International Journal of Environment, Agriculture and Biotechnology
Vol-11, Issue-2; Mar-Apr, 2026
Peer-Reviewed International Journal
Journal Home Page Available: https://ijeab.com/
Journal DOI: 10.22161/ijeab

Women's Coping and Adaptation Strategies to the Effects of Climate Change: A Case of the Dodoma City Council, Tanzania

Lydia A. Mahela

Ph.D Candidate, Department of International Relations, Yonsei University Mirae Campus- Yonseidae-gil, Wonju-si, Gangwon-do, 26493, Republic of Korea
ORCID identifier: 0009-0006-6958-0973
Contact: mahelala@yonsei.ac.kr,

Received: 15 Mar 2026; Received in revised form: 17 Apr 2026; Accepted: 21 Apr 2026; Available online: 30 Apr 2026

Abstract— *As significant actors in the agricultural sector, women farmers have become increasingly active in adopting various strategies to mitigate the impacts of climate change in Dodoma. However, Dodoma is a semi-arid region; thus, its climate change adaptation strategies differ from those of other regions of Tanzania. The study focuses on the strategies they adopt to cope with climate change impacts in Dodoma. Using the content analysis of publicly available documents was conducted to evaluate the experiences, knowledge, and farming practices of women farmers, thereby helping identify factors that influence their adaptation choices. The study finds that access to resources, technologies, and extension services shaped the variation of women farmers' adaptation strategies. Women farmers use various adaptation strategies, such as crop rotation, genetically modified seeds, improved water management, soil health practices, diversification, and intercropping, to mitigate the impacts of climate change. The study findings have far-reaching implications. First, local governments in Dodoma need to implement targeted interventions to encourage widespread adoption among women farmers, thereby fostering agricultural sustainability and resilience. Second, financial institutions should introduce incentives to promote soft loans, enabling women farmers to access advanced agricultural inputs and invest in commercial farming.*

Keywords— ***Women farmers, Climate change impacts, Adaptation strategies, Agriculture, Dodoma.***

I. INTRODUCTION

"Climate change poses one of the most significant global challenges, disproportionately affecting vulnerable populations, particularly those reliant on agriculture in developing countries (Baez et al., 2010; IPCC, 2007). Its impacts, such as reduced crop yields and fluctuating weather patterns, severely threaten food security and livelihoods (Arif et al., 2020). Women farmers, who constitute a large percentage of the agricultural labor force in many regions, are particularly vulnerable due to existing gender inequalities that limit their access to resources and decision-making power (Reggers, 2019; Huyer et al., 2021). Consequently, understanding their adaptation strategies is crucial for building agricultural resilience.

Dodoma, a semi-arid region in Tanzania, is a key agricultural area highly susceptible to climate variability, where women farmers play a central role in food production (URT, 2000; Swai et al., 2012). While studies have highlighted the challenges faced by women farmers in adapting to climate change in Tanzania (e.g., Gwambene & Saria, 2024), a comprehensive understanding of the specific factors influencing women's adoption choices and the types of strategies they employ in the unique context of Dodoma remains underexplored. Existing literature often focuses on broader gender disparities or general adaptation practices but lacks a detailed analysis of the specific drivers and forms of adaptation among women farmers in this particular region.

This study aims to fill this critical gap by investigating the factors influencing women farmers' adoption of climate change adaptation strategies and the specific strategies they use to cope with climate change impacts in Dodoma City Council, Tanzania. The study findings will provide valuable insights for policymakers to develop targeted, gender-responsive interventions that foster agricultural sustainability and enhance women's resilience in climate-vulnerable regions.

1.1 Research Question

"Building on the identified gaps, this study aims to explore the adaptation strategies employed by women farmers in Dodoma City Council, Tanzania. Specifically, this research addresses the following questions:

1. What factors influence women farmers' decisions to adopt climate change adaptation strategies in Dodoma?
2. What specific adaptation strategies do women farmers adopt to cope with the impacts of climate change in Dodoma?

