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THE ROLE OF WOMEN IN CLIMATE SMART AGRICULTURE (CSA) IN SRI LANKA

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ABSTRACT

Agriculture can be identified as a sector that is more affected by climate change in time and space. Climate-smart agriculture (CSA) has been introduced to the world to avoid these conditions, and women's contribution is also significant. This research paper examines women's role in CSA in the dry zone of Sri Lanka. Accordingly, the main objective of this research is to identify the nature of women's role in CSA. This study was conducted in an ecological approach using qualitative and quantitative data. The data were collected through semi-structured interviews, in-depth interviews, field visits, books, research papers, magazines, and online resources related to the study. Also, 1:50,000 digital maps and geographical data were used to generate maps. The sample was taken from the Samanalabedda Grama Niladhari Division (GND) in Siyabalanduwa Divisional Secretariat Division (DSD), Monaragala District. The purposive sampling method was adopted under the non-probability sampling method. Through this research, it was found that female headed farming household heads are using several practices of CSA such as mulching, roof rainwater harvesting, and construction of agricultural wells and tube wells. These practises have had a positive influence on poverty reduction, agricultural productivity, and food supply. However, women face challenges related to land access, limited financial resources, disparities in agricultural inputs and technologies, and socio-cultural norms. To address these issues, gender-responsive policies, increased access to resources, capacity-building, and measures to promote gender equality and women's empowerment are required. As a summary, by overcoming these obstacles, CSA can effectively contribute to poverty reduction, improved livelihoods, and climate resilience in Sri Lanka's dry zone. Accordingly, it is clear that not only in the world but also in Sri Lanka, women make a considerable contribution to CSA.

KEYWORDS: *Adaptation, Agriculture, Climate Change, CSA, Women*

1. Introduction

Agriculture is the process of producing food by farming or planting. In the early days, the meaning of agriculture was interpreted as plough (See Sama) (Yasintha, 2018). Among the basic needs of man, the need for food is prominent, and for that, agriculture is significant. agriculture is the main means of obtaining food for man. Agriculture is included in the category of primary economic activities in the classification of world economic activities.

The climate is the general weather condition in a specific geographical region for about 30 years in the related atmosphere is called climate (Shaftel, 2021). Thus, adverse changes in the climate that have existed in a geographical area for a long time are called climate change (Shaftel, 2021).

To meet the challenges of agricultural planning under climate change, the concept of CSA is gaining significant traction at the national and international levels. Farmers' preference for CSA technologies and applications varies by socio-economic characteristics and rainfall zones (Khatri-Chhetri et al., 2017).

"CSA is an approach that helps guide the necessary actions to transform and restructure agricultural systems to effectively support development in a changing climate and ensure food security." (*Climate-Smart Agriculture, Food and Agriculture Organization of the United Nations*, 2021).

"An integrated approach to managing landscapes, croplands, livestock, forests and fisheries that faces the interconnected challenges of food security and climate change." (*Climate-Smart Agriculture*, 2020)

CSA represents a combination of practices used in the fields of historical ecological ecology, conservation, climate change, and agriculture (Chandra et al., 2018). Thus, when all the above definitions are studied together, it appears that CSA can be recognised as an approach that guides the necessary actions to increase the productivity of crops and maintain food security to adapt to changing climatic conditions.

Evidence shows that the world's past climates have changed temporally and spatially (National Geographic Society, 2021). Accordingly, adaptation to the changing climate is essential for the survival of the human population and other biological communities. Agricultural activities should be adapted to the seasonal and spatial changing climate. Otherwise, the farmers will have to face adverse consequences such as reduced agricultural production capacity and crop damage. Accordingly, farmers must adapt to

the changing climate and carry out their agricultural activities. For this purpose, the concept of CSA was born in the trial of new approaches globally.

2. Literature Review

Sri Lanka has a strong agricultural sector that is vital to the country's economy and food security. Women's participation in agriculture has been recognised as critical for sustainable development and inclusive growth in this industry. Furthermore, the adoption of CSA practices has grown in popularity in Sri Lanka, with the goal of improving agricultural production, resilience, and environmental sustainability in the face of climate change.

