



**Inclusive development model: Women farmers and young farmers  
toward local food security**

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**ABSTRACT**

*This study aims to develop an inclusive agricultural development model to increase the participation of marginalized women farmers and young farmers in Nagan Raya Regency. This region is one of the nation's food baskets, however the food security index has not been optimized with the targets set by the National Food Security Agency. Inclusive agricultural research relies on synergy between local governments and local communities which has not yet been integrated or specific. Therefore this study focuses on classifying groups of women farmers and young farmers who in an inclusive manner leverage local potential to achieve sustainable development goals. Data were analyzed using an inductive qualitative approach through data reduction verification and conclusion drawing. The results of this study show that an inclusive development model can be implemented through promoting female farmers' participation and involving young farmers in transforming local resources in Nagan Raya Regency. The implementation of inclusive agriculture embraces the principle of empowering farmers' resources within environmentally economically and socially oriented frameworks to enhance sustainable food security. Furthermore, the inclusive development model aims to achieve a green society a green economy and inclusive growth by*

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*strengthening the participation of women farmers and young farmers working together to support local food security. The implications of this research help classify the roles of various actors in achieving development priorities in agriculturally based regions of Nagan Raya and improving the regional food security index.*

**Keywords:** Inclusive Development; Women Farmers; Young Farmers; Food Security.

## ABSTRAK

*Studi ini bertujuan untuk mengembangkan model pembangunan pertanian inklusif dalam meningkatkan partisipasi petani perempuan terpinggirkan dan petani muda di Kabupaten Nagan Raya. Wilayah ini merupakan salah satu lumbung pangan nasional, namun akan tetapi indeks ketahanan pangan tidak dapat dioptimalkan sesuai target yang telah ditetapkan oleh badan ketahanan pangan nasional. Penelitian pertanian inklusif secara umum bertumpu sinergitas pemerintah daerah dan masyarakat lokal yang belum integratif dan spesifik. Maka penelitian ini berfokus klasifikasi kelompok petani perempuan dan petani muda yang secara inklusif basis potensi lokal dalam mencapai sasaran pembangunan yang berkelanjutan. Data dianalisis menggunakan pendekatan kualitatif secara induktif melalui reduksi data verifikasi dan penarikan kesimpulan. Hasil penelitian model pembangunan inklusif yang dapat diaplikasikan melalui pengembangan partisipasi petani perempuan dan eksistensi petani muda transformasi sumberdaya lokal di Kabupaten Nagan Raya. Realisasi pertanian inklusif menganut unsur nilai pemberdayaan sumberdaya petani dalam berorientasi lingkungan ekonomi dan sosial dalam meningkatkan ketahanan pangan berkelanjutan. Selain itu, model pembangunan inklusif diwujudkan mencapai green society, green economy serta inclusive growth dalam penguatan partisipasi kelompok petani perempuan dan petani muda yang bersinergi untuk ketahanan pangan lokal. Implikasi penelitian ini dapat mengklasifikasi peran aktor dalam pencapaian pembangunan prioritas pembangunan daerah wilayah basis pertanian di Nagan Raya sebagai akar masalah yang mendasar dalam meningkatkan indeks ketahanan pangan daerah pada masa yang akan datang.*

**Kata Kunci:** Pembangunan Inklusif; Petani Perempuan; Petani Muda; Ketahanan Pangan.

## 1. INTRODUCTION

Inclusive agriculture is a global priority in all countries, particularly in relation to agricultural growth within fair and sustainable systems (Nginyu et al., 2024). This requires a systematic in-depth analysis of government policies based on structured agricultural development practices. Inclusive development emerged in the 21st century and has been adopted by various authors worldwide, both in academic documents and public policy objectives (Pouw & Gupta, 2017). Inclusive development involves marginalized individuals,

groups, sectors, and regions in social, political, economic, and environmental processes (Gupta et al., 2015). Inclusive development is urgently needed to optimize per capita income policies aligned with regional potential (Mikheeva, 2020).