II. LITERATURE REVIEW

2.1 Climate Change Impact and Gender Vulnerability

Climate change is one of the most significant challenges of our time, predominantly negatively affecting countries, albeit to varying degrees and through different channels (Baez et al., 2010). Beyond the immediate human and material damage, climate change reduces yields of certain crops, impacting agricultural output and food security. According to Arif et al. (2020) and Musyimi (2020), fluctuations in temperature and precipitation patterns pose a significant threat to the livelihoods of women farmers, who rely on agriculture as their primary source of income. As a result, while nature itself does not discriminate, the effects of climate change are not gender-neutral, given the intersection of environmental and social inequities (Reggers, 2019; Huyer et al., 2021). Studies indicate that women, who comprise 54% to 81% of the agricultural labor force, face increased vulnerability due to existing gender inequality, particularly in Tanzanian societies, including Dodoma (Babugura, 2021; FAO, 2024; NBS, 2022).

Women are widely regarded as a marginalized group in climate change debates. Lacking resources, they are portrayed as victims of progress, while stoically bearing the burden of survival as subsistence food producers, ensuring household food security (Okali & Naess, 2013). Therefore, understanding gender roles and societal perceptions of gender is regarded as an essential asset for promoting socially inclusive and equitable outcomes from coordinated climate action (Cohen et al., 2016).

2.2 Women's Adaptive Capacity and Barriers

Since the mid-1980s, climate change has been a central focus of international environmental discussions. Climate change adaptation has emerged as a global priority (Chersich & Wright, 2019). The IPCC's assessments consistently highlight women's disproportionate vulnerability to the impacts of climate change and emphasize the need for gender-responsive adaptation. The IPCC's Sixth Assessment Report (AR6) references gender, equity, and justice more frequently than any previous report, underscoring the need to integrate diverse perspectives into adaptation planning. This recognition stems from the reality that women often face higher risks due to their roles, social structures, and economic vulnerabilities (IPCC 2007).

Consequently, the Paris Agreement (2015) also acknowledges that adaptation actions should be gender-responsive. It recognizes that climate change disproportionately affects women and other marginalized groups and that adaptation strategies must be designed to address these inequalities and promote gender equality. According to the IPCC (2007) report, climate change has a greater impact on developing nations and populations, and its effects and vulnerabilities differ for men and women. Consequently, UNFPA & WEDO 2009) observed that gender disparities in access to resources, divisions of labor, and decision-making authority hinder adaptation to climate change.

Gender roles and expectations shape climate change, influencing women's experiences and responses to risks and consequences. These vulnerabilities stem from unequal access to resources, limited decision-making authority, social norms, cultural traditions, and institutional constraints. Gender roles are crucial to climate change adaptation and mitigation because men and women in agriculture experience different effects (Prakash et al., 2022; Deji, 2020). Consequently, there is growing concern that women are more vulnerable to these impacts than men due to unequal gender relations, which tend to disadvantage women in access to and control over resources, social norms, cultural practices, and institutional constraints. Women who lead smallholder agricultural households in Sub-Saharan Africa are reportedly the poorest and most food insecure (Byela et al., 2015). As a result, they are likely to be highly susceptible to climatic changes. Therefore, to address the differential impacts of climate change, this study considers the vulnerabilities of different social groups, particularly women farmers in Dodoma.

2.3 Adaptation Strategies in Agriculture

Adaptation to climate change in agriculture appears to be influenced by farmers' perceptions of climate change (Bryant et al., 2000). In farming communities, men and

women have distinct roles and responsibilities, leading them to experience climate change differently. Variations in climate change experience, along with existing gender inequality, often diminish women's adaptive capacity and affect their decisions about adaptation strategies (Mehar et al., 2016). This clearly indicates that, while perception shapes adaptation, it differs by gender.

