation through different support mechanisms implemented by either the DOA or various non-governmental organizations. The selection of these two groups was intentional, allowing for a comparative analysis of the different support mechanisms and their resulting contributions.

The Growers' Association represents farmers who benefit from organized structures and external support (described in Location 1), while the Self-Motivated Farmer Group highlights the challenges and opportunities encountered by individuals relying primarily on personal initiative (described in Location 2). This comparative analysis is designed to enrich the study by showcasing how varying levels of institutional support influence key outcomes such as income generation, empowerment, and overall sustainability within mushroom cultivation practices.

3.3 Study Locations

3.3.1 Location 1: Rambukkana

This study location is situated within a region receiving support from a Korean government-led initiative specifically designed to promote mushroom cultivation. The research in this location aimed to engage with six individuals who were currently active mushroom growers, as well as twenty-five individuals who had ceased their mushroom cultivation operations during the project's implementation.

The fieldwork was conducted in the villages of Pitiyegama, Walpita, and Hewadivela, all located within the Rambukkana Divisional Secretariat of the Kegalle District in the Sabaragamuwa Province of Sri Lanka. These particular villages were selected due to the documented presence of commercial mushroom cultivation activities, providing a suitable context for the research.

The Saemaul Global Foundation of South Korea [an international Non-Government Organization(INGO)], in collaboration with the Sabaragamuwa Provincial Council in Sri Lanka, initiated a joint program in these villages that ran from 2014 to 2019 with the objective of popularizing mushroom cultivation throughout the Kegalle District. The project was officially titled “Saemaul Undong (New Village) in Sri Lanka.” Its primary goal was to promote the core values of diligence, self-help, and cooperation, aligning with the broader objectives of the Sustainable Development Goals (SDGs). Following the completion of the five-year implementation period, the comprehensive project infrastructure and initiatives were formally handed over to the local mushroom farming community.

According to records maintained by agricultural instructors involved in the project, a total of 117 farmers, all of whom were women, actively participated in mushroom cultivation under the auspices of the Saemaul Undong program.

As a key component of the project, a comprehensive mushroom cultivation complex was constructed. This infrastructure included a dedicated substrate preparation unit equipped with a mixer and a grow bag filler (Figure 6), a bag sterilization unit featuring a broiler (Figure 5), environmentally controlled mushroom grow houses, an inoculation unit designed for bag filling and

spawning, an incubation unit for the spawn running phase, a post-harvest unit for packing and sealing harvested mushrooms, a storage unit equipped with cold storage facilities (Table 3), and a marketing unit specifically for product sales.

In alignment with the philosophy promoted by the Saemaul Global Foundation of South Korea and in close collaboration with the Government of Sri Lanka, the project's aims extended beyond simply promoting mushroom cultivation to encompass broader rural development objectives. To support the long-term sustainability of the village community, various facilities were established, including a school, improved infrastructure, and a dedicated mushroom seed laboratory. The seed laboratory played a crucial role by providing spawn for inoculating grow bags to project farmers at a subsidized, concessionary price.

Under the project's operational framework, mushroom farmers were required to actively participate in the key stages of mushroom production, as outlined in Table 3, item. These stages included meticulous substrate preparation, thorough substrate pasteurization/sterilization, careful bag filling and spawning (inoculation), monitoring the spawn running period (incubation), facilitating fruiting body formation, and efficient harvesting practices. While all production-related activities were primarily carried out by the participating women farmers, specific tasks such as operating the broiler for sterilization, providing transportation for market distribution, and ensuring site security were typically handled by male workers employed by the project.

Farmers were assigned a specific unit price for their involvement in each distinct production phase, and they received monthly payments that were akin to a regular salary. In addition to their work within the central cultivation complex, farmers were also actively encouraged and provided with support to establish their own independent mushroom cultivation systems on their individual premises. The project, in conjunction with the Department of Agriculture (DOA), offered various forms of assistance to facilitate these individual setups, including donations of essential materials and financial subsidies.

Furthermore, the project provided participating farmers with grow pots, facilitated access to markets at a concessionary rate, and granted them the right to utilize the established "Saemaul" brand name free of charge for marketing their own mushroom production. A dedicated loan facility was also made available exclusively for the project's farmers to further support their independent cultivation efforts.

3.3.2 Location 2: Independent Farmer Group

The second study site was strategically chosen based on the identified presence of either an established mushroom growers' association or an active community of self-motivated farmers engaged in independent mushroom cultivation¹. The target for this location was to involve a total of five farmers in the study. These farmers were located within the Kegalle secretariat division in the Kegalle district of the Sabaragamuwa province in Sri Lanka. Notably, all these farmers were primarily women who had been conducting mushroom cultivation as family businesses for more than five years, demonstrating a level of sustained independent engagement in the activity.

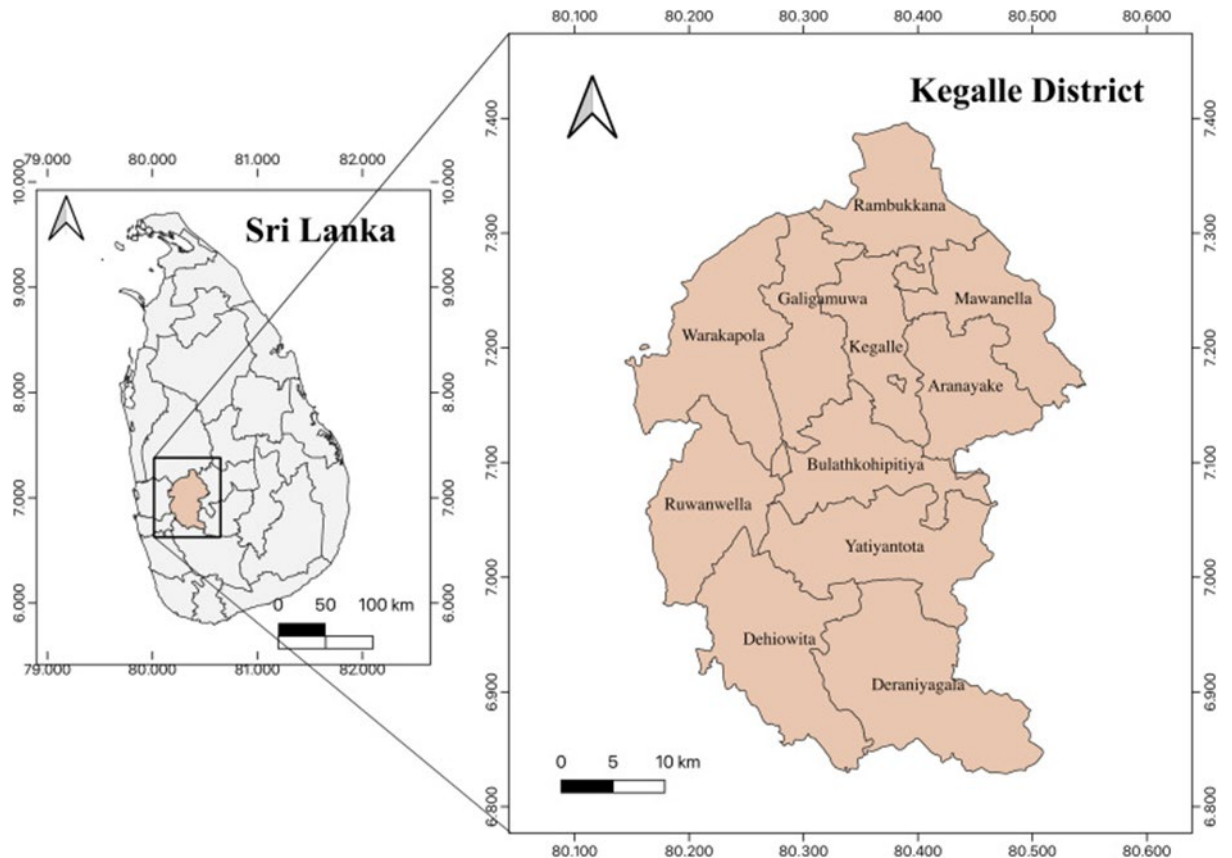


Figure 4: Highlighted research locations in Kegalle district map in Sri Lanka map (source: Wijerathna et al., 2023)

3.3.3 Sampling Criteria

The selection of the eleven mushroom farmers who participated in this study, comprising six farmers supported by the Saemaul project and five independent farmers, was conducted through purposive sampling. I chose this specific sampling method because my primary objective was to select farmers who possessed direct experience and in-depth knowledge in mushroom cultivation, representing both those who had received external support and those operating independently. Initially, I contacted the designated officer from the Saemaul project and an official from the Department of Agriculture (DOA). With their valuable assistance, I was introduced to Saemaul-supported farmers who were actively engaged in mushroom cultivation and willing to share their experiences for the research. Subsequently, I relied on local contacts within the farming communities and the farmers themselves to help me identify independent mushroom farmers who were cultivating mushrooms on their own initiative. This process also exhibited

characteristics similar to snowball sampling, as one farmer often facilitated connections with other independent cultivators. The final number of participants was primarily determined by accessibility within the limited timeframe and resources available for the fieldwork, as well as the aim to capture a diverse range of experiences within these constraints. Despite the relatively small sample size, the information obtained was rich in detail and exhibited a degree of repetition, indicating that the data collection had reached a satisfactory level of saturation for the purposes of this study.

3.3.4 Interview Guide Design

For this research, a semi-structured interview guide was developed and utilized to gather in-depth information from the participating farmers. The full interview guides are presented in Appendix 1. The main thematic areas covered in the interview guide included perceived changes in household income following the commencement of mushroom cultivation, the details of their daily farming routines, the specific challenges they encountered in their cultivation practices, their access to markets for selling their produce, the nature and extent of support received from any organizations or projects, and their personal perspectives on how mushroom farming had affected their household dynamics and personal lives, particularly in terms of empowerment and decision-making within the family.

To ensure analytical rigor and comprehensive coverage of the theoretical arguments, the questions pertaining to income, empowerment, and decision-making were operationalized using indicators derived from Kabeer's framework, specifically the dimensions of Resources, Agency, and Achievements. This included measuring factors such as the proportion of income controlled by women, the frequency of involvement in major household purchasing decisions, and changes in access to credit or land ownership. It is important to note that the numerous questions listed were designed as thematic probes and potential lines of inquiry, not a rigid, fixed script to preserve flexibility and responsiveness during interviews, allowing the conversation to follow participants' narratives and emergent themes rather than predetermined order or phrasing. This flexibility was maintained to allow participants to speak freely and share their experiences in their own way.

The guide also included questions designed to understand their initial motivation for starting mushroom cultivation and how they managed the often-complex balance between their farming responsibilities and their household duties. Prior to commencing the main interviews, a small pre-test of the interview guide was conducted with one farmer during the initial pilot visit in the first week of fieldwork. This crucial step allowed for adjustments to the flow of the questions

and the identification and rewording of any unclear or ambiguous parts of the guide, ensuring that the questions were easily understood by the farmers and facilitated free and comprehensive responses.

3.4 Data Collection

This study employed a qualitative data collection strategy, utilizing semi-structured interviews, focus group discussions (FGDs), and direct observations to comprehensively explore the socioeconomic contribution of mushroom farming in rural Sri Lanka.

Semi-structured interviews were conducted with a total of eleven farmers, including six from the Saemaul-supported group in Rambukkana and five from the independent farmer group in the Kegalle divisional secretariat. Additionally, interviews were held with two key stakeholders, such as an agriculture Instructor (AI) from the DOA and representative from the NGO (Saemaul). These interviews were designed to address key themes such as changes in household income, evolving gender roles, shifts in decision-making processes within households, access to essential resources, and the various market challenges encountered by mushroom farmers.

Three focus group discussions (FGDs) were held in order to ensure the enhanced credibility and overall rigor of the research problem. This methodological strategy contributed to methodological triangulation, supporting the information collected through individual interviews. These included: one group comprised of three farmers supported by the Saemaul project, a second group comprised of three independent farmers, and a third group involving two officers (one representing the DOA and the other from the Saemaul project). The discussions were generally held in the evening and typically lasted between 50 and 60 minutes, although the focus group was held in the evening in the relaxed setting of one of the farmers' garden spaces.

Key issues like financial difficulties, gender roles, resource availability, and market restrictions served as the framework for the focus group discussions. To encourage conversation on common experiences and different results across institutionally supported and self-driven farmer groups, participants were led through open-ended and semi-structured questions (Appendix 1).