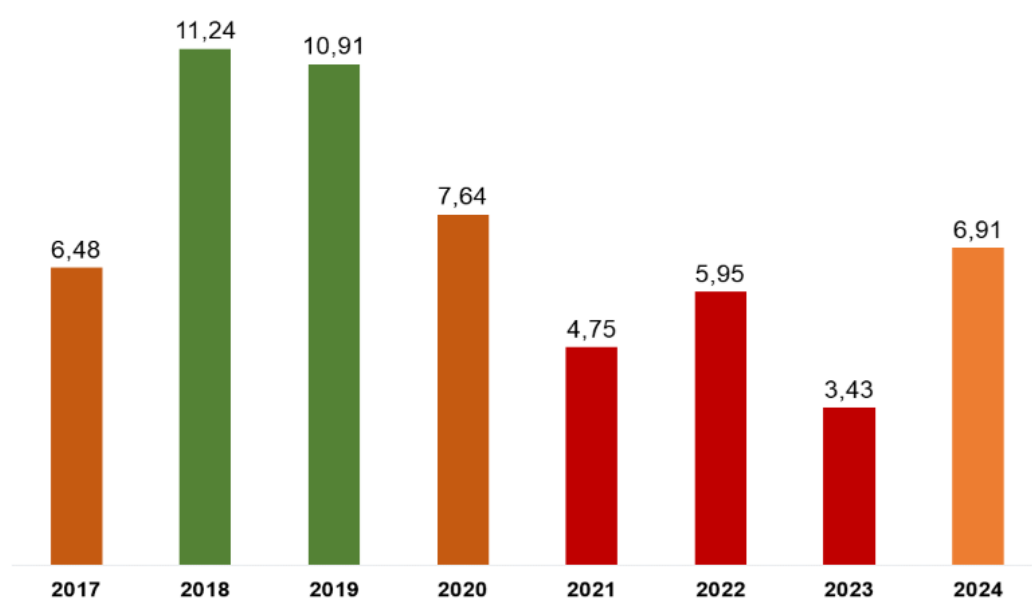
Inclusive governance is essential to ensuring equitable participation, especially for marginalized groups and minorities (Reinders et al., 2019). According to Johnson and Anderson (2012, in Gupta et al., 2015) inclusive development explains the process of structural change in marginalized communities. The goal of inclusive development is a crucial approach for driving sustainable structural change in both local and global communities. Therefore, in achieving development goals, communities serve as the primary actors in inclusive development. Inclusive development is a process of equitable distribution among community groups that differ in terms of income, gender, ethnicity, region, and religion (Gupta et al., 2015).

The objective of inclusive development is to ensure that all segments of society have equal opportunities to access economic resources and improve their welfare, particularly in meeting their basic needs (Rammelt & Gupta, 2021). The achievement of inclusive development outcomes is especially important when grounded in a gender-based perspective, as it emphasizes the equitable distribution of development benefits across all social groups. In this context, inclusive development promotes pro-people growth that is directly experienced by populations living in poverty, while also advancing gender-responsive development. Furthermore, it ensures that marginalized groups, particularly poor women and young farmers, have equal opportunities to participate in economic activities and benefit from development processes in order to achieve sustainable welfare improvements (Nadiyah & Farida, 2021).

Gender inequality in the agricultural sector remains a persistent global challenge. Although women farmers play a crucial role in strengthening food security and supporting agricultural production systems, they continue to face significant barriers in accessing productive resources and modern agricultural technologies (Mahmoud & Daoud, 2023). These limitations often reduce their capacity to enhance rice productivity and participate fully in agricultural development. In this context, Women Farmers Groups (WFGs) have been recognized as an important institutional mechanism for supporting food security and strengthening community-based agricultural production. However, these groups require continuous institutional and policy support to ensure sustainable productivity and long-term development (Windiasih et al., 2023).