Various agricultural management techniques are increasingly used to help adapt to climate change. These include the planting of drought-tolerant crops, early crop planting, crop diversification, and rainwater harvesting (Franklin et al., 2021; Atube et al., 2021; Gebre & Rahut, 2021; Shahbaz et al., 2022). Numerous studies are now available on the factors affecting the adoption of climate change adaptation strategies in various developing countries (see Brüssow et al., 2019; Shahbaz et al., 2022).

2.4 The Context of Dodoma, Tanzania

Dodoma is one of Tanzania's key food producers and is often called the country's food basket (URT, 2000). Women make up over 57% of the agricultural workforce in Dodoma but face institutional barriers and traditional gender norms that restrict their access to resources and decision-making power (Akram-Lodhi and Komba, 2018; Jones et al., 2023).

Pattnaik et al. (2017) posit that the role of women in agriculture in Dodoma is increasing, and male outmigration in the face of climate change is prompting more women to engage in the agricultural sector, a phenomenon described as the 'feminization of agrarian distress.' However, Gwambene and Saria's (2024) study on female smallholder farmers' resilience in adapting to climate change in the central regions of Tanzania, specifically in Dodoma, Singida, and Tabora, reveals that female smallholder farmers face significant challenges and risks from shifting rainfall patterns, temperature fluctuations, and extreme events such as floods and droughts. As a result, these farmers employ various adaptation techniques, including local knowledge and traditional practices, to mitigate their vulnerability to the impacts of climate change (Gwambene, 2020; Tilumanywa, 2021).

Notwithstanding, women's lack of land ownership under the patriarchal system results in a disproportionate distribution of women's farm outputs in Dodoma (Lawson et al., 2020; Ylipaa et al., 2019). Another notable barrier to women's climate change adaptive capacity in Dodoma is that men remain in charge of on- and off-the-field farm production and the sale of produce. These tendencies position women as the most vulnerable group in terms of the impact of climate change on the agricultural sector, which continues to affect their farming and livelihood activities, primarily due to their limited adaptive capacity in Dodoma (Atube et al., 2021; Kitole and Utouh, 2023). Based on the above, this study aims to identify climate adaptation strategies that Dodoma women farmers can adopt to mitigate the impact of climate change.

2.5 Research Gap

Drawing on the literature and the challenges women farmers face, this study seeks to address the research gap by analyzing the factors that influence the adoption of climate change adaptation strategies among vulnerable groups (women farmers) in developing countries. The study will further investigate the specific strategies that women farmers can use to cope with climate impacts in the Dodoma City Council, Tanzania.

2.6 Analytic framework

The study examines the relationship among women, climate change, and adaptation, with an emphasis on women's experiences, challenges, and resilience strategies. Principles derived from resilience theory include the intersection of gender and social norms, resilience and empowerment, and adaptive management. Resilience theory focuses on how individuals respond to and recover from adversity. Additionally, resilience theory aligns with feminist theory and the capability approach, both of which emphasize gendered power dynamics and the ability to adapt to changing circumstances (Remennick & Adi, 2023; MacArthur et al., 2022). As a result, this study highlights women's experiences with climate change in a direct, explicit manner.

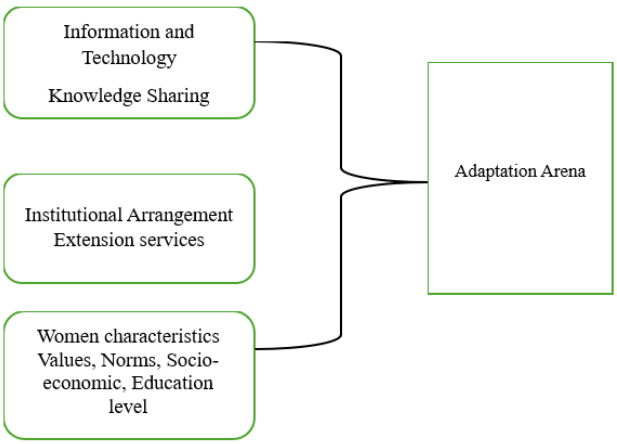

Fig. 1 Conceptual Framework

The conceptual framework shows that Information and Technology Knowledge sharing, institutional arrangements, extension services, and women's characteristics and socio-economic and educational levels influence the adaptation arena.