Observations were carried out to document firsthand farming activities, interactions within market settings, and broader community dynamics, with a specific focus on gendered divisions of labor, patterns of resource utilization, and prevailing cultivation practices. Detailed field notes and photographs were also taken to complement the qualitative data collected through interviews and focus groups.

3.4.1 Fieldwork Timeline and My Experience

I was fortunate to receive a scholarship from The Swedish Society for Anthropology and Geography (SAAG), which enabled me to conduct the essential fieldwork over a period of six weeks. The timeline and key methodological tasks undertaken during this period are summarized for quick reference in Figure 4: Fieldwork Timeline.

Table 2:Fieldwork Timeline

Week	Duration	Location	Key Activities & Methodology
Week 1	Initial Preparatory Tasks (March 1st)	Field (Sri Lanka)	Travel arrangements, establishing initial contact, preliminary pilot interviews, and modifications to the interview guide.
Weeks 2–3	Primary Interviews (2 weeks)	Rambukkana (Saemaul-supported villages)	Primary bulk of individual interviews (actively involved farmers and those who had discontinued); gathering narratives on challenges and project role.
Weeks 4–5	Secondary Interviews & FGD	Kegalle Divisional Secretariat	Individual interviews with independent farmers; comparative data collection on support systems. Focus Group Discussion conducted on the last Friday of this period.
Week 6	Finalization & Observations	Both Locations	In-depth observations (grow bag preparation, maintenance, marketing methods); follow-up interviews to clarify ambiguities; final data collection.



Figure 5:Saemaul supported mushroom farmers preparing com pots using pot making machine working in the saemaul coopertative society.



Figure 6:Interviewing independent female farmers in their cultivation premises.



Figure 7:Independent farmers activities; Removing sterilized com pots/grow bags by male farmer, packing the harvested mushroom by women farmerand and preparing com pots by a labour.

3.4.2 Semi-Structured Interviews

Semi-structured interviews were conducted with individual mushroom farmers (table 3 and 4) and key informants, such as agricultural extension officers and leaders of local cooperatives. A total of eleven farmers participated, including six from the Saemaul-supported group and five from the independent farmer group. Additionally, interviews were held with two key stakeholders, an Agriculture Instructor (AI) from the DOA and a representative from the NGO (Saemaul).

Table 3: Demographic information of Saemaul supported farmers.

Farmer	1	2	3	4	5	6
Age (years)	40	58	70	52	58	50
Gender	Female	Female	Female	Female	Female	Female
Ethical background	Sinhala	Sinhala	Sinhala	Sinhala	Sinhala	Sinhala
Family size	4	4	2	5	4	3
Education level.	(Grade 11)	(Grade 11)	(Grade 11)	Grade 11)	(Grade 11)	(Grade 13)
Other household income sources.	Three wheel haring	only mushroom	Labour	Broiler farm labour	Carpenter	retirement income
Mushroom farm started year	2019	2018	2015	2020	2011	2020

Table 4: Demographic information of independent farmers. Demographic information of independent farmers

Farmer	Famer 1	Famer 2	Famer 3	Famer 4	Famer 5
Age (years)	50	52	46-female 42- male	42	47
Gender	female	female	Husband and wife	female	male
Ethical background	Sinhala	Sinhala	Sinhala	Sinhala	Sinhala
family size	4	3	4	5	4
education level.	Grade 9	(Grade 13)	(Grade 13)	(Grade 13)	(Grade 13)
Other household income sources.	Husband carpenter	Husband driver	Husband cultivator	Husband plumber	Only mushroom

Mushroom farm started year	2012	2000	2012	2020	2011
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The semi-structured format provided a valuable balance between maintaining consistency across the interviews by covering predetermined themes and allowing for the flexibility to explore emerging themes and delve deeper into individual experiences. This approach ensured fidelity to the study's phenomenological research design, which aims to explore the participants' "lived experiences" (Flick, 2006; Rubin and Rubin, 2005). These individual interviews allowed participants to elaborate on personal experiences that might not have surfaced or been fully explored within a group setting.

This method facilitated the gathering of deeper insights into individual motivations for engaging in mushroom farming, the specific challenges they faced, and their perceptions of the various socioeconomic benefits derived from their involvement. While a comprehensive interview guide was developed to ensure coverage of key themes, interviewees were also encouraged to speak freely and share their experiences in their own way. The design used thematic probes and potential lines of inquiry, not a rigid, fixed script, ensuring the qualitative depth necessary for the research.

The utilization of a semi-structured guide also facilitated the process of working with a translator when necessary. All interviews were conducted in Sinhala, the native language of both the participants and the researcher, which minimized the need for translation for cultural or technical clarification. The researcher's fluency in both languages allowed for the researcher to personally undertake the translation of all transcripts from Sinhala to English, ensuring that the original meanings and expressions of the participants were preserved as accurately as possible (Willis, 2006).

3.4.3 Focus Group Discussions

The data collection process commenced with focus group discussions held among groups of mushroom farmers. Focus groups are particularly valuable for exploring a diverse range of perspectives, identifying shared experiences among participants, and stimulating rich discussion on the research topic (Morgan, 1997). The group setting allowed participants to build upon each other's responses, contributing to a broader and more nuanced understanding of the social and economic dimensions of mushroom farming within their communities.

The focus group sessions were structured using a flexible guide designed to cover key topics such as income generation, challenges encountered in cultivation, access to markets for their produce, and the roles of gender within their farming practices. However, flexibility was intentionally maintained to allow participants the opportunity to introduce and discuss issues that they felt were particularly important or relevant to their experiences (Rubin and Rubin, 2005).

I conducted three focus group discussions with three farmers supported by the Saemaul project, three independent farmers, and two officers—one representing the DOA and the other from the Saemaul project. The discussion was held in the evening, after their daily work, in the relaxed setting of one of the farmers' garden

spaces. The main topics of discussion centered on their overall experiences in mushroom cultivation, a comparison of the support received from different sources, changes in their income levels, their experiences with market access, the daily challenges they faced, and their expectations for the future of their mushroom farming endeavors. I guided the discussion using a semi-structured approach, having prepared a few key questions in advance but also encouraging the participants to freely share their thoughts and interact with each other. This approach facilitated the emergence of personal stories and group-level comparisons. The group members exhibited a high level of openness and respect towards each other, and the participating officers also shared their perspectives without dominating the farmers' voices.

A key advantage of utilizing focus groups was the opportunity to gather a diverse range of viewpoints in an efficient manner. However, challenges encountered included managing dominant voices within the group to ensure that quieter participants also had sufficient opportunities to share their experiences. To deal with the challenge of managing dominant voices, the researcher employed specific facilitation strategies, including active moderation, ensuring that all participants, particularly those who were initially quieter—were explicitly invited to contribute their perspectives. This required the application of sensitive facilitation techniques to maintain the high level of openness and respect within the group, thereby mitigating the risk of bias toward outspoken participants. Methodologists, such as Morgan (1997), assert that effective focus group facilitation is paramount for stimulating rich discussion while ensuring that all segments of the group contribute, thereby upholding the methodological rigor of the data and fulfilling the goal of exploring a diverse range of viewpoints. Additionally, cultural factors occasionally influenced the dynamics of participation, necessitating the application of sensitive facilitation techniques to ensure equitable contributions from all participants.

3.4.4 Observations

In addition to conducting interviews and focus groups, I also conducted direct observations during visits to mushroom farms, training workshops, and market transactions. These observations provided invaluable contextual understanding for interpreting the data gathered through interviews and focus groups, offering firsthand insights into the participants' daily practices and living conditions (Flick, 2006).

The data gathered through observations allowed for triangulation with the information obtained from interviews and focus group discussions, thereby enhancing the overall credibility and robustness of the research findings. However, limitations of this method included the snapshot nature of individual observation periods and the potential influence of my presence as an outsider on the observed behaviors and interactions. To address this potential bias, I engaged in self-reflexivity by maintaining detailed field notes and critically reflecting on how my own presence and underlying assumptions might affect the interpretation of the observed data (Flick, 2006).

3.4.5 Data Recording & Management

During the interviews and focus group discussions, I primarily used audio recording with the explicit consent of each participant prior to commencement. Concurrently, I also took handwritten notes, specifically to capture details about the surrounding environment, non-verbal cues such as body language, and key points that would aid in recalling the context of the discussion at a later stage. Typically, an individual interview lasted between 50 and 60 minutes. Given that many of the interviews were conducted in open farm environments, there was often a significant amount of background noise present. As a result, I had to carefully listen to and transcribe each recording manually, a process that typically took almost an entire day for a single interview. The lengthy manual transcription process primarily resulted from background noise during field interviews conducted in open farm settings. Although video recording was considered as a way to capture non-verbal cues and environmental details, it was deemed unsuitable due to ethical and practical concerns, particularly the risk of reducing participant openness and increasing social desirability bias during discussions on sensitive topics like empowerment (Dempsey et al., 2016). Similarly, employing an assistant field note taker could have improved transcription efficiency, but this option was constrained by limited resources and the need to maintain translation accuracy, given that my self-bilingual fluency ensured consistent interpretation of responses. The decision to rely on manual transcription thus represented a deliberate trade-off: prioritizing participant comfort, confidentiality, and the researcher's close engagement with the data over efficiency. While time-intensive, this approach strengthened interpretive depth and data reliability (Braun and Clarke, 2006). All audio files and their corresponding transcripts were stored in a password-protected folder on my personal laptop, and they were also backed up on a secure external USB drive to prevent data loss. To ensure the privacy and anonymity of all participants, I assigned pseudonyms to each individual during the transcription process, avoiding the use of their real names or specific identifying information. All collected data was treated as strictly confidential and was used solely for academic purposes related to this research.

3.5 Data Analysis

I will employ thematic analysis as the primary method for systematically identifying and exploring the recurring themes emerging from the collected interview transcripts and focus group discussion records (Robson and McCartan, 2016; Braun and Clarke, 2006). Following the completion of the fieldwork phase, I meticulously transcribed all the audio recordings of the interviews and the focus group discussion manually. I then utilized a manual categorization method for analyzing the textual data. The initial step involved reading through each transcript multiple times to gain a comprehensive understanding of the content and to identify and mark important points and recurring statements. Subsequently, I grouped the similar responses and recurring ideas under overarching main themes. The key themes that emerged from the data included income improvements attributed to mushroom cultivation, the evolving role and empowerment of women within farming households, the nature and extent of support received from various organizations, the primary challenges encountered

in both cultivation and marketing of mushrooms, the adjustments to time management in daily life necessitated by mushroom farming, and the future expectations and aspirations of the farmers. The central focus of this analysis utilizes an integrated theoretical lens combining Giddens' Structuration Theory and Bourdieu's Theory of Practice, specifically anchored by Kabeer's Empowerment Theory (Resources, Agency, and Strategic Choice). To provide a robust theoretical grounding, the data was categorized using core analytical concepts such as the influence of gender norms (Habitus/Structure), access to various forms of capital (Resources), the exercise of agency (Decision-making), and the contribution of structural barriers to market access. This approach contextualizes how individual behaviors are both influenced by and simultaneously challenge prevailing social structures.

3.6 Language & Translation

All the interviews and the focus group discussion were conducted in Sinhala, as it is the native language of both myself and all the participants. For the purposes of analysis and writing the thesis in English, I personally undertook the translation of all the interview transcripts and the focus group discussion records from Sinhala to English. As I possess fluency in both languages, I made a concerted effort to ensure that the original meanings and expressions of the participants were preserved as accurately as possible, without altering their intended ideas. Throughout the translation process, I frequently referred back to the original audio recordings when needed to confirm the intended meaning and context of specific phrases or statements. To further mitigate the risk of misinterpretation, I also cross-checked some unclear or ambiguous parts of the transcripts with the respective participants during follow-up phone calls or brief visits, depending on their availability.

3.7 Methodological Reflexivity

I recognized that the quality and interpretation of the data were significantly influenced by the researcher's positionality, specifically, the dual status as both an insider and an outsider to the field context.

As a native Sinhala speaker, I was able to conduct all interviews and the focus group discussion in the participants' native language. This shared linguistic and cultural background served as a significant advantage, fostering trust and rapport that enabled participants to speak openly about sensitive topics such as household dynamics and empowerment. Furthermore, personally undertaking the translation of all transcripts from Sinhala to English allowed for maximum fidelity to the original meanings and expressions of the participants, mitigating translational loss of nuance.