Strengthening the role of women farmers must also be complemented by collaboration with young farmers, particularly in adopting modern agricultural technologies and innovative farming practices. Such synergy is essential to achieve comprehensive food security objectives that encompass both social welfare and sustainable economic opportunities (Ririn & Harahap, 2024). Nevertheless, women's participation in agricultural development is still constrained by limited access to economic opportunities, productive assets, and decision-making processes. These structural barriers significantly influence women's capacity to contribute to rural food security systems and agricultural sustainability (Megasari et al., 2019). Inclusivity among young farmers in Cameroon promotes integration into agriculture as a primary occupation, particularly benefiting those aged 20-45 (Tchokonthe & Mimche, 2023). Inclusivity in agricultural participation, with diverse educational backgrounds, contributes to their involvement in agricultural activities (Dewi & Eddyono, 2024).

Emphasizing the importance of involving youth in agriculture to increase inclusivity, overcoming challenges such as skill mismatches and lack of interest (Alrawashdeh et al., 2022). Although young farmers are challenged by limited access to land, financial resources, and education, opportunities such as entrepreneurship programs and policy interventions for agriculture and rural development exist (Kote et al., 2024). Several previous studies have shown that agricultural growth requires inclusive development. This approach aims to establish a classification of groups that can play equal roles in achieving fairness. In Nagan Raya, this classification of groups is intended to support their effective roles in ensuring sustainability and achieving the Food Development Index in accordance with national expectations, as well as contributing to the development of the National Development Index in Nagan Raya Regency, Aceh Province, Indonesia.



**Figure 1.** Nagan Raya Food Security Index (BPS, 2024).

Figure 1 shows the dynamics of achieving the target of achieving the Food Security Index which has not yet reached the national figure of around 8.9 percent. However, the data shows that from 2020 to 2024, the national food security index standard has not been achieved. This requires the synergy of inclusive government policies for community groups. Nagan Raya Regency only has universal farmer groups that focus on farmers who own land, but do not organize tenant farmers and farmhands, so there are often implications in the aid distribution. In addition, it has been overlooked that women farmers and young farmers have not been structured as elements of inclusivity that can be used as benchmarks in development. As in the case of communities in Cameroon and Nigeria in the study (Tchokonthe and Mimche 2023), the country has advocated that young farmers are the main workers. This is believed to enhance sustainable development.

The same applies to women farmers in Nepal and women farmers in decision-making on food security development (Verdier-Chouchane, 2016). Both ideas are highly relevant to achieving inclusive development, as in Gupta et al. (2015) where inclusive development through socio-political and economic processes must empower farmers. This condition is

relevant to the productivity-oriented model in a resilient and inclusive food system (Davis et al., 2024). In Naya District, the goal is to achieve sustainable food security. The following are the objective targets in the research problem using the inclusive development approach (Gupta, et al., 2015), as shown in the following figure 2.



**Figure 2.** Inclusive Development and Sustainable Development (Gupta et.al, 2015).

According to Gupta and Vegelin (2016), inclusive development can be built on intellectual roots as a foundation for conceptual thinking. Although sustainable development influences ecological systems, it remains challenging for the younger generation to optimize it in the modern era, particularly across the three dimensions of environment, society, and economy. Tchokonthe and Mimche (2023) state that the classification of women farmers and young farmers should be integratively involved in the development of food security. This is because their participation in agricultural governance decision-making can improve management outcomes, as demonstrated in cases in Nepal and India (Verdier-Chouchane 2016). Nevertheless, a research gap remains due to the emergence of concepts that lead to duality and trinity, which highlights the urgency of further in-depth studies through development approaches involving women farmer groups and young farmers.

Inclusive development views these three aspects as means to achieve a balance among them. Currently, the focus is generally limited to two aspects: a green society that integrates environmental goals with social objectives, and the classification of farmers' roles. In addition, there is also inclusive growth, which combines social and economic growth, as well as a green economy that focuses more on the economy and the environment. Thus, women's empowerment is a crucial strategy in preventing radicalism in Indonesia, as women play a vital role both within families and in society at large (Safina & Nugroho, 2023).