2.6.1 Information and Technology Knowledge Sharing

Information and knowledge sharing is an element in the adaptation context that influences the capacity to implement suitable responses to the climate change adaptation strategy. However, studies on how gender roles affect this element are lacking. Therefore, this aspect needs to be examined through a gender-sensitive lens. A critical gap in the literature this study seeks to address. According to Vogel and O'Brien (2006) and McOmber et al. (2013), climate information must be accurate, relevant, and accessible across genders to be beneficial to all. However, in Dodoma, the availability of adequate and appropriate climate information, knowledge, and data hinders climate adaptation efforts (GoK, 2014a).

In Dodoma, women's knowledge sharing about climate change relies heavily on traditional methods, which can limit access to up-to-date information and technology because of limited infrastructure, poverty, and illiteracy. While mobile phones offer a practical way to share new farming techniques and best practices, enhancing women's ICT self-efficacy is crucial for them to fully leverage these tools for effective knowledge management and adaptation to climate change impacts, such as drought and reduced agricultural yields.

Women farmers in Dodoma are increasingly adopting climate-smart agriculture (CSA) practices, especially in Mpunguzi, Mbalawala, and Hombolo. While CSA has the potential to mitigate climate change impacts, its benefits are not shared equally, as evidenced by a notable gender gap in adoption (Lana M et al., 2025). To ensure successful implementation and increase women's uptake of CSA, it is essential to promote equitable land access, develop inclusive training programs that account for women's time constraints, and increase the presence of female extension workers to improve information dissemination. Furthermore, enhancing access to credit, strengthening social networks through farmer groups, and improving transport infrastructure to reduce logistical challenges are vital steps to support broader CSA adoption (Swai, O., 2017; Awoke, M. D., et al., 2025; Lana, M., et al., 2025).

2.6.2 Institutional Arrangement with the extension services

Institutional arrangements play a crucial role in mitigating vulnerability. Local institutions, including state and civil society organizations, especially those that foster social capital through group-based strategies, can be highly beneficial for women and communities. They create opportunities for knowledge exchange, resource gathering, and strengthening resilience in the context of climate change adaptation strategies (Mueller et al., 2013; Ngigi et al., 2015).

Access to extension services can significantly improve agricultural productivity. This, in turn, helps achieve several Sustainable Development Goals (SDGs), including SDG 2—ending hunger, ensuring food security, and promoting sustainable agriculture. However, in Dodoma, women's access to extension services remains low. Therefore, expanding women farmers' access to these services will enhance their well-being by providing them with information on effective climate adaptation strategies in Dodoma (Davis, Babu, and Ragasa, 2020; Spielman et al., 2021).

Women farmers in Dodoma have lower literacy levels, which makes them less effective in climate change adaptation strategies than their male counterparts and puts them at a disadvantage in understanding its impacts (Amran & Abdul Fatah, 2020). Interactive and communicative learning methods are necessary to encourage hands-on learning, field experiments, and the development of critical thinking skills, while also highlighting women role models and trainers to support ongoing human capital development (McGuire et al., 2022).

2.6.3 Women's characteristics, values, norms, socioeconomic status, and education level

Women's adaptation to climate change is profoundly shaped by socioeconomic factors, education, gender norms, and individual values. These factors influence their access to resources, knowledge, decision-making authority, and preferred strategies. In Dodoma, women face disproportionate vulnerability to climate impacts; however, they are also strategic agents who can leverage social networks and traditional knowledge to enhance resilience, particularly when empowered to assume leadership roles and decision-making responsibilities (Bryan et al., 2024).