Women's participation in agriculture in Sri Lanka is extremely important due to their significant contributions to the sector. Women play various roles, from farm labourers to managers, entrepreneurs, and traditional knowledge keepers. The participation ensures food production, processing, and distribution, thereby improving rural livelihoods and contributing to national food security.

Furthermore, as a reaction to the country's climate change challenges, the concept of CSA has gained ground in Sri Lanka. Climate adaptation and mitigation measures are integrated into agricultural practices in order to increase productivity while minimising negative environmental impacts. It includes practices such as sustainable land management, water conservation, agroforestry, and enhanced agricultural and livestock management approaches.

Agriculture can potentially be a significant engine of prosperity and poverty alleviation (World Bank Group, 2016). However, the sector is failing in many countries, partly due to restraints that limit the productivity of women, who are typically a critical resource in agriculture and the rural economy. This research uses empirical evidence to investigate where and to what extent women participate in CSA.

This research reaffirms that women contribute significantly to CSA and rural enterprises throughout the developing globe. However, women's roles vary greatly, and over-generalization hinders policy relevance and planning.
This research examines on following areas.

- What sort of CSA techniques and applications are done by women in the dry zone of Sri Lanka?

- What are the impacts of CSA on poverty reduction?

- What do women face the challenges when implementing CSA techniques and applications?

CSA is an approach to transform and reorganise agricultural systems to support food security under the new realities of climate change (Loan, 2014).

CSA is an approach to food production that can improve agricultural productivity, increase resilience to climate change, and reduce greenhouse gas emissions. These practices can potentially feed the planet by implementing this approach (FAO, 2014). CSA is an approach to development and food security built on three pillars. These include increasing food production and incomes, increasing livelihoods and resilience of ecosystems, and reducing and halting greenhouse gas emissions from the atmosphere (FAO, 2014).

Global climate change is recognised as one of the greatest threats to agricultural productivity in many parts of the world. Many African countries are predicted to be severely affected by climate variability and changes in agricultural production due to changes in food availability, length of seasons, and yield dynamics (Totin et al., 2018). Agriculture is central to many developing countries and is key to meeting the basic needs and livelihoods of 70% of the world's poorest people (GCEC, 2014).

According to the 2018 Global Climate Variability Index, Sri Lanka has been identified as the second most vulnerable country to climate change (Sakalasooriya, 2021). Sri Lanka can be identified as a vulnerable small island country under climate change (Zoysa & Inoue, 2014). Also, Sri Lanka has been identified as an island located in the tropics that is vulnerable to the adverse effects of climate change (Thadshayini et al., 2020). Sri Lanka is an upper middle-income country with a population of 21.67 million, 82% of which are in rural areas. Sri Lanka is an agricultural country, and agriculture is a major contributor to the country's national economy and food security of the country (Thadshayini et al., 2020). Sri Lanka's gross domestic product growth rate is 3.2%, and the agricultural sector's contribution to the gross domestic product is 7.0% (Sakalasooriya, 2021).

Climate change in Sri Lanka is mainly caused by temporal and spatial variations in temperature as well as temporal and spatial variations in rainfall. The climate of Sri Lanka is mainly determined by rainfall, temperature, seasonal pressure, wind system, and humidity (Thadshayini et al., 2020). More than 95% of the burning problem of farmers is the lack of water for agriculture (Sakalasooriya, 2021).

Three main agricultural production methods can be identified in Sri Lanka: food crops, plantation crops, and dairy cattle (World Bank¦CIAT, 2015.). The most important food products of Sri Lanka are rice, maise, cereals, and vegetables. They are produced in

different scales and intensities. The high sensitivity of major agricultural crops, livestock, and fisheries to climate change, mainly due to temperature increases and decreases in rainfall and abrupt climate change, can have short and long-term adverse effects on food production in the eastern dry zone of Sri Lanka (Thadshayini et al., 2020).