Therefore, inclusive development is urgent, and a solution for the local government in Nagan Raya is to solve the problem of increasing agricultural development to foster sustainable local food security. This distinguishes the achievements of this study from previous studies, where generally the targets of inclusive development only focus on socio-cultural and economic aspects. However, in this research achievement, specifically and comprehensively in the deep

growth of inclusive agricultural development, the theoretical process of inclusive development by (Gupta & Vegelin, 2016) can improve the classification of young farmers and marginalized women farmers in Nagan Raya Regency. Specifically, and generally, both regionally and globally, this theory can serve as a foundation for development to establish a classification of empowerment for both young farmers and women in a sustainable manner within an inclusive development model. The following are the objectives of this research:

- a. To analyze an inclusive agricultural model that leverages the synergistic roles of women farmers and young farmers in Nagan Raya.
- b. To integrate inclusive policy values to enhance participatory local food security in Nagan Raya.
- c. To develop a participatory strategy for the roles of women farmers and young farmers in achieving sustainable local food security in Nagan Raya.

## **2. LITERATURE REVIEW**

### *2.1. Inclusive Development*

Inclusive development integrates marginalized groups into the social, political, and economic spheres in the global SDG development goals for 2030 (Khan et al., 2016). Achievements in inclusive development goals are crucial as a transformative change agenda that influences the challenges and opportunities of inclusive development (Xu, 2025). Inclusive development must be adaptive to respond to any new threats that could cause marginalization (Gupta et al., 2015). Inclusive development arises as an economic manifestation through active social participation of the community. The concept of inclusiveness can distribute development outcomes fairly and provide broader access for all levels of society, including essential infrastructure and basic services (Warsilah, 2015). In addition, inclusive development seeks to internalize the principles of social justice within the policy framework (Ramli et al., 2025).

This development concept can be realized by focusing on three main aspects: first, building and expanding knowledge networks, implementing groups, and appropriate actions; second, transforming the government system into interactive governance that encourages and enables community empowerment; and third, adopting the most effective governance tools and mechanisms to achieve these objectives (Gupta, et al., 2015). The most effective mechanism for achieving agricultural governance in inclusive food security enhancement must have a sustainable framework (Siegel & Bastos Lima 2020). A sustainable framework is practice-based in structural and functional aspects grounded in culture and the local food-based environment (Khan et al., 2025).

Several previous studies have shown that inclusive development must be taken seriously by governments, particularly in the context of global agricultural development, in order to address local resilience challenges (Khan et al., 2016). This aspect must have a clear framework to effectively fulfil its role in achieving clear public policy objectives and goals, aligned with the duties and functions of the relevant actors, which must be appropriately classified (Xu, 2025). Therefore, the objective of achieving inclusive development must ensure the equal participation of all segments of society. Consequently, the focus of this research is crucial, as it centers on the inclusion of women farmers and young farmers in enhancing regional food security in Nagan Raya. This inclusivity within agricultural governance operates within the framework of adaptive, dynamic, and sustainable public policy (Ramli et al., 2025).

## 2.2. *Women Farmers*

The empowerment of women farmers is a global workforce that occupies a lower position, is low-paid, and has less decision-making power (Shukla et al., 2022). Leadership practices and gender transformation governance by changing institutions to achieve agricultural development (Timu et al., 2023). The importance of gender equality and climate resilience in rice farming can contribute to agricultural transformation (Akter, 2025). Redefining academic success criteria and institutional commitment to intersectional equality and gender diversity (Rosa & Clavero, 2022). These women farmers participate in agricultural activities to improve their economic status (Antriyandarti et al., 2024). Therefore, women are the target of food stability program implementation at the rural household level in Malawi (Mataka, et al., 2023). Various other factors, such as women's education levels, land ownership scale, and agricultural diversification, also strengthen food security conditions (Jemaneh & Shibeshi, 2023).

Furthermore, structural inequalities in the roles of female farmers lead to economic disparities among marginalized groups, as seen in Afghanistan, where women's roles in decision-making remain severely limited; they often fail to secure their rights and face marginalization, resulting in serious inequalities in access to such roles (Golijot et al. 2025). Gender roles in the contemporary era, from the perspective of modern Islamic law, have been interpreted as a foundation for equality and dignified justice through partnership between men and women using a fair and inclusive contextual approach (Ismail, et al., 2024). Nevertheless, the role of women farmers from a gender perspective remains crucial in strengthening women's positions within the agricultural sector and in strategic decision-making to enhance food security outcomes (Shah et al., 2022).