3.8 Ethical Considerations

Throughout all stages of the data collection process, including all interviews and the focus group discussion, I adhered to strict ethical guidelines. Prior to the

commencement of each interaction, I obtained verbal consent from every participant. I provided a clear explanation of the study's purpose, emphasized the entirely voluntary nature of their participation, and outlined the potential use of the collected data solely for academic purposes. Participants were explicitly informed of their right to withdraw from the study at any time without facing any negative consequences. I ensured the privacy and anonymity of all participants by assigning pseudonyms to their responses in the transcripts and by refraining from recording any personally identifying information, such as their full names or specific residential locations. All audio recordings and written transcripts were stored securely, with access limited solely to myself, and all data was handled with the utmost care to safeguard the confidentiality of the participants' contributions.

4. Findings

This chapter presents the systematically identified and explored recurring themes emerging from the collected qualitative data, organized to articulate a comprehensive argument regarding the socioeconomic role of mushroom cultivation on rural women's livelihoods in the Kegalle District, Sri Lanka. The findings transition directly from the research approach and analysis procedures detailed in the Methodology chapter. This rigorous thematic arrangement ensures that the findings achieve thick description by fully articulating the interconnections and complexity of the observed socioeconomic phenomena (Holliday, 2007).

The themes discussed in detail within the subsequent sections of this chapter are: household income and economic contribution, gender roles and decision-making, empowerment and social transformation, institutional support and stakeholder perspectives, community perspectives on mushroom farming, insights from focus group discussions, and observed practices and social interactions in mushroom farming.

4.1 Household Income and Economic Contribution

By providing evidence of the economic feasibility of mushroom farming as an accessible livelihood strategy and the ensuing financial contributions made by women farmers, which directly inform their socioeconomic empowerment, this section investigates the first research question: How does mushroom cultivation contribute to household income and employment in rural Sri Lanka?

4.1.1 Economic Viability and Accessible Income Generation

The main conclusion is that, because of its low entry barriers and rapid financial rewards, mushroom growing offers a feasible and inclusive livelihood plan, especially for women. Due to its low land and financial requirements, mushrooms. The activity provides several distinct economic advantages:

Growing mushrooms has the benefit of being done all year long, regardless of seasonal variations, which reduces the dangers connected with relying too much on one crop. Because of the crop's strong yield in relation to its input costs, farmers can lower operating costs and boost their profit margins. With the first crop being harvested in about two and a half months, farmers can see comparatively quick returns. Small-scale rural farmers find it very appealing because to its short production cycle and low land requirements. Farmers can lower production costs and boost profitability by using cheap agricultural waste as mushroom substrates. Moreover, costs are further decreased because chemical pesticides are not needed.

The accessibility of this enterprise is crucial as it enables women to participate in income-generating activities without stepping outside traditional gender roles.

4.1.2 Financial Contribution and Empowerment as Decision-Making

Mushroom cultivation immediately enhances women's financial status by enabling them to contribute financially to their households. This financial contribution acts as a critical prerequisite for empowerment, aligning with Kabeer's Resources and Achievements dimensions.

Before engaging in mushroom farming, all six Saemaul-supported farmers reported that financial decision-making was primarily handled by their husbands or, in one case, their father. These women often identified themselves as housewives who had limited exposure to financial matters and external interactions. The shift to earning an independent income facilitated a critical change in agency.

“Before, I had no income of my own. Now, I earn enough to contribute to my children's education and daily expenses. My husband and I now make decisions together” (Saemaul supported female farmer 6, 3/03/2025).

This financial independence is directly linked to increased negotiating power within the family unit and greater autonomy. The resultant economic independence enables women to make more informed decisions regarding household expenditures and investing in the education of their children. This financial contribution has led to greater respect and recognition for women within their families. Participants described being consulted more frequently on both financial and farming-related matters. This is an important finding worth expanding as a theme under Empowerment as decision-making. The discussion of financial contributions should also address wealth creation and security as empowerment. This enhancement of socioeconomic status and increased control over income and resources within the household is a direct measure of empowerment. Furthermore, regular consumption of mushrooms, grown as part of the livelihood strategy, contributes to household nutrition and food security by providing an affordable source of high-quality protein and vitamins.

Overall, mushroom cultivation provides a sustainable and inclusive means of income generation for rural women. It strengthens household economies, improves food security, and fosters women's empowerment through financial independence and greater decision-making power. This section now analyzes the corresponding social contribution, focusing on the changes and persistence of gender roles and household decision-making in the context of the second research question: In what ways does mushroom farming empower women and marginalized groups in rural communities?.

4.2 Gender Roles and Decision-Making

The introduction of mushroom cultivation among both Saemaul-supported and independent farmers has notably reshaped gender roles and household decision-making dynamics in rural Sri Lanka. Utilizing Giddens' Structuration Theory, the analysis confirms that while women leverage their agency to challenge traditional

roles, deeply embedded social structures continue to influence the division of labor and participation in external activities.

4.2.1 Empowerment through Shared Decision-Making

Before the women began mushroom farming, financial and agricultural decisions were typically made by male heads of households. All participating women reported that financial decision-making had been primarily handled by their husbands or, in one instance, their father, as they identified as housewives with limited exposure to financial matters.

The financial independence derived from mushroom cultivation created an economic shift that facilitated greater Agency, the ability to define goals and act upon them. All participating women reported a notable change in household power structures since they began earning income. Women now actively participate in decisions regarding household expenses, savings, reinvestment, and the allocation of farming income. This economic gain translated directly into greater negotiating power within the family unit and increased autonomy, enabling them to make more informed decisions regarding household expenditures. The demonstration of this shift in decision-making is evident in participant accounts:

“Now I’m involved in all decisions, education, expenses, everything. I even take a salary from our mushroom business” (Independent female farmer 4, 24/03/2025).

This financial contribution also led to greater respect and recognition for the women within their families. Participants described being consulted more frequently on both financial and farming-related matters.

4.2.2 Evolving Division of Labor and Persistent Constraints

The mushroom enterprise allows women to generate income from home, aligning with the observation that its home-based, low-capital nature permits women to engage in economic activities without transgressing prevailing social expectations or interfering with their traditionally expected caring responsibilities.

Women are the primary drivers of daily operations, especially in tasks compatible with domestic routines. This includes: harvesting and packing, watering, inoculation, preparing and filling grow bags and daily management of grow houses. Men’s evolving support role as mushroom farming became a stable source of income, three participants noted that their husbands began taking a more active, collaborative role. The involvement of men was most common in physically demanding, technical, or external tasks: operating the broiler for sterilization, preparing the compost and substrates, transporting produce for market distribution. This collaborative sharing of responsibilities reflects an incremental shift in traditional gender norms and fosters family cohesion and efficiency. One farmer emphasized this new teamwork:

"Now my husband helps with preparing the compost and selling the mushrooms. We run the business as a team" (Saemaul supported female farmer 2, 5/03/2025).

Structural barriers and care responsibilities despite these positive shifts, the study highlights that gender inequality still persists. Mushroom cultivation, while empowering, often still reinforces existing patterns rather than fundamentally transforming deeply embedded social norms.

The core barriers observed two things: the marketing and transportation tasks are still largely managed by men. This limitation is functional, as many women lack access to vehicles or established market connections. Next, women continue to bear the majority of domestic responsibilities (caregiving and household duties), reflecting that their agricultural involvement is often still viewed as secondary to their traditional roles. These findings align with the theoretical premise that while women leverage their Agency to transform their roles (as analyzed through Giddens' Structuration Theory), they continue to be constrained by structural factors and the Habitus (ingrained norms) that restrict their mobility and access to capital and market field. Nevertheless, mushroom farming has significantly expanded the scope of women's economic agency.

4.3 Empowerment and Social Contribution

Mushroom cultivation has emerged as a transformative tool for the empowerment of rural women in both the Saemaul-supported and independent farming communities across the Kegalle District, directly addressing the second research question. Empowerment is defined and measured based on Kabeer's framework (Resources, Agency, and Achievements), focusing on the process through which women enhance their socioeconomic status, decision-making power, and control over income and resources within both household and community spheres.

4.3.1 Transformation of Agency and Autonomy

For many participants, involvement in mushroom farming represented their first opportunity to contribute financially to their households. This pivotal shift provided them with the necessary resources to exercise increased agency. Before starting cultivation, the women typically identified themselves as housewives who had limited exposure to external interactions and financial matters. Consequently, financial decision-making was generally handled predominantly by their husbands or fathers. The steady stream of independent income facilitated a critical change, transitioning them from dependency to decision-maker, which resulted in them gaining greater autonomy.

The income generated from mushroom farming catalyzed a fundamental shift, effectively moving women from passive financial dependency to active management roles within the household, ultimately leading to significant achievements in decision-making power. Evidence of this transformation is found in participant reports: all women reported contributing directly to major household expenses, including healthcare, education, and daily consumption. Furthermore, many women now manage the family budget themselves. This point was affirmed by one Saemaul participant who stated,

"Yes, of course, I now support education, family needs, and emergencies" (Saemaul supported female farmer 2, 5/3/2024).

This newfound financial independence served to enhance their confidence and decision-making power. This translates directly into increased negotiating power within the family unit. While savings remain modest due to market fluctuations, the income is nevertheless essential for households to cover emergency costs. These observed changes in financial control form the basis for the ongoing discussion concerning financial literacy as empowerment, and wealth creation and security as empowerment.

4.4 Enhanced Social Recognition and Visibility

Beyond the private domestic sphere, economic participation significantly altered women's visibility, social standing, and respect within the broader rural community. Financial contributions and engagement in the public market sphere elevated women's social status, granting them greater recognition and visibility as economic actors. This enhancement of socioeconomic status was frequently recognized by the participants themselves.

Evidence of this change in recognition was reported by both supported and independent farmers. One Saemaul farmer noted the shift in her community standing:

"Now I'm the one who handles expenses, and people in the village see me differently," (Saemaul supported female farmer 6, 14/3/2024).

A successful independent farmer reported recognition even in formal settings, stating: "Now, in the market, government offices, and public places, most people ask me, 'Are you the one doing Samagi Mushroom?'" (Independent Farmer 2, 22/03/2025).

These narratives illustrate how earning an income gives women greater recognition in public settings. The increased respect often observed within families also extends outwards to the community. Furthermore, one participant observed that role modelling was occurring as men began to respect women more because they saw them earning.

4.4.1 Collective Action and Social Networks

Social empowerment was profoundly facilitated through the formation and strengthening of social networks, enabling collective access to resources and mutual agency. Collaboration, whether institutionally supported or self-initiated, created vital social capital, which strengthened the farmers' collective agency and their ability to overcome market barriers. Women who were actively involved in the local cooperative described it as a source of material support, training, and essential emotional solidarity. One respondent shared that being part of this network was "like a happy place where we solve problems together," (Independent Farmer 5, 12/03/2025). These networks enabled essential collective actions, including information-sharing, bulk purchasing, group selling, and collective negotiation.

The study highlighted the importance of peer learning. Among independent farmers, who initially relied on self-learning and informal mentoring, success stories served as an encouragement for them to establish their own farmer groups and cooperatives. Furthermore, women observed that “Most of the women around me are now starting or planning to start their farms,” (Independent female farmer 2, 19/3/20225). This observation underscores the success of these visible enterprises as a model for others in the community. These findings collectively demonstrate how collaboration significantly enhances the farmers' access to materials, markets, and technical knowledge. The strong support for cooperative models emphasizes their function in ultimately strengthening farmers' collective agency. Collective selling, particularly among the Saemaul cooperative, was essential to manage transportation costs, secure consistent prices, and facilitate bulk sales. Moreover, the focus groups revealed that women have formed strong social networks and emotional solidarity, moving beyond mere professional collaboration to mutual personal support.

4.5 Institutional Support and Stakeholder Perspectives

This section analyzes the role of external organizations, policies, and support networks, directly addressing the third research question concerning how institutional interventions can promote mushroom farming as a sustainable livelihood. Insights from key stakeholders, the Department of Agriculture (DOA) and the Saemaul Project NGO, reveal that while institutional frameworks are crucial for initial success, sustained economic and empowerment gains require long-term structural and technical backing. The analysis compares the systematic state-led extension approach with the integrated, holistic model provided by the NGO.

4.5.1 State-Led Support and Gender-Targeted Programs

The Department of Agriculture (DOA) functions as the leading state institution responsible for managing research and development related to mushrooms. The DOA utilizes a hierarchical support structure that coordinates mushroom societies and offers access to training programs, infrastructure, and extension services. DOA programs successfully target women, often aligning with existing cultural expectations while simultaneously providing economic opportunities. DOA mushroom programs are explicitly designed with women in mind, which has resulted in approximately 90% female participation. A DOA officer confirmed this strategic approach, explaining: "Most mushroom programs are designed with women in mind because our cultural norms mothers should be at home to look after their children and elders while doing day-to-day work". The DOA actively promotes this involvement through public events like “Mushroom Days” and competitions such as “best female producers”.