Because of these conditions, it is clear that there is a need to adapt to climate change in Sri Lanka. The agricultural sector must pay more attention to this, especially since the agricultural economy is fundamental. Thus, Sri Lanka is also moving towards CSA.

2.1 Women's participation in agriculture

According to the "Food and Agriculture Organization of the United Nations (FAOUN), women's participation in agriculture is around 43% compared to male participation. In a more straightforward idea, it can be shown that women make up a significant portion of the world's agricultural workforce, contributing to food production, processing, and distribution.

Other than these processes, women actively participate in the following.

1. Farming and Livelihoods
2. Challenges and Constraints
3. Food Production
4. Empowerment and Economic Benefits
5. Climate Change and Resilience
6. Policy and Initiatives

Thus, by reading the above, it is evident that achieving sustainable development, lessening poverty, and guaranteeing food security for all people, are essential to promote gender equality and women's empowerment in agriculture. Societies may reach their full potential and build a more diverse and resilient agricultural sector by addressing the unique demands and difficulties experienced by women in agriculture. However, when the discussion comes to CSA, it is vital to discuss how women are participating in CSA and their contribution.

2.2 Worldwide contribution of women to CSA

When it comes to CSA-related techniques and applications, women's contribution to the development of the CSA should be addressed. It is evident that the active participation and leadership of women in many areas significantly aids the advancement of CSA. Some significant contributions made by women to the advancement of CSA can be addressed.

Women are actively involved in CSA capacity-building and training efforts. They attend workshops, training programs, and farmer field schools to understand better the effects of climate change, adaption measures, and sustainable farming practices. Women trainers and educators also train other farmers, advocating using CSA practices.

Apart from capacity building, women increasingly participate in climate-smart agriculture advocacy and policy debates. They participate in local, national, and worldwide forums, expressing their concerns and advocating for gender-responsive policies and programmes. Women's active participation in policy-making processes helps guarantee that climate-smart agricultural projects consider women's particular needs and views in agriculture.

Women are increasingly involved in getting climate funding and mobilising resources for CSA projects. Women's participation in climate-smart agriculture causes social and behavioural change in their communities. Women encourage and motivate others to adopt climate-resilient practices as leaders and role models.

Conservation and agroecology agriculture in CSA is an influential factor in the arena. Agroecological practices and conservation agriculture, which encourage the use of organic fertilisers, crop variety, and natural pest control measures, frequently put women at the forefront. These techniques improve soil health, water conservation, and biodiversity, strengthening the climate change resistance of agricultural systems. These techniques are not only eco-friendly but also economically beneficial.

Women have a larger role in CSA than just their work on the farm. And they have made significant contributions to CSA, and it is necessary to acknowledge and encourage these achievements. Thus, from this exercise, it tries to grasp the Sri Lankan experience of, how women are participating in the development of the agricultural and CSA techniques and applications.

2.3 Sri Lankan experience of women's participation in agriculture and CSA

Understanding the experiences and contributions of women in agriculture and CSA in Sri Lanka is crucial for several reasons. First, it allows for recognising and acknowledging women's roles and their significant contributions to agricultural development and sustainability. Second, it assists in identifying the obstacles and limitations that women encounter in accessing agricultural resources, services, and decision-making platforms, including CSA projects. Finally, in order to achieve gender equality and maximise the potential of climate-smart agricultural practices, it is vital to investigate ways and interventions to encourage women's participation in agriculture and CSA.

As mentioned above, this article provides a comprehensive overview of the Sri Lankan experience regarding women's participation in agriculture and Climate-Smart Agriculture. By reading, a reader might be able to understand and identify the gender gaps and constraints that hinder women's full participation in CSA initiatives.

2.4 Overview of Sri Lanka's agriculture sector:

Women are critical to Sri Lanka's agricultural economy, making significant contributions across the agricultural value chain. They are actively involved in a variety of agricultural operations such as land preparation, planting, weeding, harvesting, post-harvest processing, and agricultural produce selling. Women also work in cattle management, poultry farming, and fishing. Furthermore, women in Sri Lanka are the caretakers of traditional agricultural knowledge and practices and their labour-intensive work.