Therefore, empowering women in the agricultural sector is a vital necessity to improve food security conditions in the Anna Sorra District, Ethiopia (Beriso, Amare, and Eneyew 2023). In addition to women, the participation of young farmers is important in the agricultural sector, which contributes significantly to innovation and technology (Dewi and Eddyono, 2024). The relevance of several concepts discussed in the above studies indicates that women's empowerment is crucial for socioeconomic development; however, it requires synergy and inclusivity grounded in the principle of fairness. Women and men play equal roles in achieving these goals and must collaborate effectively according to their respective roles, as highlighted in the studies by Ismail, Firdaus, and Darmawijaya (2024) and (Beriso et al., 2023). In this study, as one of the contributions toward achieving the research objectives, gender roles related to women's participation, particularly as farmers, occupy a highly strategic position in achieving sustainable household food security. The findings of this study provide a more specific focus on the presence of women and the importance of gender equality through the principles of inclusivity and fairness.

## 2.3. *Young Farmers*

Farmer participation is defined as a complex form of interaction that occurs between various stakeholders in the implementation of agricultural development (Molina et al., 2021). Farmers play an important role in this context because they make a significant contribution, particularly in terms of their in-depth understanding of the constraints and problems in agriculture, which enables them to find practical and adaptive solutions (Phali et al., 2020). In addition, the participatory approach focuses on the local knowledge, innovation, and skills

possessed by farmers (Kumar et al., 2024). In this case, farmer participation is not limited to specific groups but also includes young farmers, women farmers, farmers with disabilities, and vulnerable farmers who focus on core issues and prioritize the representation of interests in the rice farming sector (Raišienė et al., 2019). Thus, increasing farmer participation can enhance the institutional capacity of farmers in implementing rice farming policies (Tanti et al., 2022).

In addition, farmer participation can also increase rice productivity in realizing sustainable socio-economic growth (Effendi et al., 2021). Increasing the participation of young farmers is a challenge for the sustainability of the agricultural sector (Alrawashdeh et al., 2022). There is also a study by Tchokonthe and Mimche (2023) in Cameroon's that highlights the inclusivity of young farmers' participation in public programs and advocacy for agriculture as their primary livelihood. Synergistic collaboration in realizing well-transformed agriculture must involve young farmers; this involvement aims to ensure that gender roles can be realized through the transformative values of agriculture within family resilience as one of the objective goals of the research. Thus, this can demonstrate one of the values of inclusivity in organizing interdependent local community groups to create sustainable food security (Kumar et al., 2024).

#### *2.4. Sustainable Local Food Security*

Food security is an important part of community life (Pérez-Escamilla, 2024). Food security is defined as a fundamental condition in which every individual, without exception, has the physical, social, and economic capacity to access adequate and nutritious food. This concept comprehensively covers four main dimensions. Namely, food availability, accessibility to food, utilization of food by individuals, and stability of the food system over time (Henry, et al., 2023; A. Kumar et al., 2024). Meanwhile, according to Belyaeva et al. (2022) food security is defined as a fundamental prerequisite that is essential for ensuring a productive, active, and healthy life.

Achieving such conditions involves various challenges and environmental dynamics that require resources to adapt effectively to environmental changes (Budiyoko et al., 2025). Natural resources, environmental conditions, and human resources must work in synergy and adapt to their environment in order to establish effective agricultural governance that can contribute to poverty reduction (Yami et al., 2024). This condition reflects that the synergy of local food security must be implemented through inclusive and fair approaches, where actors perform their roles in accordance with their duties and organizational functions in the realization of public policy (Mardhiah et al., 2024).

### **3. METHOD**

This research design applies a case study method and descriptive analysis (Schlunegger et al., 2024). This approach aims to analyze the inclusive agricultural development model in depth from the perspective of the environmental socioeconomic model in realizing sustainable local food security, to understand the integration of inclusive policy values, and to formulate participatory strategies for sustainable local food security. In addition, this study focuses on identifying issues related to the participation of women farmers and the presence of young farmers in Nagan Raya Regency. The primary data collection method is open-ended interviews, supplemented by secondary data (Donkoh, 2023). The interviews were conducted using a semi-structured approach to allow for flexibility in adapting to the interview guidelines and context

(Schlunegger et al., 2024). Secondary data were obtained from policy documents and academic publications.