This approach is interpreted as a positive intervention outcome that respects tradition and culture while uplifting women's roles in the agricultural economy. However, the design implicitly relies on, and potentially reinforces, the social

structure (Habitus) that expects women to manage caregiving responsibilities. This approach reinforces the finding that the home-based, low-capital nature of mushroom farming allows women to engage in economic activities without transgressing prevailing social expectations or interfering with their traditionally expected caring responsibilities. The DOA's design necessitates further expansion on the aspects of agency, examining whether the empowerment realized is purely individual or facilitated through collective action (cooperatives) or proxy (through the supporting institutions).

4.5.2 The Integrated NGO Model and Collective Agency

The Saemaul Project, initiated by a South Korean International Non-Governmental Organization (INGO) in Rambukkana, presented an institutional model characterized by an integrated, holistic intervention spanning five years, from 2014 to 2019. This integrated model was effective in creating essential social capital and infrastructure, with the goal of transitioning ownership to the local community to sustain collective agency beyond the project's funding cycle.

The NGO made significant investments by building a purpose-built “mushroom village”. This facility included infrastructure such as a sterilization unit with a broiler, a substrate preparation unit equipped with a mixer and grow bag filler, environmentally controlled grow houses, and a cold storage facility for short-term storage. The project explicitly targeted women farmers, which resulted in 100% female participation during the project's duration. The Saemaul Project emphasized key values such as diligence, self-help, and cooperation. Crucially, the project's infrastructure, which included a dedicated mushroom seed laboratory that provided subsidized spawn, was formally handed over to the local cooperative society. A project representative affirmed the goal of this approach, stating, “The NGO built everything to help them become self-reliant through cooperation and diligence.”

This institutional model successfully provided critical resources, including infrastructure, subsidized inputs, and branding, while simultaneously fostering collective action and generating social capital. This arrangement allowed farmers to mitigate exploitation by middlemen and reduce raw material costs by establishing internal systems for procurement and sales. Through this farming initiative, the NGO officer highlighted many success stories of women gaining economic independence, achieving community leadership roles, and earning peer recognition. Collective selling, particularly among the Saemaul cooperative, was essential for managing transportation costs, securing consistent prices, and facilitating bulk sales.

However, observations also revealed that despite the impressive physical setup of the cooperative center, several facilities were not being properly maintained or utilized. This suggested that some farmers might still rely on the idea of external or NGO-driven support, indicating a potential lack of full transition to ownership over the self-managed cooperative structure.

4.5.3 Persistent Structural Gaps and Barriers

Despite active institutional engagement, both the Department of Agriculture (DOA) and the NGO perspectives confirm that farmers continue to face structural challenges that undermine the long-term sustainability and scalability of mushroom farming. Critical structural constraints related to input accessibility, market regulation, and post-harvest handling limit the full realization of economic benefits, which necessitates sustained institutional intervention.

Regarding production and quality, the DOA observed specific issues, such as farmers overwatering mushrooms before harvest to increase weight, which indicates a need for better training in quality assurance. Key production barriers that farmers face include the rising cost of media materials and issues related to limited shelf-life. Furthermore, participants consistently identified compost media and transportation as their main cost drivers.

Challenges related to post-harvest and market access are also significant. Both organizations noted substantial challenges in post-harvest support and a pervasive lack of cold storage facilities. There is a corresponding need for better training in advanced post-harvest handling knowledge and value addition. Profitability is challenged by a lack of price regulation and heavy dependence on middlemen. Farmers expressed a clear need for cold storage facilities to manage surplus and expansion. Middlemen were identified as a significant obstacle because they often impose low, non-negotiable prices, which consequently reduces farmers' earnings.

These challenges reflect the broader structural limitations that women encounter, including poor infrastructure and inadequate market access, as identified through the theoretical framework. To ensure future outcomes and gender equality, the DOA emphasized that policy support is needed. Specifically, the DOA stated that policy support "is needed to stabilize markets, introduce new varieties with longer shelf lives, and offer group loans to scale operations". The long-term sustainability of initiatives remains a significant concern once external funding ceases, with cooperatives often struggling with market competitiveness and maintenance. Therefore, long-term institutional support is essential for benefits to be sustained. This need for sustained support for preservation and technology is critical, as storage, post-harvest management, and transportation remain weak points in the value chain.

4.6 Community Perspectives on Mushroom Farming: Insights from Focus Group Discussions

To enhance the rigor and credibility of the study, three focus group discussions (FGDs) were conducted to capture a collective understanding of the shared experiences, constraints, and innovations among small-scale mushroom cultivators. These discussions, held in the relaxed setting of one of the farmers' garden spaces in the evening, provided a crucial opportunity for participants to build upon each other's responses and offer a broader, nuanced perspective. The groups included: three Saemaul farmers, three independent farmers, and two officers (one from the Department of Agriculture (DOA) and one from the Saemaul project).

The discussions centered on key themes such as financial difficulties, gender roles, resource availability, and market restrictions.

4.6.1 Collective Assessment of Economic Barriers and Stability

The Focus Group Discussions (FGDs) offered a consolidated view of the economic realities faced by both supported and independent farmers, confirming the viability of mushroom farming while simultaneously highlighting persistent structural constraints. While mushroom cultivation offers a stable source of income, initial infrastructure investment and operational input costs act as primary financial barriers, requiring ongoing cooperative or institutional mechanisms to overcome.

Participants consistently identified transportation and compost media as their main cost drivers. Other initial investment needs noted as barriers included acquiring water tanks, building mushroom houses, and obtaining weighing balances and sealing machines. During the Saemaul phase, many of these initial needs were met through NGO grants and government subsidies. One Saemaul supported female farmer affirmed this support, stating, "We received almost all our startup needs through donations or 50% subsidies," (Saemaul supported female farmer 4, 1/4/2024).

Despite encountering market fluctuations, participants generally viewed mushroom farming as a stable and manageable source of income. This perceived stability is attributed to the enterprise requiring minimal land and its capacity to integrate well with women's daily household routines. Furthermore, the short production cycle offers relatively quick and continuous returns. The main conclusion of the study is that mushroom growing offers a feasible and inclusive livelihood plan, especially for women, because of its low entry barriers and rapid financial rewards. Specifically, farmers can see comparatively quick returns, with the first crop being harvested in about two and a half months. This is particularly appealing due to the low land requirements and short production cycle.

4.6.2 Transformation of Social Capital and Gender Roles

The focus group settings revealed a strong consensus regarding the transformative social contribution of the farming enterprise, particularly concerning external peer networks and internal household dynamics. The economic participation enabled by mushroom farming has resulted in a community-level transformation of gender roles, fostering shared decision-making within households and strengthening social capital through robust collaborative networks. Evidence of this change includes participants describing a notable shift where women began actively making household financial decisions. As one participant shared, "Now, women can decide what's best for the family," (Independent female farmer 2, 1/4/2024).

This change in decision-making power was often accompanied by men's increased participation in tasks traditionally deemed female or physically demanding. This male support included assisting with sales, preparing compost,

and occasionally helping with childcare, reflecting mutual support and increased role flexibility within the family. These observed shifts effectively demonstrate improved family cohesion and efficiency.

Furthermore, women reported forming strong social networks and emotional solidarity, which went beyond mere professional collaboration to encompass mutual personal support. A Saemaul supported female farmer described this network by saying, "We talk about everything on our farms, our families, even our challenges," (Saemaul supported female farmer 2, 1/4/2024). Crucially, participants stated there were no cultural barriers preventing women from fully participating in mushroom farming, indicating a positive community-level shift toward gender equality and cooperation.

4.6.3 Collective Strategies for Market Access and Sustainability

The discussions generated specific, shared recommendations for institutional and cooperative strategies necessary to ensure the long-term sustainability of the livelihood, especially concerning scaling up and market control. Scaling production and enhancing profitability requires institutional intervention to address weak points in the value chain, specifically concerning post-harvest infrastructure, specialized training, and market negotiation power.

Farmers expressed a clear need for loans to acquire efficient compost preparation equipment and cold storage facilities to manage surplus and expansion. They unanimously supported cooperative marketing and collective action to overcome market challenges. Collective selling, particularly among the Saemaul cooperative, was essential to manage transportation costs, bulk sales, and securing consistent prices. Middlemen were identified as a significant obstacle who often impose low, non-negotiable prices, thereby reducing farmers' earnings. Collective selling was thus viewed as a crucial strategy to counter the middlemen's influence.

Farmers called for post-harvest training, low-interest loans, and exposure to value-addition technologies. They also recommended branding, bulk packaging, and utilizing a single quality and brand to build market trust, even for online platforms. One participant summarized the need for specific support: "We can do a lot with little if only we get some support for technology and preservation," (independent male farmer 5, 1/4/2025). The FGDs revealed a shared willingness to adapt and innovate collectively. The need for sustained support for technology and preservation is critical, as issues like transportation, storage, and post-harvest management remain weak. The strong support for cooperative models underscores their function in enhancing farmers' access to materials, markets, and technical knowledge, ultimately strengthening their collective agency.

The final section of the Findings chapter details the visual and contextual evidence gathered during fieldwork. These direct observations complement the narratives obtained from interviews and focus group discussions, providing invaluable contextual understanding for interpreting the data gathered and enhancing the overall credibility and robustness of the research findings through methodological triangulation.

4.7 Observed Practices and Social Interactions in Mushroom Farming

Observations focused on documenting firsthand farming activities, interactions, and prevailing practices, with a specific lens on the gendered divisions of labor. These observations revealed critical information regarding infrastructural utilization, the practical application of gender roles, and the status of collective action across the two study locations.

4.7.1 Material Infrastructure and Ownership

The material reality of mushroom cultivation differed significantly between the two study locations, reflecting the type of institutional support received. While the NGO-supported location possessed comprehensive, state-of-the-art physical facilities, the independent farms demonstrated greater adaptability and a stronger sense of personal ownership reflected in their more modest investments. The Saemaul cooperative center in Rambukkana featured a comprehensive infrastructure built during the NGO-supported period. This infrastructure included a substrate preparation unit equipped with a mixer and grow bag filler, a sterilization unit with a broiler, environmentally controlled grow houses, and a cold storage facility for short-term storage.

A key observation was that despite the impressive physical setup, several of these facilities were not being properly maintained or utilized. This suggests that some farmers still relied on the idea of external or NGO-driven support and had not fully transitioned to a sense of ownership over the now self-managed cooperative structure. In contrast, independent farmers (especially those with established businesses) demonstrated adaptability and resilience by making personal investments in smaller-scale mechanization, such as acquiring their own media mixers and pot-filler machines. Their grow houses and sterilizers were generally more modest and varied in design, reflecting resource limitations. Except for one farm, others relied on more basic storage methods.

The contrast between the infrastructure-rich but underutilized cooperative setups and the modest yet actively maintained independent farms underscores the importance of ownership, training, and mindset, not just infrastructure, in the long-term success of livelihood initiatives.

4.7.2 The Visible Division of Labor

The Visible Division of Labor. Direct observation visually confirmed the gendered patterns of labor that were described verbally in the preceding sections on Gender Roles and Decision-Making. The division of labor was visibly defined yet simultaneously evolving. Women are the central economic agents in the daily, hands-on production activities of mushroom cultivation, while men retain control over the physically demanding and external logistical aspects, reinforcing persistent structural constraints related to mobility and capital.

Women were the primary drivers of daily operations. Observed practices included the preparation and filling of grow bags (com pots), inoculation, daily management of grow houses (e.g., watering), harvesting, and packing. Visual

data, such as the cover picture and Figure 8, captured women preparing grow bags at a cooperative facility and packing the harvested mushrooms. Male laborers (either hired or family members) were typically responsible for tasks that involved heavy machinery or mobility, such as operating the broiler for sterilization, transporting substrates, assisting with machinery, and marketing.

This observed division aligns with the previous finding that women can engage in this home-based, low-capital enterprise without transgressing prevailing social expectations. However, the continued male management of marketing and transportation confirms that persistent barriers remain related to mobility and access to external markets. Women's hands-on engagement in the core production process, which is often physically demanding, suggests their essential economic reliance on the mushroom economy.

4.7.3 Social Dynamics and Collective Spirit

Observations provided a tangible view of the state of the social networks that underpin the mushroom farming community. The cooperative setting revealed signs of fragmentation and fading collective spirit. Although the initial NGO model emphasized collaboration and cooperation, some farmers appeared less involved or uncertain about the society's ownership and maintenance post-funding.