Sociocultural norms engagement in agricultural operations. Women's mobility, decision-making authority, and access to education and training opportunities are frequently restricted by traditional gender norms. Women's ability to make choices, negotiate fair prices, and access marketplaces is hampered by discrimination and unequal power dynamics within households and communities. In conclusion, women's agricultural engagement in Sri Lanka is crucial for long-term agricultural growth, rural livelihoods, and food security.

2.5 Women's roles and participation in CSA practices in Sri Lanka:

CSA practices are actively practised by women in Sri Lanka, contributing to sustainable agricultural development and climate resilience. They participate in CSA activities such as climate-resilient crop variety adoption, agroforestry, sustainable land management, water conservation, and integrated pest management. Women farmers play an essential role in implementing these practices on their farms and in their communities.

Women's participation in CSA in Sri Lanka extends beyond on-farm activities. They frequently participate in community-based projects, farmer field schools, and climate adaptation programmes, where they gain CSA knowledge and skills. Participation of women in these forums enables the exchange of experiences, best practices, and collective action for climate resilience in agriculture.

3. Objectives

This research's main objective is to identify women's role in CSA in the dry zone of Sri Lanka. Furthermore, the specific objectives of this study are.

- To identify the techniques and application of CSA that are done by women in the dry zone of Sri Lanka.

- To identify the contribution of CSA to poverty reduction of female-headed households.

- To identify the challenges faced by women when implementing CSA applications and techniques.