Social norms and values within a community, to a certain extent, influence the range of resources and skills that individuals can access, control, and manage to build adaptive capacities (Phan et al., 2019). Research on vulnerability and climate change adaptation frequently highlights the crucial role of gender, alongside ethnicity, culture, economy, age, disability, and social class, in shaping socialization and capacities (Balehey et al., 2018; Garcia et al., 2020).

In Dodoma, women's socioeconomic status, education, and prevailing social norms significantly shape their ability to adapt to climate change. Lower education and economic status limit access to resources and modern techniques, while traditional norms often constrain their decision-making power. Women tend to prioritize food, water, and firewood security through practices such as

diversifying subsistence crops, whereas men usually focus on market-oriented, capital-intensive strategies. Targeted interventions are crucial, including land reforms, inclusive training, improved access to credit and extension services for women, and enhanced decision-making roles to strengthen adaptive capacity (Swai, O. W., 2017).

III. METHODOLOGY

3.1 Research Design

The study adopts a qualitative approach, using content analysis to examine the factors that influence women farmers' groups' adoption of climate change adaptation strategies in Dodoma.

3.2 Study Area

The study area of this paper is the Dodoma region in Tanzania, East Africa. Dodoma is situated at approximately 6°10′S latitude and 35°45′E longitude, at an elevation of around 1,200 meters above sea level. The area covers 2,769 square kilometers (URT 1961; NBS 2022). The climate features are wet and dry seasons, with the dry season dominating for most of the year. These climatic conditions, combined with water scarcity and soil degradation, pose significant challenges to agricultural activities. Despite these constraints, agriculture remains the primary economic activity, particularly in rural areas, where many women are farmers and bear the brunt of these impacts (Swai et al., 2012; URT, 2007).

Although women constitute the majority of the agricultural workforce in Dodoma, they face institutional barriers, traditional norms, and limited access to resources and decision-making power (Akram-Lodhi and Komba, 2018; Jones et al., 2023). These conditions make Dodoma a suitable study area for this scholarship.

3.3 Data Collection

To gain a deeper understanding of the factors influencing women farmers' groups' adoption of climate change adaptation strategies, the study collected data by analyzing publicly available documents. Specifically, government reports, NGO publications, academic studies, local agricultural extension materials, and policy documents on the strategies that vulnerable women farmers' groups adopt to address climate change were gathered and analyzed.

The criteria for document selection focused on publications and reports containing the terms climate change, vulnerable women, and agriculture, with emphasis on those related to Dodoma and on publication date. For the purpose of this paper, publication dates from 2019 to 2025 were considered.

3.4 Data Analysis

Content analysis was used in this study to analyze the gathered data. Content analysis is a research method that systematically examines and identifies patterns, themes, and meanings in qualitative data. To achieve this, the study limited its content search to adaptation strategies and the factors influencing women farmers' adaptation strategies, developing themes from the gathered data.

IV. RESULTS

4.1 Conceptual Framework Integration

The study was guided by the analytical framework during data collection and analysis. Themes were developed from the variables in the framework and used to analyze the gathered documents. Based on the themes, the documents were grouped under each heading, and their content was analyzed for consistency.

4.2 Factors Influencing Women Farmers Adaptation Choices

4.2.1 Access to Resources and Technologies

The content analysis revealed that women's access to land, financial capital (soft loans), and improved agricultural technologies significantly influenced their ability to adopt advanced adaptation strategies. Documents highlighted that patriarchal land ownership systems (Lawson et al., 2020) and limited financial inclusion (Mamkwe, E., 2020) are major barriers.

4.2.1.1 Information Sharing

The results of the content analysis indicated that information sharing is a vital factor influencing women farmers' adoption of climate change adaptation strategies. Using mobile phones, women farmers in Dodoma can adopt drought-tolerant crops as an agricultural adaptation strategy (URT, 2009).