Among independent farmers, collaboration was characterized as more informal and pragmatic, frequently focused on immediate needs such as equipment sharing or joint transport to reduce costs, without relying on a rigid formal structure. This pragmatic, informal cooperation serves as a critical mechanism for accessing social capital and overcoming logistical barriers, such as reducing transportation costs. The observed disparity between the two groups further emphasizes the study's conclusion that long-term institutional support is necessary to ensure the continuous operation and management of collective resources and infrastructure, such as cold storage.

This chapter confirms that mushroom cultivation serves as an accessible and economically viable livelihood strategy for rural women, providing a stable, year-round income with fast returns and low entry barriers. This financial independence significantly enhances women's socioeconomic status and autonomy, translating directly into increased agency and shared decision-making power within their households and greater recognition within the community.

However, the findings highlight that while women are the primary drivers of daily production, structural constraints persist. The division of labor remains gendered, with men maintaining control over external, critical logistical tasks like transportation and marketing, thus limiting women's mobility and access to capital and markets.

Ultimately, the long-term success and sustainability of the enterprise depend not just on infrastructure, but on fostering ownership and collective action. Observations revealed that comprehensive cooperative facilities were often underutilized post-funding, emphasizing that success relies on mindset and continuous maintenance. Therefore, sustained institutional intervention is essential to address persistent structural gaps, such as the lack of cold storage and market regulation, while supporting cooperative marketing models to strengthen farmers' collective agency and ensure profitability.

5. Discussion

This chapter systematically discusses the study's empirical findings on the socioeconomic contributions of mushroom cultivation on rural livelihoods in Sri Lanka. Moving beyond the presentation of identified themes in the preceding chapter, the goal here is to synthesize and interpret these findings within the context of existing literature and the theoretical frameworks adopted.

5.1 The Function of Synthesis and Interpretation

The Discussion chapter fulfills the critical requirement of weaving the different findings together to establish a coherent argument, rather than merely summarizing the descriptive content of Chapter 4 (Holliday, 2007; Braun and Clarke, 2006). The analysis demonstrates the interconnectedness of phenomena by showing how the discrete thematic areas, such as shifts in household income, changes in gender roles, and the nature of institutional support, collectively address the core research questions.

Interpretation is fundamentally guided by the study's conceptual framework, including Kabeer's framework (Resources, Agency, and Achievements) (Kabeer, 1999; 2012) and the macro-level theories of Giddens' Structuration Theory and Bourdieu's Theory of Practice (Habitus, Capital, and Field) (Giddens, 1984; Bourdieu, 1977). The chapter utilizes these frameworks to situate the study's contributions within the ongoing academic discourse on gender empowerment and rural development.

5.1.1 Discussion Structure

The synthesized discussion of the findings, derived from the thematic analysis of interviews, focus group discussions, and observations, is organized into the following main analytical sections:

5.2 Gender Empowerment and Transformation of Household Dynamics

5.3 Role of Institutional and Policy Support

5.4 Challenges in Market Access and Post-Harvest Handling

Following these arguments, the chapter includes a section dedicated to Study Limitations.

5.2 Gender Empowerment and Transformation of Household Dynamics

This section synthesizes the findings concerning the second research question, analyzing the various ways mushroom cultivation has contributed to women's empowerment and the transformation of deeply ingrained household dynamics.

This discussion emphasizes how the resulting economic gain, while crucial, is mediated by existing human capital and the ongoing negotiation of the social Structure.

5.2.1 Economic Contribution as the Foundation for Agency

The most significant driver of empowerment derived from mushroom cultivation is the ability of women to generate independent income, providing the necessary Resources (Kabeer's framework) to exercise Agency (Kabeer, 1999; 2012). Before engaging in this enterprise, women were typically identified as housewives who had limited exposure to financial matters, with financial decision-making primarily handled by male heads of household (Interview 3; FGD 2).

The steady stream of mushroom income catalyzed a fundamental shift, moving women from passive financial dependency to active management roles, which are considered significant Achievements (Kabeer, 1999). This is reflected in the finding that all women participants reported contributing directly to major household expenses (such as education, healthcare, and daily consumption) and several now manage the family budget themselves (Interview 4; FGD 1).

This economic gain translated directly into increased negotiating power within the family unit and greater autonomy, facilitating shared decision-making (FGD 3; Observation Notes, April 2025). Participants frequently reported being consulted more frequently on both financial and farming-related matters and enjoying greater respect and recognition from their families (Interview 5; FGD 1).

5.2.2 The Mediation of Educational Capital on Empowerment

The level of empowerment achieved and the autonomy exercised by the farmers appear to be significantly mediated by their individual human capital, particularly educational attainment. The analysis reveals that the difference in educational levels between the groups, with Independent farmers possessing Advanced Level education versus Saemaul-supported farmers possessing Ordinary Level or lower, provides valuable context for interpreting observed variations in their success and autonomy. According to Bourdieu's framework, this enhanced educational background acts as a crucial resource. Higher educational capital facilitated agency, particularly among independent farmers. This higher education equipped independent farmers with the necessary financial literacy, decision-making capacity, and knowledge to successfully navigate complex market constraints. This capability allowed them to pursue profitable strategies and establish stable, sometimes thriving, businesses, earning a wide range (LKR 50,000 to 300,000 monthly), despite receiving no structured NGO training or external institutional support. Education also likely influenced their ability to seek out technical knowledge and experiment with alternative substrates,

which was essential for survival since they did not benefit from formalized support systems. Furthermore, enhanced education contributes to symbolic capital, which significantly boosts the women's confidence and negotiating power within both the family and the wider community. This directly aligns with the finding that economic contributions increased women's voice in financial decision-making and resource allocation. Thus, the demographic data suggest that higher educational capital played a substantial role in enabling the independent farmers to effectively exercise agency to achieve higher socioeconomic outcomes and overcome structural challenges.

5.2.3 Transformation and Persistence of Gender Roles

The economic opportunities provided by mushroom farming expanded the scope of women's economic agency, yet the observed changes in gender roles reflect an incremental shift rather than a complete transformation of the underlying social structure. This analysis utilizes Giddens' Structuration Theory to examine how agency interacts with prevailing societal restrictions. The core findings show that the enterprise allows women to earn income while still fulfilling traditionally expected domestic and caregiving responsibilities (Kabeer 199, 2012). However, this income generation successfully encouraged mutual support and role flexibility within the household. Some participants noted that their husbands began taking a more collaborative role in physically demanding or technical tasks, such as preparing compost and transporting produce. This collaborative sharing of responsibilities, reported in interviews and focus group discussions, reflects the successful negotiation of the domestic sphere.

Crucially, the study identifies that structural barriers persist. These constraints align with the frameworks of Kabeer (2012) and Bourdieu (1977). The primary persisting barriers observed include the Dual Burden, where women continue to bear the majority of domestic responsibilities, meaning their agricultural involvement is often viewed as secondary to their traditional roles. Furthermore, External Constraints mean that marketing and transportation tasks are still largely managed by men. This division confirms that the ingrained social norms (Habitus) continue to restrict women's mobility and access to the wider market field, as analyzed through the concepts of Bourdieu (1977) and Giddens (1984).

In summary, mushroom farming fostered significant empowerment, evidenced by greater financial control and decision-making power. However, the extent of this autonomy is influenced by individual human capital (Kabeer 199, 2012), and the transformation remains incomplete due to the persistence of deeply embedded structural constraints. The observed division of labor, with men retaining control over tasks requiring mobility and capital investment (e.g., operating sterilizers and market transportation), confirms that individual agency is still limited by the Habitus that restricts women's mobility and access to the market field.

5.3 Role of Institutional and Policy Support

This section analyzes the role of external organizational and policy support, comparing the state-led Department of Agriculture (DOA) model with the integrated NGO approach (Saemaul Project), on the long-term sustainability, collective agency, and success of mushroom farming enterprises. The discussion integrates findings on institutional involvement (4.5) with the comparative performance insights derived from interviews, observations, and educational capital analysis.

5.3.1 Contrasting Institutional Models and Resource Allocation

Institutional support is critical for providing the Resources, as conceptualized in Kabeer's framework, that are necessary for initiation, training, and mitigating initial investment costs. The study highlights two distinct institutional strategies for engagement: the State-Led Extension model provided by the Department of Agriculture (DOA) and the Integrated NGO Model delivered by the Saemaul Project.

The State-Led Extension model (DOA) utilized a support structure that coordinated mushroom societies and offered access to training and extension services. DOA programs were explicitly designed with women in mind, resulting in approximately 90 per cent female participation. Crucially, this strategy often aligned with cultural norms that mothers should remain at home. This institutional approach successfully promoted women's participation by providing economic opportunities that respected existing traditions. This approach reinforces the finding that the home-based, low-capital nature of mushroom farming allows women to engage in economic activities without transgressing prevailing social expectations or interfering with their traditionally expected caring responsibilities.

In contrast, the Integrated NGO Model (Saemaul) adopted a comprehensive, holistic approach over five years. This model involved investing in substantial physical infrastructure, including a purpose-built mushroom village with advanced facilities and a dedicated seed laboratory. The Saemaul model emphasized diligence, self-help, and cooperation, and it ensured full female participation during the project period. The NGO model was particularly effective in building social capital and providing robust material resources, such as infrastructure, subsidized inputs, and branding. These resources were deemed necessary for collective action and mitigating exploitation by intermediaries. This institutional intervention successfully provided critical resources and simultaneously fostered collective action and social capital.

5.3.2 Collective Action vs. Individual Autonomy

A significant finding of the study is that institutional support, while providing initial stability and resources, must be viewed alongside farmers' intrinsic capacity for self-reliance and sustained agency. The research explored the interplay between collective organization and individual success. The Power of Collective Action was successfully fostered by the integrated NGO model, as evidenced by the establishment of cooperative systems for procurement and sales (FGD 2). Focus group discussions confirmed that cooperative marketing and collective selling were essential for managing costs, achieving bulk sales, and countering the influence of middlemen (FGD 1; Interview 6). Furthermore, the cooperative provided ongoing material support, training, and emotional solidarity among members (Observation Notes, April 2025).

Conversely, the success of the independent farmers demonstrates The Autonomy of Human Capital, suggesting that structured institutional support can be partially substituted by individual human capital. Independent farmers, who possessed higher educational capital (Advanced Level), effectively exercised agency to achieve higher socioeconomic outcomes. Their enhanced financial literacy, decision-making capacity, and knowledge enabled them to navigate market constraints and establish stable, thriving businesses. These independent farmers reported earning between LKR 50,000 and 300,000 per month without reliance on institutional intermediaries (Interview 3; FGD 3). Education also influenced their ability to seek technical knowledge and experiment with substrates, which was crucial given the absence of structured NGO training. Thus, the analysis concludes that while institutional support provides necessary infrastructure (resources) and promotes collective agency, individual human capital enables greater self-reliance in overcoming the structural challenges present in the market field (Bourdieu, 1977; Kabeer, 1999).

5.3.3 Challenges to Sustainability and Policy Gaps

Both institutional models and the farmers' experiences reveal persistent structural challenges that require sustained policy intervention to ensure the long-term viability of mushroom cultivation. The collective experiences synthesized from focus group discussions (FGDs) and stakeholder interviews confirm that while institutions initiate projects, they often fail to address critical gaps in the value chain. Regarding Post-Harvest and Logistics, there is a unanimous need for improved cold storage facilities and better training in advanced post-harvest handling knowledge and value addition. The absence of this support limits scalability and profitability, particularly in managing the crop's limited shelf-life. Additionally, the study noted issues regarding Structural Maintenance, observing practices at the Saemaul cooperative that showed signs of fragmentation and

fading collective spirit, with infrastructure not being properly maintained or utilized post-funding. This suggests a need for long-term institutional support focused on maintenance and management transition. Concerning Market Regulation, stakeholders, including the Department of Agriculture (DOA), noted that policy support is needed to stabilize markets and address the issue of middlemen imposing low, non-negotiable prices, which significantly challenges profitability. Therefore, to ensure that the economic and empowerment benefits are sustained, policy support must focus on addressing these structural constraints through market stabilization, advanced technical training, and fostering continuous ownership of collective resources.

5.4 Challenges in Market Access and Post-Harvest Handling

This section synthesizes the persistent structural constraints that inhibit the scaling-up of mushroom farming and limit the full realization of economic benefits. The analysis integrates collective concerns from the focus group discussions and institutional observations, emphasizing that technological and logistical gaps undermine sustainability.