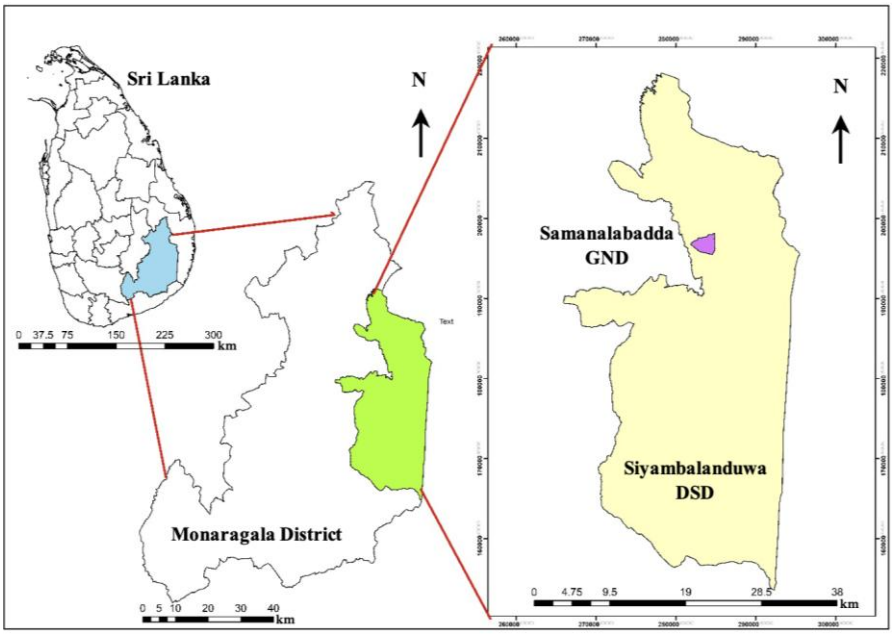
4. Research Methodology

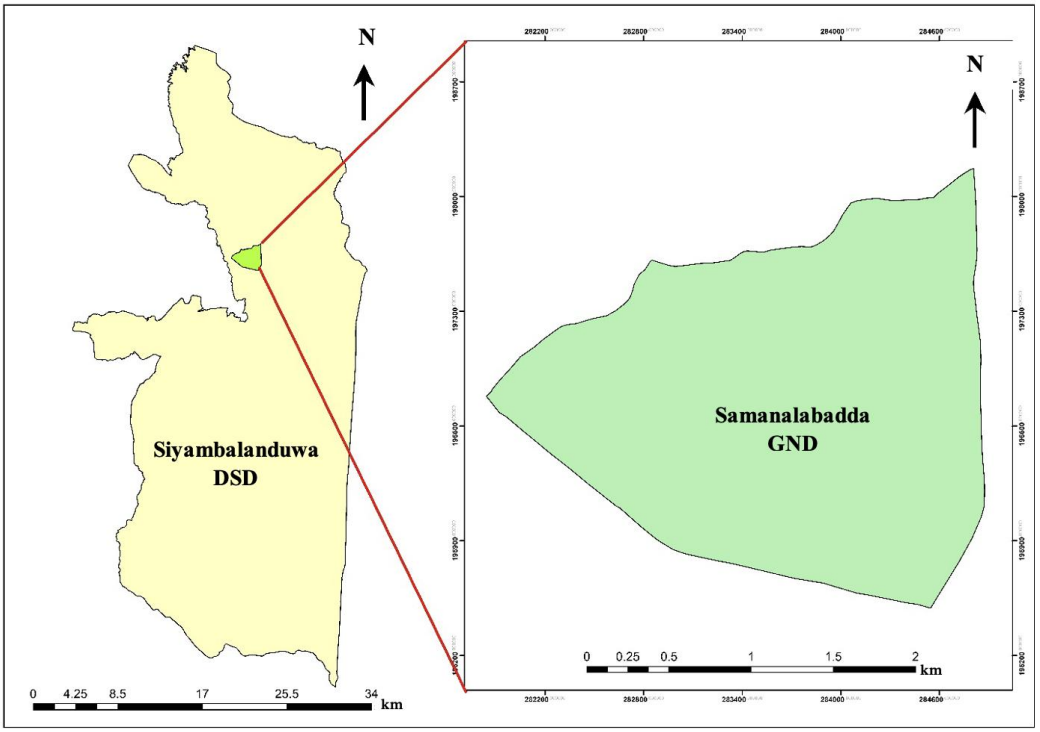
4.1 Selection of study area

The study area for this research was Samanalabedda GND in Siyambalanduwa DSD of Monaragala District. This area was selected to conduct this study based on several unique criteria. that is,

- Being a district representing the dry and intermediate regions among the 25 districts of Sri Lanka,
- The area is facing climate change.
- Being a suitable area for implementing CSA techniques and applications
- The majority of the women engaged in CSA live in this area.

- **Map 01: The Study Area**





Source: Compiled by the author using data from the survey department.

4.2 Selection of sample

Under the non-probability sampling method, the purposive sampling technique was adopted under the non-probability sampling method. Thus, ten female-headed households were chosen out of twenty-three female farmers. The key reason for selecting the sample mentioned above was that; their main economic activity/livelihood activity was agro cultivation. Furthermore, they were highly motivated to use the CSA applications and techniques.

4.3 Identification of required data types

This study was conducted with an ecological approach. Mix method was the primary method adopted throughout the research, where both qualitative and quantitative data were gathered to justify the objective of this research. Data such as CSA technologies and applications implemented by women farmers, economic data, issues related to CSA technologies and applications, geographic data, climate data, land use data and demographic data of the study area were the required data for this research.

4.4 Data collection

The primary data were collected through semi-structured interviews, in-depth interviews, and field visits. In contrast, the secondary data for the research were gathered by using books, magazines, and online resources related to the study. Apart from that, 1:50000 digital maps and geographical data were used to generate maps.

4.5 Data analysis and data presentation

Statistical methods were used in quantitative data analysis, i.e., Microsoft Excel and SPSS. For the qualitative data analysis, thematic data analysis was done. Tables and graphs represented the analysed data.

5. Results and Discussions

5.1 The CSA techniques and applications done by women in the dry zone of Sri Lanka

The study of secondary data identified that the dry zone of Sri Lanka (spreading over ⅔ of the region) is affected by climate change. Accordingly, the CSA techniques and practices used by women farmers in the dry zone were studied to reduce the effects of climate change. Accordingly, it was possible to identify that the women farmers in the study area are implementing various CSA technologies and applications. The identified techniques and applications are as follows.