4.2.2.2 Access to Extension Services

The results of the content analysis indicate that access to extension services significantly improves agricultural productivity and helps achieve Sustainable Development Goal 2 (SDG 2)—ending hunger, ensuring food security, and promoting sustainable agriculture. Furthermore, access to these services enhances the well-being of women farmers by providing information on effective climate adaptation strategies in Dodoma (Davis, Babu, and Ragasa, 2020; Spielman et al., 2021).

4.2.3 Institutional Arrangements

The results of the content analysis indicated that institutional arrangements play a crucial role in mitigating vulnerability. Thus, local institutions, including state and

civil society organizations, especially those that foster social capital through group-based strategies, are highly beneficial for women and communities. They create opportunities for knowledge exchange, resource mobilization, and resilience strengthening in the context of climate change adaptation strategies (Mueller et al., 2013; Ngigi et al., 2015).

4.2.4 Socio-economic status

The content analysis indicated that women's adaptation to climate change is profoundly influenced by socioeconomic factors, educational attainment, gender norms, and individual values. These elements affect their access to resources, knowledge, decision-making authority, and preferred strategies. According to Bryan et al. (2024), when women are empowered to assume leadership roles and decision-making responsibilities, they can leverage social networks and traditional knowledge to enhance resilience and adopt appropriate strategies to mitigate climate change.

4.3 Specific Adaptation Strategies Adopted by Women Farmers

4.3.1 Crop Rotation and Use of Improved Varieties

The study finds that women farmers in Dodoma frequently adopted crop rotation and the use of fast-maturing, drought-tolerant maize seeds (e.g., Situka) as key strategies. The analysis shows that these choices were often driven by the need to secure the household food supply given erratic rainfall patterns (URT, 2009).

4.3.1.1 Improved water use and management

Analysis of documents indicated that the Dodoma City Council and the Ministry of Water and Agriculture have implemented various strategies to help women adapt to the impacts of climate change (URT, 2023), including water harvesting systems and water-saving technologies.

4.3.1.2 Soil Health and Management

The study shows that women farmers in Dodoma, in collaboration with the Tanzania Agriculture Research Institute (TARI), frequently identify and characterize soil properties and production systems that optimize the use of available moisture and minimize land degradation. In addition, they have developed plant nutrition recommendation packages tailored to selected soils, agro-climatic conditions, and social circumstances. This maintains and enhances analytical services for soils, water, and plant samples for various purposes, including land evaluation, soil fertility appraisals, and water management studies (TARI, 2016).

4.3.1.3 Diversification and Intercropping

The study indicates that many female farmers in Dodoma have adopted intercropping as a mitigation strategy, combining maize with other crops, such as groundnuts, beans, and sorghum, to enhance soil nutrients and thereby improve crop yields (URT 2024; Swao O 2020).

V. DISCUSSION

The study findings indicate that access to information and technology, knowledge sharing, institutional arrangements, extension services, and socio-economic status are key factors affecting women farmers' adaptation choices. The results above indicate that the resources and technology available affect women farmers' choices of adaptation strategies. Due to inadequate resources and technology, women tend to adopt traditional strategies.

In relation to information sharing, it was evident that it plays a key role in their choice of adaptation strategies. The more information women farmers have about climate change, the more they adopt effective strategies to mitigate it.

With regard to institutional arrangements, the results indicate that effective institutional arrangements will shape women farmers' choice of adaptation strategies. Therefore, it is vital for governments to put in place the right institutions to help support women farmers' choices.

In addition, extension services are vital in shaping women farmers' adaptation strategies. Women farmers' access to extension services will provide them with diverse options that will guide their choice of climate change adaptation strategies.

Results on socio-economic status indicate that empowering women to take leadership and decision-making roles in communities will provide them with opportunities to contribute to developing the best strategies for climate change adaptation.