5.4.1 Market Domination and Middlemen

A significant impediment to profitability and farmer autonomy is the lack of market stabilization and control over the final sale price. This lack of control reinforces the finding that despite internal transformations, external structural barriers persist, reflecting male dominance in the market Field. Focus group discussions revealed that middlemen constitute a significant obstacle to profitability, as they often impose low, non-negotiable prices, thereby reducing the farmers' overall earnings. The need for cooperative marketing and collective selling was unanimously supported by farmers, particularly those in the Saemaul cooperative, as a crucial strategy to manage transportation costs, achieve bulk sales, and directly counter the influence of middlemen. This collective strategy is essential for increasing the farmers' collective agency and achieving better prices.

5.4.2 Critical Gaps in Post-Harvest Management and Logistics

The limited shelf-life of mushrooms and the poor state of supporting infrastructure represent a major structural challenge that requires immediate policy intervention. The synthesis of observations and stakeholder interviews confirms this persistent vulnerability in the value chain. Both the DOA and NGO perspectives highlighted the inadequate infrastructure, specifically the lack of cold

storage facilities and the need for better training in advanced post-harvest handling knowledge and value addition. The absence of proper cold storage severely limits the farmers' ability to manage surplus production and achieve economies of scale. Regarding Quality Control Issues, the DOA noted specific production concerns, such as some farmers overwatering mushrooms before harvest to increase weight, indicating a direct need for improved quality assurance training and regulation, which underscores the absence of institutional oversight mechanisms and standardized practices essential for maintaining product quality and market competitiveness. Furthermore, farmers across the groups cited rising input costs of media materials and the need for loans to acquire efficient compost preparation equipment as primary financial barriers, which directly contribute to the long-term sustainability and scalability of the enterprise.

5.5 Study Limitations

While this study provides rich and in-depth insights into the lived experiences of rural women engaged in mushroom cultivation, it has certain contextual and methodological limitations. First, the sample was geographically confined to the Kegalle District, which may limit the transferability of findings to other regions of Sri Lanka where socioeconomic and cultural conditions differ. Second, although the study relied primarily on self-reported narratives, these accounts are not considered weaknesses but rather central to understanding participants' lived realities. As the study adopted a phenomenological and constructivist approach, the subjective meanings and personal reflections provided by the participants represent authentic data rather than sources of bias. Nevertheless, it is acknowledged that participants' perspectives are context-bound and mediated by memory, social expectations, and their relational position within the household and community. Finally, the relatively small sample size, while appropriate for qualitative depth, limits the scope for generalizing findings to the wider population.

6. Conclusion

This chapter outlines the main conclusions drawn from this study of the socioeconomic contributions of mushroom cultivation on rural livelihoods in Sri Lanka. The research was grounded in a constructivist epistemology, which prioritizes understanding reality through the subjective experiences and interpretations of individuals. This approach, coupled with a phenomenological research design, was applied during fieldwork in the Kegalle District.

The objective of this research was to investigate the financial advantages and socioeconomic empowerment derived from mushroom cultivation and assess how different institutional support mechanisms influence these outcomes. Interpretation was fundamentally guided by the established conceptual frameworks, including Bourdieu's Theory of Practice (Habitus, Capital, Field), Giddens' Structuration Theory (Structure and Agency), and Kabeer's framework (Resources, Agency, and Achievements). These theories allowed for a nuanced understanding of how individual behavior is both influenced by and simultaneously challenges prevailing social structures.

In this final chapter, I consider how the study contributes to existing empirical and theoretical knowledge, demonstrating the rigorous methodology and suggesting implications for action. The study's significance lies in offering actionable insights for policymakers, agricultural extension services (AES), and development organizations.

The chapter is structured as follows:

6.1 Key Findings: Provides a concise summary of the empirical outcomes related to Economic contribution, Gender Empowerment, and Institutional and Policy Support.

6.2 Main Conclusions: This section moves beyond summarizing findings to provide a synthesized interpretation of the arguments developed in the discussion (Chapter 5), focusing specifically on how empirical evidence informs and elaborates the adopted theoretical frameworks. This integrated approach is essential to avoid repetition and establish the final, overarching claims of the thesis ensuring coherence between the study's findings, theoretical perspectives, and overall research objectives

6.3 Implications for AES in DOA and Development Organizations: This section presents concrete, context-specific recommendations derived directly from the synthesized conclusions, focusing on enhancing sustainability, market access, and addressing structural barriers such as the lack of cold storage facilities.

6.4 Methodological and Theoretical Reflections: This required section establishes accountability and rigor by reflecting on the effectiveness of the constructivist/phenomenological approach and the utilized theoretical models in capturing complex social dynamics.

Ideas for Further Study: This section formally translates the limitations of the study (Section 5.4) and the complexity revealed by the conclusions into specific, viable research avenues to contribute to the ongoing academic discourse on sustainable rural development.

6.1 Key Findings

The empirical findings in this thesis, gathered through fieldwork with independent and Saemaul-supported mushroom farmers in the Kegalle District, provide important insights into the socioeconomic effects of mushroom cultivation in Sri Lanka. The research confirms that mushroom farming offers a viable and inclusive livelihood strategy. This activity requires minimal land and relatively low initial investment compared to traditional agriculture, and its home-based nature enables women's participation without transgressing prevailing social expectations.

6.1.1 Economic Contribution

Mushroom cultivation has had a positive contribution on household income for all farmers involved. This stability is primarily attributed to the enterprise requiring minimal land and its capacity to integrate effectively with women's daily household routines. Furthermore, the short production cycle allows farmers to realize relatively quick and continuous returns. The income generated from this activity enables farmers to cover daily expenses and achieve significant financial goals, such as building houses or organizing family events. Many farmers demonstrated entrepreneurial initiative by reinvesting their profits back into expanding their mushroom farming operations.

6.1.2 Gender Empowerment

The findings conclusively demonstrate that mushroom cultivation strongly facilitates socioeconomic empowerment, particularly for women. The spatial organization of mushroom farming, being home-based, plays a critical role in enabling women's participation. Due to their economic contributions and participation in public life, women gained increased recognition and respect within their families and communities. This enhanced socioeconomic status empowered women to engage in household decision-making and pursue significant financial goals. Moreover, participation and related training provided women with new skills and knowledge, which enhanced their overall sense of empowerment.

6.1.3 Institutional and Policy Support

The success of mushroom farming initiatives was significantly supported by institutional frameworks, including government agencies (Department of Agriculture, DOA) and NGOs (such as the Saemaul Project), particularly during the initial establishment phase. This initial support was pivotal, providing necessary training, infrastructure provision, and support for the formation of farmer cooperatives. However, despite this vital assistance, farmers identified persistent challenges and needs requiring further support. These needs include support in post-harvest technologies, value addition, efficient production methods, low-interest loans, and improved market linkages. Such interventions are deemed necessary for addressing structural barriers, improving access to inputs and credit, and enhancing market access.

6.2 Main Conclusions

Based on the synthesis and interpretation of the empirical data within the adopted theoretical frameworks, this study advances three overarching conclusions regarding the socioeconomic contribution and sustainability of mushroom cultivation in the Kegalle District. These conclusions address the complexity of the transformation observed, particularly focusing on the interplay between individual resources, social structures, and policy environment.

6.2.1 The Role of Individual Capital in Overcoming Structural Constraints

The study argues that while institutional support is required to address large-scale infrastructure gaps, the success of certain individuals in navigating these challenges highlights the power of human capital in mitigating structural weakness. This observation aligns with Bourdieu's Theory of Practice. Specifically, in terms of Self-Reliance and Problem-Solving, independent farmers, who were characterized by higher educational attainment (Grade 13), demonstrated a superior capacity in dealing with these persistent structural constraints. Their enhanced financial literacy, decision-making capacity, and knowledge enabled them to successfully pursue profitable market strategies without reliance on institutional intermediaries.

In terms of Information Access and Experimentation, education influenced the independent farmers' ability to seek out technical knowledge and experiment with alternative substrates, allowing them to overcome initial production barriers that subsidized groups might rely on institutions to solve. This insight leads to a crucial Policy Implication: future policy must be two-pronged. This involves simultaneously addressing the large structural gaps (e.g., cold storage, market

regulation) while also focusing on increasing the human capital of the farmers (financial literacy and specialized technical training). This approach is necessary to ensure that the women have the agency to sustain their businesses even when institutional support is withdrawn. The conclusion emphasizes that without sufficient individual capacity, long-term empowerment and autonomy may not be achieved.

6.2.2 Incremental Agency Constrained by Persistent Structures

The primary conclusion is that mushroom cultivation is a powerful vehicle for promoting economic Agency and initiating incremental shifts in traditional gender roles within rural households, but this agency is consistently constrained by prevailing structural factors.

The livelihood strategy successfully facilitated women's empowerment by meeting the criteria defined by Kabeer's framework. The low input requirements and home-based nature of the enterprise provided women with access to resources and income control without transgressing prevailing social expectations. This economic independence translated directly into greater negotiating power and involvement in household decision-making (Agency and Achievements).

However, the transformation of gender roles remains incomplete. While women overwhelmingly perform the core production tasks (bag filling, harvesting, watering), men typically retain control over tasks requiring mobility, external negotiation, and capital investment, such as operating the heavy machinery (sterilizers) and handling market transportation. This observed division confirms the utility of Giddens' Structuration Theory in revealing that individual agency is still limited by the Habitus (ingrained norms) that restrict women's mobility and access to the market Field.

6.2.3 Unequal Attainment Mediated by Educational Capital

A key conclusion is that the successful realization of socioeconomic Achievements, such as sustainable financial stability and autonomy, is not universal but is fundamentally conditioned by the farmer's pre-existing Human Capital. The comparative analysis revealed that the independent farmers demonstrated generally higher levels of educational attainment (Grade 13) compared to the supported farmers. Applying Bourdieu's Theory of Practice, the study concludes that higher educational capital provides the self-reliance necessary for women to navigate the complexities of the market Field. This enhanced capacity allowed independent farmers to seek technical knowledge, experiment with alternative substrates, and overcome market barriers more effectively than groups reliant solely on institutional guidance. Ultimately, the

ability to scale production and achieve financial security is disproportionately influenced by the capacity to access, understand, and apply complex information, a resource directly linked to educational capital.

6.2.4 Policy Deficits Undermine Long-Term Sustainability

Despite the immense individual effort and agency displayed by farmers, the long-term sustainability and scalability of mushroom cultivation are seriously undermined by persistent and unaddressed structural constraints in the value chain. Policy gaps exist because the highly perishable nature of mushrooms means that post-harvest losses become devastating in the absence of specialized infrastructure. There is a confirmed, unanimous need for targeted policy support to facilitate investment in cold storage facilities and advanced technical training in value addition. Furthermore, the enterprise's profitability is consistently challenged by the dominance of intermediaries or middlemen who impose low, non-negotiable prices. The conclusion is that long-term benefits cannot be sustained without institutional support focused on stabilizing markets and strengthening cooperatives to secure consistent prices and manage bulk sales.

6.3 Implications for AES in DOA and Development Organizations

This section translates the major conclusions of the study, particularly those concerning structural constraints and the mediation of socioeconomic outcomes by individual capital- into concrete, actionable recommendations for the Agricultural Extension Service (AES) under the Department of Agriculture (DOA) and external development organizations operating in rural Sri Lanka. These implications are crucial as the significance of this study lies in providing practical and actionable insights for policymakers.

The sustainability of mushroom cultivation as an empowering livelihood strategy requires that institutional efforts move beyond initial input provision and focus on strengthening the value chain and addressing deeply embedded social inequalities.

6.3.1 Addressing Structural Barriers and Investing in Infrastructure

The long-term viability of mushroom farming as a livelihood strategy is significantly challenged by pervasive structural constraints in post-harvest handling and market access. To mitigate these issues, development organizations and the Department of Agriculture (DOA) are required to collaborate with financial institutions to establish accessible and low-interest loan schemes

specifically tailored to small-scale mushroom farmers. This targeted financing is crucial for enabling investment in essential infrastructure.

This necessary infrastructure includes cold storage facilities and sterilizers (or other efficiency-enhancing machinery). Investing in this infrastructure is vital for managing the highly perishable nature of the product, mitigating post-harvest losses, and allowing farmers to successfully scale their operations. Additionally, institutional efforts should be directed toward improving farmers' access to affordable and quality inputs, such as substrate materials and spawn, potentially by strengthening supply chains or supporting local production units. This focus on input accessibility must also include providing loans necessary to acquire efficient compost preparation equipment.