The technique for determining the research informants was purposive sampling (Leah, 2024). The selection of informants using this method was based on the researcher’s belief that these actors were involved in decision-making regarding the management of rice paddies in Nagan Raya Regency. The research informants are listed in Table 1.

**Table 1.**

Research informant.

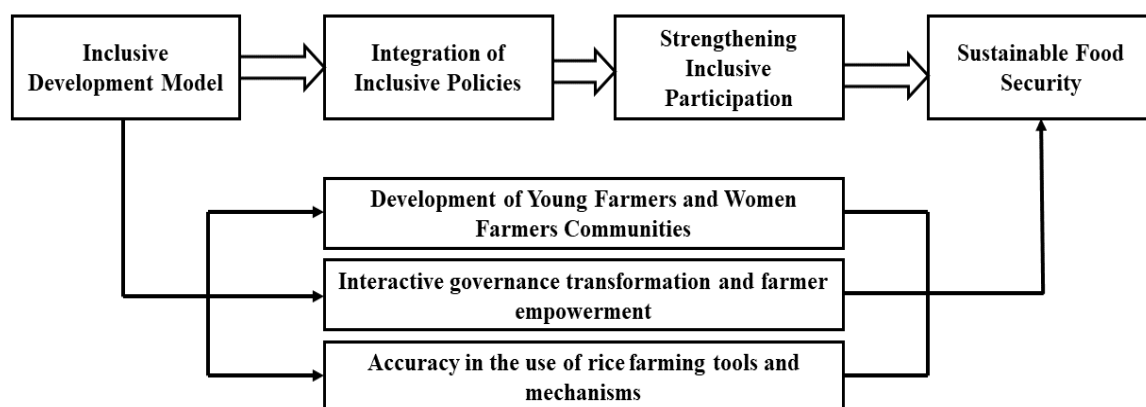
Informant	Number
Regional Development Planning Agency of Nagan Raya Regency	8
Department of Agriculture and Livestock of Nagan Raya Regency	2
Head of Agricultural Extension, Kuala Subdistrict	1
Head of the District Customary Institution	1
Chairperson of The Farmer Group	2
Farming Community	2
<b>Total</b>	<b>16</b>

(Source: Research interview, July 2025).

This study uses inductive data analysis techniques (Fife & Gossner, 2024). The data analysis process in this study was carried out in several stages, Data triangulation, Interview protocol, Data coding procedure. Ethical considerations of conclusions and recommendations based on the research results.

#### 4. FINDINGS AND DISCUSSION

Increased inclusive development to overcome the marginalization of women farmers in agriculture and the low existence of young farmers in Nagan Raya Regency can be developed through an inclusive development model consisting of the formation of young farmer and women farmer communities, transformation of agricultural governance and empowerment, and the use of appropriate tools and mechanisms. Through this model, it is also necessary to integrate inclusive policies that focus on the social and economic environment and inclusive participation to strengthen the realization of local sustainable food security in Nagan Raya Regency. As shown in the figure 3 below.