VI. LIMITATIONS OF THE STUDY

The current study adopted a content analysis of public documents. These documents reflect individuals' views, which may be subject to bias. Another notable limitation is the study's scope. The study was limited to a specific area that has distinct characteristics from other geographic zones.

VII. FUTURE RESEARCH

Future studies should empirically test the relationships among the variables in the research framework. In addition, future studies should examine different geographic regions to capture diverse perspectives.

REFERENCES

[1] A.T.M Sanaul Haque, Lalit Kumar, Navjot Bhullar. 2023. Gendered perceptions of climate change and agricultural adaptation practices: a systematic review

[2] AWDF *2015 Climate Change and the Livelihoods of Women*: The AWDF and Grantees Approach.

[3] Bast .J. (2010). *Seven Theories of Climate Change*. The Heartland Institute 33pp

[4] Blakstad, M.M., Smith, E.R., 2020. Climate change worsens global inequity in maternal nutrition. Lancet 4, e547–e548. https://doi.org/10.1016/S2542-5196(20)30246-1.

[5] Boora, S., Kaur, B., Tyagiq, R., Bishnoi, D. K., k, M., and k, R. (2023). Extent of adoption of intercropping practices among farmers of Haryana. Indian Journal of Extension Education, 59(1),

[6] Brock, H., 2012. Climate Change: Drivers of Insecurity and the Global South. Retrieved from. https://www. files. ethz. ch/isn/138982/Competition.

[7] Elizabeth Bryan, Muzna Alvi, Sophia Huyer (2024). Addressing gender Inequalities and strengthening women's agency to create more climate-resilient and sustainable food systems.

[8] Food and Agriculture Organisation (FAO) (2007). People-centered climate change adaptation: Integrating gender issues, Policy Brief, Rome.

[9] Francis Mwaijande. (2025). Policy Agenda Setting for Blue Economy and Socio-Economic Development in Tanzania.

[10] International Union for Conservation of Nature (2007). Gender Aspects of Climate Change, Briefing paper, retrieved from http://www.iucn.org/en/news/archive/2007/03/7_gender_climate_change.pdf.

[11] International Union for Conservation of Nature (IUCN/UNDP/GGCA) (2009). Training Manual on Gender Climate Change http://data.iucn.org/dbtw-wpd/edocs/2009-012.pdf

[12] Kemboi, E., Muendo, K., and Kiprotich, C. (2020). Crop diversification analysis amongst smallholder farmers in Kenya (empirical evidence from Kamariny ward, Elgeyo Marakwet County). Cogent Food and Agriculture, 6(1)

[13] Kenfaoui, J., Lahlali, R., Laasli, S., Lahmamsi, H., Goura, K., Taoussi, M., Mennani, M., Fardi, M., Tahiri, A., Amiri, S., and Ghadraoui, L. E. (2024). Farmer's knowledge, perception, and practices in managing insect pests and diseases of grapevine in Morocco. International Journal of Pest Management

[14] Kalele, D. N., Ogara, W. O., Oludhe, C., and Onono, J. O. (2021). Climate change Impacts and relevance of smallholder farmers' response in arid and semi-arid lands in Kenya.

[15] Mahlet Degefu Awoke, Katharina Löhr, Katharina Löhr, Marcos Lana, Boris D. Soh Wenda, Kwabena Buabeng, Johannes Michael Hafner, Stefan Sieber (2024). Exploring gender dynamics in climate-smart agriculture adoption: a study in semi-arid Dodoma, Tanzania

[16] Mbwambo, J. S., Mwatawala, H. W., & Mngale, A. S. (2011). Farmers coping Strategies against climate change in Singida District, Tanzania.

[17] Mishra, P., 2017. Green human resource management: A framework for sustainable organizational development in an emerging economy. Int. J. Organ. Anal. 25 (5), 762–788.