6.3.2 Strengthening Human Capital through Targeted Training

The research concluded that the realization of empowerment and autonomy were significantly mediated by farmers' pre-existing educational capital. Based on this finding, the Agricultural Extension Service (AES) programming must proactively address these educational and technical deficits to ensure equitable success among all farmers.

To achieve this, extension services should offer targeted training programs addressing the specific technical needs of mushroom farmers. This tailored training should encompass advanced cultivation techniques, efficient production methods, and expertise in post-harvest handling, knowledge, and value addition (e.g., drying, processing, and packaging).

Furthermore, institutional training must specifically focus on Quality Assurance and Financial Literacy. Training must address observed issues in quality assurance, such as the practice of overwatering mushrooms to increase weight before harvest. Crucially, integrating financial literacy training is essential to equip women farmers with the capacity to manage finances, navigate the complex market field, and establish stable businesses. This approach is necessary as it helps mitigate the necessity of high educational attainment as a prerequisite for success in the mushroom farming sector.

6.3.3 Stabilizing Markets and Fostering Collective Agency

The exploitation by middlemen and lack of price stability pose a severe threat to profitability of mushroom cultivation. Consequently, institutional support must focus on market stabilization to protect the achieved economic benefits. To achieve this, the DOA and development partners should prioritize facilitating the formation and strengthening of farmer groups/cooperatives for collective marketing and sales. Collective selling has proven to be a crucial strategy to counter the middlemen's influence, manage costs, and secure consistent prices for

bulk sales. Furthermore, institutions should provide training on branding, bulk packaging, and utilizing a single quality and brand to build market trust. This effort is necessary for scaling up and capitalizing on online platforms. Ultimately, policy support is needed to stabilize markets and protect smallholders from extreme price volatility.

6.3.4 Promoting Gender-Sensitive Program Design

Interventions must actively acknowledge and address the ingrained societal gender norms (Habitus) that restrict women's mobility and capacity for full participation. To ensure equitable access and resource control, interventions must ensure equal access to training, resources, and market opportunities for women. This targeted approach is necessary because some DOA programs currently align with cultural norms that reinforce the woman's home-based role. Additionally, programs should recognize the women's dual burden of production and domestic responsibilities. This recognition necessitates promoting the sharing of household responsibilities, particularly for tasks that require external travel or heavy machinery operation (like transportation and broiler operation), which are typically retained by men. Finally, supporting institutions (AES/DOA) must build gender awareness and capacity within their own ranks, drawing on lessons from other development contexts to ensure interventions effectively and equitably support women farmers.

6.4 Methodological and Theoretical Reflections

This section provides a required reflection on the efficacy of the methodological and theoretical frameworks utilized, establishing accountability and rigor in the conduct of this qualitative research.

6.4.1 Methodological Rigor and Design

The choice of a qualitative research approach was appropriate, as it permitted the "rich and detailed exploration" necessary to understand the complex socioeconomic realities of the farmers. The study was explicitly grounded in a constructivist epistemology, which posits that reality is actively constructed through subjective experiences. Consequently, adopting a phenomenological research design proved essential, as it allowed the research to explore the participants' "lived experiences" and social and economic realities "in their own terms". This specific approach was particularly important for capturing nuanced shifts in empowerment and household dynamics.

To ensure the credibility and depth of the findings, the methodology utilized Methodological Triangulation. The reliance on self-reported data obtained through semi-structured individual interviews and focus group discussions was

enhanced by the inclusion of direct observations. This triangulation technique served to "cross-verify claims" and provided crucial "contextual understanding" of daily practices and living conditions. The use of observation notes, for instance, allowed for the verification of the gendered divisions of labor observed in farming activities.

Acknowledging the limitations inherent in qualitative research, particularly the potential influence of the researcher's "presence as an outsider", self-reflexivity was employed. This process involved maintaining detailed field notes and critical reflection. This step acknowledged that data interpretation is influenced by the researcher's positionality and addressed the need for accountability in demonstrating scientific rigor.

6.4.2 Theoretical Frameworks

The research employed an integrated theoretical lens that proved effective in moving beyond mere description to provide a synthesized interpretation of how empowerment occurred and why its attainment was unequal. This combined approach drew upon two main sociological theories, Giddens' and Bourdieu's, complemented by Kabeer's Empowerment Framework, to capture the dynamic interaction between individual actions and larger social contexts.

Giddens' Structuration Theory (Structure and Agency) was instrumental in analyzing the dynamic, back-and-forth relationship between prevailing societal restrictions (Structure) and women's individual action (Agency). The theory allowed the study to examine how rural women utilized mushroom farming to "negotiate and potentially transform existing gendered roles" within their communities. Through this lens, the finding that transformation remained incremental due to persistent structural constraints was largely revealed, as women's agency continued to be limited by deeply ingrained social norms.

Bourdieu's Theory of Practice (Habitus, Capital, and Field) offered concepts crucial for explaining the unequal distribution of success. This theory provided the necessary concepts, Habitus (ingrained norms), Capital (resources like education), and Field (community structures), to elucidate why the efficacy of the livelihood intervention was mediated by pre-existing educational attainment (Human Capital). This framework effectively demonstrated that access to capital determines engagement in the market Field and influences the capacity of farmers to achieve long-term autonomy. For instance, Bourdieu's concepts helped analyze how access to capital (economic, social, and symbolic) shaped women's decisions and facilitated their agency.

Finally, Kabeer's Empowerment Framework (Resources, Agency, and Achievements) served as the essential conceptual foundation for defining and measuring empowerment. Anchored by the sociological theories, this framework was effective in categorizing the specific outcomes of the intervention and

measuring women's enhanced socioeconomic status and increased control over income and resources. This framework defined empowerment operationally as the process through which women enhance their socioeconomic status, decision-making power, and control over income and resources within both household and community spheres.

6.5 Ideas for Further Study

This study provided rich and in-depth insights into the socioeconomic contribution of mushroom cultivation, successfully establishing the role of educational capital in mediating empowerment and identifying significant structural constraints in the value chain. However, as noted in the reflections on methodology and limitations (Section 5.4), the research was restricted in its geographical scope (limited to the Kegalle District) and temporal depth.

Therefore, this research provides a strong foundation for future investigations aimed at validating these conclusions and expanding knowledge concerning sustainable agricultural livelihoods and gender transformation in Sri Lanka.

6.5.1 Longitudinal and Comparative Research

To enhance the transferability of the findings and understand the durability of the observed social changes, subsequent research should adopt a broader scope. This approach is necessary because the current study was restricted in its geographical scope, being limited to the Kegalle District, and in its temporal depth.

Further research should specifically employ longitudinal studies to assess the long-term sustainability of mushroom-based livelihoods and the persistence of changes in gender relations over time. Given that the empowerment observed was often incremental and negotiated, examining whether these shifts become permanent household norms is essential. Additionally, to account for the geographical limitation of the current study, comparative studies should be conducted across different regions of Sri Lanka. These comparisons should analyze regions with varying levels of institutional support and market access. Such comparative regional studies would provide crucial insight into how diverse socioeconomic and cultural factors influence outcomes, such as the effectiveness of different policy models and the degree of empowerment achieved.

6.5.2 In-Depth Analysis of Structural and Technical Gaps

The study concluded that persistent structural constraints, particularly market issues and infrastructure deficits, undermine the long-term viability of mushroom farming. Therefore, future work should concentrate on these bottlenecks to ensure the livelihood strategy's sustainability.

One essential area for future investigation is value chain analysis. An in-depth analysis of value chains for mushroom products is needed to identify specific constraints and opportunities for enhancing farmers' profitability and reducing reliance on middlemen. This research would directly inform policy on stabilizing markets and improving farmers' collective agency. The current findings already identify middlemen as a significant obstacle who impose low, non-negotiable prices on farmers.

Another critical area is the technological adoption and contribution. Research should investigate the adoption and contribution of innovative technologies in mushroom farming, particularly those addressing substrate preparation and post-harvest handling, such as cold storage solutions. This is crucial to address the problem of high post-harvest losses noted in the current findings. The current study confirmed a unanimous need for targeted policy support to facilitate investment in cold storage facilities and advanced technical training in value addition, as the highly perishable nature of mushrooms leads to devastating post-harvest losses in the absence of specialized infrastructure.

6.5.3 Expanding Social and Theoretical Dimensions

While the current study concentrated its efforts on women farmers, future research has significant scope to expand the theoretical inquiry into the social mechanisms that govern participation and inequality. The research can build upon the current framework, which utilized Bourdieu's concepts of Habitus and Field and Giddens' concept of Agency, to deepen the understanding of how social structures constrain transformation.

Specifically, further exploration of Gender Dynamics and Negotiations should be pursued using more participatory and ethnographic methodologies to gain deeper insights into intra-household negotiations and community-level gender norm changes. This approach would directly complement the current findings on Agency by thoroughly examining how Habitus and Field constrain full transformation. The present study concluded that while women exhibited increased agency, transformation remains incremental because persistent structural constraints, such as social norms that restrict mobility, still exist. Ethnographic methodologies would be vital in capturing the nuanced, non-observable forms of bargaining and negotiation.

Secondly, Inclusion of Marginalized Groups should be a focus for future research. The analysis should extend beyond gender to include an investigation into the specific barriers and opportunities faced by other marginalized groups in participating in and benefiting from mushroom cultivation. Although the current study focused primarily on women farmers due to their high representation in the industry, broadening the scope would offer a more comprehensive view of how

low-capital enterprises can serve as inclusive livelihood strategies for diverse populations within rural communities.

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Appendix 1

Semi-Structured Interview Guide - Thematic and Indicative Probes.

Note on usage: This document presents thematic areas and indicative probes used to guide flexible, in-depth conversations with participants. Because the study is grounded in a phenomenological, qualitative approach, the questions functioned as prompts rather than a fixed questionnaire. The interviewer adapted the order and phrasing of questions to follow participants' narratives and to pursue emergent themes relevant to the theoretical framework. The guide therefore documents the range of themes covered in the fieldwork and the probes that were used to elicit rich, detailed accounts; it does not represent a rigid scoring tool or survey instrument.

Ethics and logistics (summary): All interviews began with an explanation of the study purpose, anonymization and confidentiality measures (GDPR compliance), voluntary participation, and the right to withdraw. Audio recording was used only with explicit consent. Demographic details were collected at the start to contextualize the narratives (age, gender, household composition, education, other income sources).

Introduction to Interviews.

Start every interview by explaining:

- The purpose of the study.
- Anonymization and confidentiality of responses under GDPR.
- Their right to withdraw at any time.

Ask for demographic information:

- Age
- Gender
- family size
- education level.
- Other household income sources.

Interview Questions

For Farmers (Saemaul and independent mushroom farmers)

1. Household Income and Economic Contribution:

- a. How has mushroom farming contributed to your household income?

Sub-Questions:

- Before you started mushroom farming, what were your main sources of income? How much?
- When did you start mushroom farming?
- When did you involve to mushroom farming?
- How much of your household income now comes from mushroom farming?

- Has your total household income increased, decreased, or stayed the same since you started mushroom farming?
- Do you earn a stable income from mushrooms, or does it change depending on the season?
- Has mushroom farming helped you cover daily expenses like food, education, or healthcare?
- Have you been able to save any money from mushroom farming profits?
- Do you reinvest part of your mushroom income into expanding your farming activities?
- b. Can you describe the biggest financial benefits or challenges you've experienced?

Sub-Questions:

- What has been the most financially rewarding part of mushroom farming?
(E.g., low investment cost, quick profits, stable market)
- What are the biggest costs in mushroom farming?
(E.g., buying spawn, materials, packaging, transport)
- Have you faced difficulties in affording these costs?
If yes, how do you manage them?
- Have you had to take loans or borrow money to continue mushroom farming?
If yes, from whom?
- Are there times when you struggle to sell your mushrooms?
If yes, when? and why?
- Have you ever lost money due to unsold mushrooms or market price changes?
- If you could receive financial help, what kind of support would benefit you the most? (Loans, subsidies, better prices, etc.)
- c. Have you found new income-generating opportunities linked to mushroom farming?

Sub-Questions:

- Besides selling fresh mushrooms, have you found other ways to earn money from mushroom farming?
(E.g., making mushroom-based products, selling mushroom compost, training others)
- Have you been able to expand your mushroom business by selling in new markets or to new buyers?
- Have you noticed any new job opportunities in your community because of mushroom farming?

- Have you collaborated with other farmers to increase income opportunities?
(e.g., bulk selling, cooperative marketing)?
- Are there any additional skills or training that could help you earn more from mushroom farming?
- Do you see potential to increase your mushroom production and earnings in the future?