- Mulching

  Mulching is a mechanism of retaining water in the soil layer, increasing soil fertility in the long term, and reducing soil evaporation happens with the help of it. This mechanism is used by six women farmers in the study area, and they apply mulch to their fields.

- Roof rainwater harvesting

  The rainwater that falls on the roof of their houses is filled in PVC water tanks, barrels, and large water tanks made of cement, which are used for their crops during the dry season. All ten women farmers in the study area use roof rainwater. This climate-smart approach ensures horticultural productivity and household food security.

- Construction of agricultural wells and tube wells

  Agricultural and tube wells are important in providing supplementary irrigation water during unexpected dry periods. These are critical to ensure environmental sustainability and continuous water supply. 05 women in the study area have agricultural wells, and 02 have tube wells. This will contribute significantly to climate change mitigation while ensuring domestic and national food security.

- Drip water supply

  They use this method to reduce the impact of frequent dry weather conditions on the growth of high-value crops. There drip irrigation technology is given to the crop with the help of a water heater. 03 women in the study area use this method. Here water security ensures food security.

- Crop diversification

  They cultivate different types of crops on the same land. For example, cowpea (Kavpi), green gram, vegetables, fruits, and potatoes are grown in the same field. Almost all the ten women in the study area follow this method.

- Crop rotation

  Farmers change the crops they grow each season. A shift of most women to legumes is mainly detectable. E.g., cowpea, green gram. 04 women in the study area use this method. Implementation of this system will improve soil health and thereby improve land productivity.

- Cultivation of fruit crops

  Mango (T & JC), papaya, cashew, pomegranate, citrus, pineapple (under shade), etc., can be grown here. Guava is a fruit crop well adapted to dry zone conditions, providing good yields while ensuring farmers' income. This improves livelihoods and increases land productivity. Almost all the ten women in the study area follow this method.

- Grafted fruit plants cultivation

  Grafted fruit plants bear fruit quickly and will produce good yields relatively quickly. Almost all the ten women in the study area follow this method. This improves land and water productivity and enriches livelihoods.

- Traditional yam cultivation

  Potatoes are well adapted to growing in water-scarce environments and will yield sufficient yields to support livelihoods. About 08 women in the study area follow this method. This improves land and water productivity.

- Pot culture of crops

  The culture of growing crops on pots can be identified as a climate-resistant cultivation practice that aims to save water and sustain production, especially under adverse weather conditions. About 06 women in the study area follow this method.

- Bund cultivation with vegetable crops in paddy fields

  They often follow this method in times when paddy cultivation is not done, when there is not enough water supply for it, and when there is a good price for vegetable crops. 05 women in the study area follow this method. This system will increase the productivity of land units and, thus, the livelihood of the community.

Accordingly, it was possible to find that the ten women farmers in the study area practice 11 CSA techniques and practices. Table No. 01 below shows the number of climate-smart practices each female farmer uses.

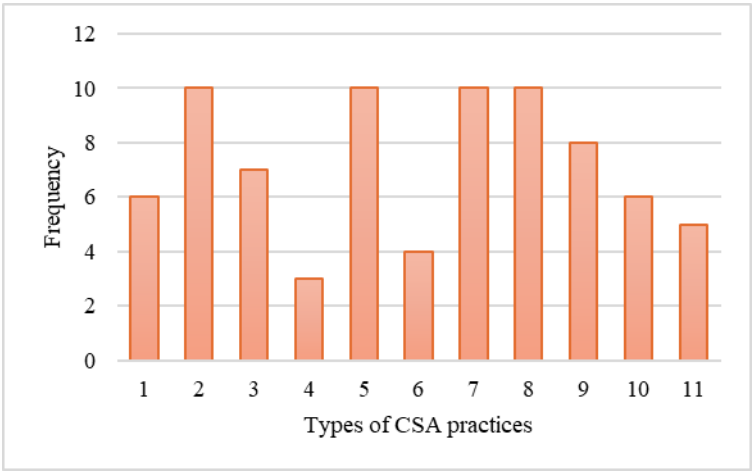
Table 01: The number of climate-smart practices used by each female farmer.