[18] Ministry of Agriculture*: www.kilimo.go.tz*

[19] National Burea of Statistics Census Report 2022

[20] Nabikolo, D., Bashaasha, B., Mangheni, M. N., & Majaliwa, J. G. M. (2012). Determinants of climate change adaptation among male and female-headed farm households in Eastern Uganda

[21] Prof. Aurelia Ngirwa Kamuzora. 2023. Effects of Climate Change Adaptation Strategies on Maize Productivity among Smallholder Farmers in Dodoma, Tanzania

[22] UNDP (2010), *Asia-Pacific Human Development Report – Power, Voice and Rights: A Turning Point for Gender Equality in Asia and the Pacific*, Macmillan Publishers India, Pg 255

[23] UNFCCC. 2007. *Climate Change: Impacts, Vulnerabilities and Adaptations in Developing Countries*. Pg 68 United Nations Population Fund (UNFPA/WEDO) (2009). Climate Change Connections. Gender and Population

[24] Rodenberg, B. (2009). Climate Change Adaptation from a Gender Perspective. German Development Institute Es sind die Machtverhältnisse, die Frauen für denKlimawandel verwundbarer machen', Böll THEMA, Heft 2/2009,p. 14<http://www.boell.de/downloads/publikationen/BoellThema_2.2009_abRea der7kommentierbar.pdf> (10.12.2023)

[25] Sahu, G. T., Kaur, S., and Singh, G. (2019). Knowledge level of farmers and constraints faced in adoption of crop rotation system. Current Journal of Applied Science and Technology,

[26] Smith, K.R., Woodward, A., Campbell-Lendrum, D., Chadee, D.D., Honda, Y., Liu, ., et al., 2014. Human health: impacts, adaptation, and co-benefits. In: Field, C.B., et al. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK and New York, NY, pp. 709–754.

[27] Swai, O. W., Mbwambo, J. S., & Magayane, F. T. (2019). Gender and adaptation practices to the effects of climate change in Bahi and Kondoa Districts Dodoma region, Tanzania. Journal of Sustainable Development, 5(12)

[28] Ulrich-Schad, J., De Jalón, S. G., Babin, N., Pape, A., and Prokopy, L. (2017). Measuring and understanding agricultural producers' adoption of http://www.wedo.org/category/act/climate-change-toolkit (09.12.2023)

[29] URT (2022). *Population and Housing Census. National Bureau of Statistics*. Ministry of Finance,

[30] URT (2013): *National Agriculture Policy.*

[31] United Republic of Tanzania. (2007). National Adaptation Programme of Action APA). Vice President's Office, Division of Environment, January 2007. 52pp.

[32] United Republic of Tanzania. (2023). Dodoma Region Socio-economic Profile. Government Printer Dar es Salaam Tanzania.

[33] UNDP (2023). *Bridging the gender gap: Empowering Women in the Agricultural Sector.*

[34] Velasco-Muñoz, J. F., Aznar-Sánchez, J. Á., López- Felices, B., and Balacco, G. (2022). Adopting sustainable water management practices in agriculture based on stakeholder preferences. Agricultural Economics (Zemědělská Ekonomika),

[35] Weiler, V., Udo, H.M.J., Viets, T., Crane, T.A., De Boer, I.J.M., 2014. Handling multi-functionality of livestock in a life cycle assessment: the case of smallholder dairying in Kenya. Curr. Opin. Environ. Sustain. 8, 29–38. https://doi.org/10.1016/j. cosust.2014.07.009.

[36] Women's Environment & Development Organization (WEDO) (2007). Changing the Climate: Why women's perspectives matter, New York, p. 3.

[37] Women's Environment and Development Organization (WEDO/ABANTU) for Development/Action Aid/ENDA (2008). Gender, Climate Change and Human Security: Lessons from Bangladesh, Ghana and Senegal<http://www.wedo.org/wp-content/uploads/hsn-study-final-may-20- 2008.pdf> (09.12.2023).