If yes, what would help you achieve this?

2. Gender Roles in Making Decisions:

- a. How has your participation changed in family decision-making since you started mushroom cultivation?

Sub-Questions:

- Before you started mushroom farming, who made most of the financial and farming decisions in your household?
- Do you now have more influence in making decisions about household expenses?
If yes, in what way?
- Are you involved in decisions about how to use the income from mushroom farming? (E.g., savings, reinvestment, household needs)
- Do family members now consult you more on financial or farming-related decisions?
- Has mushroom farming changed how responsibilities and decision-making are shared between men and women in your household?
- Have there been any disagreements in the family about who controls the income from mushroom farming?
How were they resolved?

- b. Have the roles that men and women perform in your home changed throughout time?

Sub-Questions:

- Before mushroom farming, what were the main tasks of men and women in your household?
- Who mainly takes care of mushroom farming activities in your family?
(E.g., preparing the media, watering, harvesting, selling)
- Has mushroom farming given women more work responsibilities or opportunities in the household?
- Do men now participate more in activities that were traditionally done by women (e.g., household chores, childcare) because of mushroom farming?
- Do you think women now have more recognition or respect in the family because of their role in mushroom farming?

Why or why not?

- Have you noticed any changes in how other families in your community share work between men and women?

c. What are your thoughts on the role that women play in local farming?

Sub-Questions:

- In your community, what kinds of farming activities are mostly done by women?
- Do you think women are equally involved in farming compared to men, or do they face more challenges?
- What difficulties do women face in farming that men do not?
(E.g., access to land, training, credit)
- Has mushroom farming created more opportunities for women to become financially independent?
- Are women in your community interested in starting or expanding mushroom farming?
If not, what holds them back?
- What kind of support (e.g., training, financial help, market access) would help women play a bigger role in farming?

3. Resource Access:

a. Who provided you with training or resources to start mushroom farming?

Sub-Questions:

- How did you first learn about mushroom farming?
- Did you receive any formal training before starting?
If yes, who provided it? (Government, NGOs, other farmers, private companies?)
- What type of training or support did you receive?
(E.g., technical knowledge, financial help, equipment)
- Was the training or support free, or did you have to pay for it?
- Do you think the training and resources you received were enough to start successfully?
Why or why not?
- Have you attended any follow-up training or workshops after you started mushroom farming?

b. What challenges have you faced in accessing resources like land, equipment, or credit?

Sub-Questions:

- Did you already have land available for mushroom farming, or did you have to find or rent land?

- If you needed land, what challenges did you face in acquiring it?
- Where do you usually get the equipment and materials for mushroom farming? (E.g., grow bags, spawn, fertilizers)
- Have you ever struggled to find good-quality equipment or materials at an affordable price?
- Have you tried to get financial support (loans, grants, subsidies) for mushroom farming?

If yes, from where?

- What difficulties have you faced in applying for loans or financial help? (E.g., lack of information, high-interest rates, collateral requirements)

c. Have you been able to overcome these challenges? If so, how?

Sub-Questions:

- If you faced land-related issues, how did you solve them? (E.g., renting, sharing with others, using small spaces)
- Have you found any alternative ways to get farming equipment or materials? (E.g., buying second-hand, using low-cost substitutes)
- Have you received any community or group support to access farming resources?
- Did you find any local or government programs that helped you with financial support?
- Have you changed any farming methods to reduce costs or deal with resource shortages?
- If you still face challenges, what kind of support do you think would help you overcome them?

4. Market Challenges:

a. Who are your primary customers and how do you sell your mushrooms?

Sub-Questions:

- Where do you usually sell your mushrooms? (E.g., local markets, direct to customers, wholesalers, supermarkets)
- Who are your main buyers? (E.g., individuals, hotels, restaurants, shops, traders)
- Do you sell mushrooms yourself, or do you use middlemen or agents?
- How do you decide the price for your mushrooms?
- Do you sell mushrooms regularly, or does demand change depending on the season?
- Have you tried different selling methods (e.g., home delivery, online sales, contract agreements)? If yes, what was your experience?

- b. What obstacles do you encounter while trying to distribute or market your produce?

Sub-Questions:

- Do you have difficulties finding a stable market for your mushrooms?
If yes, why?
 - Are there any transportation challenges that make it hard to get your mushrooms to market?
 - Have you faced problems with storage or keeping mushrooms fresh before selling?
 - Do middlemen or traders affect your profit?
If yes, how?
 - Are there any government regulations, taxes, or rules that make selling mushrooms difficult?
 - Have you faced competition from larger producers or imported mushrooms?
If yes, how has it affected you?
- c. Are there chances to enhance your products' worth or gain better access to markets?

Sub-Questions:

- Do you think there is a demand for higher-quality or value-added mushroom products (e.g., dried mushrooms, mushroom-based foods)?
- Have you considered selling your mushrooms in new markets (e.g., supermarkets, export, online)? If no, what prevents you?
- What type of support (e.g., training, marketing help, financial aid) would help you sell your mushrooms at better prices?
- Do you think branding or packaging your mushrooms differently could help you get better market access?
- Have you thought about joining a farmer group or cooperative to sell mushrooms in bulk and get better prices?
- What suggestions do you have to improve your market access and increase your earnings from mushrooms?

5. Empowerment and Social Contribution:

- a. Has mushroom farming helped you feel more financially independent or confident in managing finances?

Sub-Questions:

- Before you started mushroom farming, who managed the household finances?
 - Do you now contribute more to household expenses because of mushroom farming?
 - Do you feel more confident in making financial decisions for yourself or your family? Why or why not?
 - Has mushroom farming allowed you to save money for future needs?
 - Have you been able to handle unexpected expenses (e.g., medical costs, school fees) with the income from mushrooms?
 - If you were to stop mushroom farming, would it affect your financial independence? If yes, how?
- b. Have you joined any groups or networks related to mushroom farming? How have they helped?

Sub-Questions:

- Are you part of any farmer organizations, cooperatives, or training groups? If yes, which ones?
- How did you learn about these groups, and why did you decide to join?
- What kind of support or benefits do you receive from the group? (E.g., training, financial aid, market connections)
- Have these groups helped you improve your mushroom farming skills or increase your income?
- Do you collaborate with other farmers to share knowledge or resources?
- If you are not part of any group, would you like to join one? What kind of support would encourage you to join?

- c. Have relationships in your community changed since you started mushroom cultivation?

Sub-Questions:

- Has mushroom farming created new opportunities for cooperation among farmers in your community?
- Have you noticed any changes in how men and women interact in farming or business activities?
- Do you feel more respected or valued in your community since you started mushroom farming? If yes, how?
- Have more people in your village become interested in mushroom farming after seeing your success?
- Has mushroom farming led to new social connections or friendships with other farmers?

- Do you think mushroom farming has strengthened the overall economy or well-being of your community? Why or why not?

For Key Stakeholders (DOA Officials and Saemaul leader)

- a. What initiatives have been introduced to support small-scale mushroom farmers?

Sub-Questions:

- What specific programs or policies exist to promote mushroom farming among small-scale farmers?
- Which organizations (government, NGOs, private sector) are involved in supporting mushroom cultivation?
- What kind of support do these programs offer? (E.g., training, financial aid, infrastructure, market access)
- How are farmers selected to participate in these initiatives?
- Are there any partnerships between the government and private sector to promote mushroom farming?
- Have these programs been successful? What challenges have been encountered in their implementation?

- b. How do these programs specifically target women and marginalized groups?

Sub-Questions:

- Are there specific programs designed to support women and marginalized groups in mushroom farming?
- What percentage of participants in these initiatives are women or from marginalized backgrounds?
- What strategies have been used to encourage women's involvement in mushroom farming?
- Are there any cultural or societal barriers that make it harder for women to access these programs?
- Do these initiatives provide financial incentives or special training for women farmers?
- Have you observed any success stories where women have significantly benefited from these programs?

- c. What are the key barriers you observe that limit small farmers' success?

Sub-Questions:

- What are the biggest challenges small-scale mushroom farmers face in terms of production? (E.g., access to quality inputs, land, training)

- What financial barriers prevent small farmers from expanding their mushroom businesses?
- How do market dynamics (e.g., competition, pricing, supply chain issues) contribute small-scale mushroom farmers?
- Are there any issues with farmers accessing government or NGO support programs?
- Do farmers struggle with post-harvest handling, packaging, or value addition?
- What policy or structural changes do you think would help small farmers overcome these barriers

d. How do you address market competition and ensure fair pricing for local farmers?

Sub-Questions:

- What are the main sources of competition for local mushroom farmers? (E.g., imported mushrooms, large-scale producers, price fluctuations)
- Are there any government policies or regulations to protect small-scale farmers from unfair competition?
- What strategies are in place to help farmers get better prices for their mushrooms? (E.g., cooperatives, price controls, subsidies)
- How do farmers currently set their prices, and what challenges do they face in maintaining profitability?
- Are there any programs to connect farmers directly with buyers to reduce middlemen's influence on pricing?
- How do you ensure that farmers have enough market information to negotiate fair prices?

e. What steps are being taken to improve post-harvest practices and sustainability in the sector?

Sub-Questions:

- What are the most common post-harvest losses faced by mushroom farmers, and how are they being addressed?
- Are there any government or NGO programs focused on improving post-harvest handling techniques?
- What technologies or best practices are being introduced to extend the shelf life of mushrooms?
- Are there training programs available to help farmers reduce waste and improve storage and packaging?
- How can farmers increase value addition (e.g., drying, processing, or packaging) to improve their earnings?

- What steps are being taken to promote environmentally friendly and sustainable mushroom farming practices?
- f. What future strategies do you recommend to scale up mushroom farming and link it to rural development?

Sub-Questions:

- What are the long-term plans for expanding mushroom farming in rural areas?
- How can mushroom farming be integrated into broader rural development programs?
- Are there efforts to improve farmer access to credit or investment opportunities for scaling up?
- What role can cooperatives or farmer groups play in helping small farmers expand their businesses?
- How can digital platforms or technology (e.g., online marketplaces, mobile apps) be used to improve market access?
- What policy recommendations would you suggest to enhance the growth of the mushroom sector?

Focus Group Discussion Themes

- a. Financial challenges and opportunities in mushroom farming.

Sub-Questions:

- What are the main costs involved in mushroom farming? (E.g., materials, labor, transport)
- Have you faced financial difficulties in starting or maintaining mushroom farming? If yes, what were they?
- Have you received any financial support (e.g., loans, grants, subsidies)? If yes, from whom?
- How do you manage financial challenges when mushroom prices fluctuate?
- Do you think mushroom farming is a stable source of income? Why or why not?
- What opportunities do you see for increasing your income from mushroom farming?
- What financial support would help you expand your mushroom farming business?

- b. Changes in gender roles and collaboration within the community.

Sub-Questions:

- Before starting mushroom farming, what were the traditional roles of men and women in your household?

- Has mushroom farming changed how men and women divide responsibilities in your home? If yes, how?
- Do women now participate more in household financial decisions because of mushroom farming?
- Are men more involved in tasks that were traditionally done by women? If yes, which ones?
- Have women in the community started working together more because of mushroom farming?
- Are there any cultural or societal challenges that prevent women from fully participating in mushroom farming?
- What kind of support would help both men and women work better together in mushroom farming?

c. Barriers to accessing resources and scaling up production.

Sub-Questions:

- What challenges do you face in getting the materials needed for mushroom farming? (E.g., spawn, growing bags, fertilizers)
- Is it easy or difficult to get land for mushroom farming? Why?
- Have you received any training in mushroom cultivation? If yes, from whom? If no, why not?
- Do you think access to loans or financial support is easy for small-scale mushroom farmers? Why or why not?
- Have you had any issues with transportation, storage, or marketing of your mushrooms?
- What policies or programs would help you access more resources to expand your farming?
- What advice would you give to new farmers who want to start mushroom farming but lack resources?

d. Collective strategies for improving marketing and distribution.

Sub-Questions:

- How do most farmers in this community sell their mushrooms?
- What difficulties do farmers face when trying to find buyers or get good prices?
- Do you think working together as a group or cooperative could help farmers sell better? Why or why not?
- Have you ever tried selling mushrooms in bulk with other farmers? If yes, what was the experience?
- How do middlemen or traders affect your ability to get fair prices for your mushrooms?

- What marketing strategies (e.g., packaging, branding, online sales) could help farmers sell mushrooms at better prices?
- What suggestions do you have for improving market access for small-scale mushroom farmers?

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