Respondent	Number of CSA techniques and practices
Farmer 1	5
Farmer 2	10
Farmer 3	8
Farmer 4	9
Farmer 5	9
Farmer 6	7
Farmer 7	6
Farmer 8	10
Farmer 9	5
Farmer 10	10

Source: Field study data, 2023

According to the above table, 03 out of 10 women practice 10 CSA practices which is the highest. The number of women farmers using the least number of CSA practices (05) is 2. According to this, it is clear that all the women farmers in the study area implement between 05 and 09 CSA practices.

Graph 01: Number of farmers practising each CSA practice.



Legend: Types of CSA Practices

1. Mulching
2. Roof rainwater harvesting
3. Construction of agricultural wells and tube wells
4. Drip water supply
5. Crop diversification
6. Crop rotation
7. Cultivation of fruit crops
8. Grafted fruit plants cultivation

Source: Field study data, 2023

Accordingly, it is clear that among the climate-smart practices in the area, practices 2, 5, 7, and 9 are implemented by most people. And practice 4 can be identified as the least effective practice in the area. Accordingly, it can be identified that the above-mentioned CSA practices and techniques are implemented by women in the dry zone of Sri Lanka.

5.2 The contribution of CSA to poverty reduction of female-headed households

Several factors influence women's participation in CSA practices in Sri Lanka. Access to resources and services is a critical factor. Women's ability to embrace climate-smart practices can be hampered by limited access to land, credit, agricultural inputs, and knowledge. Addressing these access hurdles through gender-responsive policies and interventions is critical for increasing women's CSA participation.

Sociocultural norms and gender inequality also influence women's engagement in CSA. Women's mobility and decision-making authority can be restricted by traditional gender roles and duties, restricting their participation in CSA projects. Women's engagement in CSA can be increased by addressing gender inequities and boosting women's empowerment through targeted capacity-building, awareness campaigns, and social inclusion measures. Considering these factors, the research was done. From the before said interviews, the following ideas were taken.

The gathered data showed that the CSA could be an agent of poverty reduction. The main reason for the above is that the CSA has increased the agricultural productivity and the quality of the crops in the area. CSA practices, such as sustainable land management,

precision agriculture, and improved irrigation techniques, have helped female farmers to increase their crop yields and productivity. This leads to higher incomes and better food availability for their households, contributing to higher income and being economically empowered.

Other than the increased productivity, climate-resilient farming techniques, including drought-tolerant crop varieties, agroforestry, and improved water management, have increased female farmers' productivity. By adopting these practices, female-headed households could better cope with climate-related challenges, such as erratic rainfall, extreme weather events, and pest outbreaks, reducing the risks of crop failure and income loss.

On the other hand, the health and nutrition of the family members were positively increased. Since CSA practices encourage the production of various crops and agroforestry, leading to greater dietary diversity and nutrition. Thus, CSA in the area has improved access to nutritious food for their families and communities. Ultimately it improves the mother and child's health.

As mentioned, CSA encourages diversification of agricultural activities, such as pot culture, bund cultivation with vegetable crops in paddy fields, and systematic home gardening can be seen in this area. Other than these CSA techniques, women are participating in non-agricultural income-generating activities such as small-scale businesses, i.e., packeting and retailing mushrooms, wholesale and retailing tamarind or wood apple-based products can be seen in the area. Despite agriculture, it is normal to see female farmers joining in drawing seettu, making handicrafts, or hand-loomed crafts. This diversification provides female-headed households with alternative income streams, reducing their vulnerability to external shocks and improving their overall economic well-being.

CSA programs often include training, capacity-building components, and providing female farmers with the necessary knowledge and skills to adopt climate-smart practices can be seen in the area too. This knowledge transfer equips women with valuable agricultural techniques, management skills, and decision-making abilities, enhancing their productivity and income-generating potential. For these, both government bodies and individual inspections are happening. For the governing bodies, the Development Officers, Grama Niladari, Agrarian Development Divisional Officers, and Agricultural Research & Production Assistants regularly guide and advise on the CSA practices, techniques, and applications.

5.3 The challenges faced by women when implementing CSA applications and techniques

Adoption of CSA practices may have gender-specific consequences and benefits for Sri Lankan women farmers. In order to understand this complexity, semi-structured interviews with the female farmers and in-depth interviews with the government bodies were held. Through these discussions, it was understood that the following challenges are being faced by women when implementing CSA applications and techniques.

Women frequently have restricted access to and control over land, an important agricultural output resource. Cultural norms and discriminatory inheritance practices restrict women's land ownership and tenure rights. These practices it has limited their capacity to engage in agricultural operations related to CSA.

Since Sri Lanka is a developing country, financing and financial disturbances are affecting both CSA and female farmers adversely. Women farmers encounter difficulties obtaining financing and financial services to invest in agricultural products, technologies, and CSA practices. Financial institutions may have biased lending practices or require collateral that many women do not have, limiting their financial inclusion and ability to implement climate-smart practices.

Disparities in agricultural inputs and technologies are some other forms of challenges that female farmers face. A lack of access to quality seeds, fertilisers, machinery, and other agricultural inputs hampers women's capacity to embrace contemporary and climate-resilient farming practices. A lack of access to relevant technologies and equipment further hampers women's productivity and efficiency in agricultural output.
Extension services and technical assistance are other sorts of challenges they face. Women frequently face hurdles to obtaining agricultural extension services and technical assistance. These services give critical information and training on CSA practices. However, because of limited mobility, gender preconceptions, and a lack of gender-sensitive techniques in extension programmes, outreach efforts may not reach women farmers properly.

Regarding socio-cultural conventions and impediments to women's participation in CSA, sociocultural restrictions and gender stereotypes can stymie women's participation in CSA practices. Among the sociocultural hurdles, the following issues and challenges were identified.

Conventional gender roles and responsibilities can be seen in the area. Thus, traditionally, women are assigned largely as carers and household administrators, limiting their time and mobility for participation in CSA activities. Women's caregiving

responsibilities frequently take precedence over agricultural employment, limiting their involvement in training programmes and CSA-related community initiatives.

Since the stereotypical gender roles are being played, it is forced to limit decision-making power. In other words, gender norms and unequal power dynamics have limited women's decision-making authority within homes and communities. The eldest son, eldest brother, or other relatives significantly influence the female farmers' decisions. Therefore, women's agency in adopting CSA practices and implementing climate-resilient techniques on their farms is diminished by limited decision-making autonomy.

This autonomy forces the women's involvement and participation in decision-making bodies, farmer organization, and agricultural cooperatives to be frequently limited. The absence of women's views and perspectives in policy discussions and planning processes impedes the development of gender-responsive CSA policies and programmes, too, can be seen. Other than that, it can be seen that a lack of gender-disaggregated data, information, and training on CSA practices hampers women's participation. Gender-specific information and training materials targeted to women's agricultural needs and roles are required to improve their knowledge and competence in implementing climate-smart practices. According to the discussions carried out, it was found that the statistical data was also lesser been addressed in government documentation.

6. Conclusion

This study explores women's role in Climate-Smart Agriculture (CSA) in the dry zone of Sri Lanka. The research identifies the techniques and applications of CSA implemented by women, examines the contribution of CSA to poverty reduction among female-headed households, and highlights the challenges faced by women when implementing CSA practices. The findings reveal that women farmers in the study area employ various CSA technologies and applications, such as mulching, rainwater harvesting, crop diversification, and bund cultivation. The implementation of these practices has positively impacted poverty reduction, agricultural productivity, and food availability. However, women face challenges related to land access, limited financial resources, disparities in agricultural inputs and technologies, and socio-cultural norms. Addressing these challenges requires gender-responsive policies, improved access to resources, capacity-building, and efforts to promote gender equality and women's empowerment. By overcoming these challenges, CSA can effectively contribute to reducing poverty, improving livelihoods, and building climate resilience in the dry zone of Sri Lanka. Ultimately it can be concluded that not only in the world but also in Sri Lanka, women make a considerable contribution to CSA.

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