**Figure 3.** Objective Research Analysis Framework.

#### *4.1. Inclusive Agricultural Development Model in Realizing Sustainable Local Food Security*

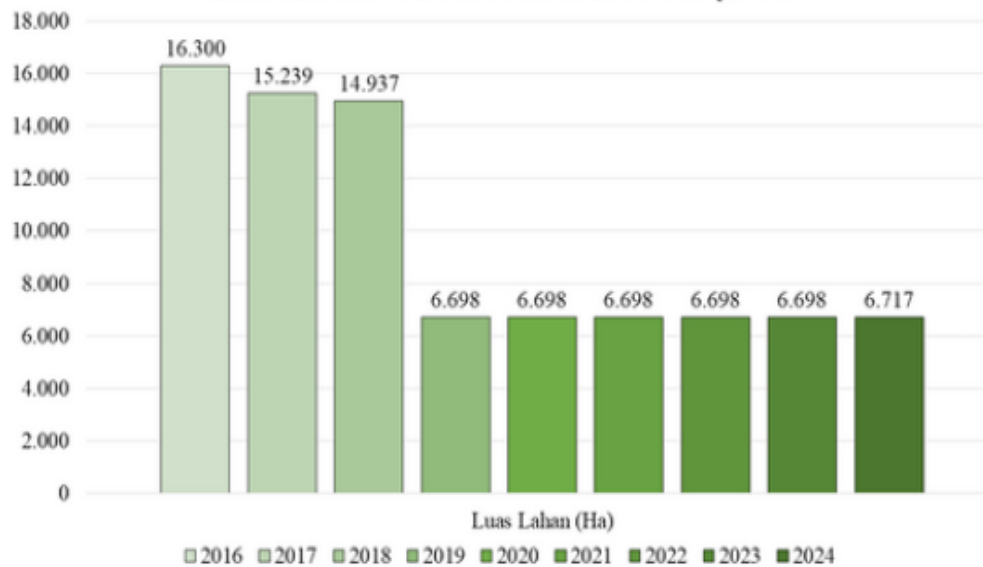
Inclusive development is a plan that can realize sustainable local food security in the rice farming sector. Inclusive development planning aims to focus on equal opportunities for all levels of society to reduce inequality (Ramli et al., 2025). The rice farming sector certainly also requires equality in development and community welfare. However, in Nagan Raya Regency, inclusive development in achieving local food security has not yet been realized. This is supported by research findings that show that there are still limitations in the contribution and participation of women and young people in the rice farming sector.

This is evident from the results of an interview with the Regional Development Planning Agency of Nagan Raya Regency, which stated that the participation of various stakeholders in the organization in Nagan Raya is well-structured but has not yet been effectively coordinated in decision-making processes involving both female and young farmers. This situation reflects that the organizational framework for rice farming governance in Nagan Raya has met the representational aspects of development; however, it has not yet fully achieved the principles of inclusive participation and coordination as emphasized in the development model theory, which calls for the integration of inclusive development policies (Gupta et al., 2015). This indicates that rice farming governance in Nagan Raya Regency must optimize systems and mechanisms for coordinating rice field management through collaborative synergy between women's farmer groups and marginalized young farmers. The collaboration of these forces can foster community development rooted in environmental sustainability.

Basically, achieving local food security in agricultural development is highly dependent on the quality of human resources, especially marginalized women farmers and young farmers as the next generation in the rice farming sector (Arvinati et al., 2019; Setiani et al., 2023). Therefore, an inclusive agricultural development model is needed to support local food security in Nagan Raya District. According to (Gupta et al., 2015) this can be implemented in realizing sustainable local food security through the development of agricultural communities, both female and young farmers, the existence of interactive governance transformation and empowerment, and the use of relevant tools and mechanisms in the rice farming sector.

##### *4.1.1. Development of Women Farmers and Young Farmers Communities*

Research findings in Nagan Raya District indicate that the number of young farmers is declining, and young farmers are not actively participating in agricultural activities in the district. This is due to the younger generation's waning interest in the agricultural sector each year. This trend suggests that rice productivity is declining and has not improved. Figure 4 below.



**Figure 4.** The Area of Rice Growing land in Nagan Raya Regency from 2016 to 2025 (Department of Agriculture and Livestock of Nagan Raya Regency, July 2025).

The graph above shows that rice farming land in Nagan Raya Regency has steadily declined since 2016 due to land use conversion. This condition has negatively affected farmers, local communities, and overall food security, as reflected in the decreasing level of agricultural production in the region. In addition to land use issues, there is also a declining interest among young farmers in Aceh, including Nagan Raya, which remains a significant challenge. Factors such as limited land availability and insufficient attention to marketing chains and price stability have made the farming profession less attractive. Therefore, policy integration within the framework of inclusive development must be implemented to ensure equitable and broad access to resources and economic opportunities for young farmers. From this perspective, the objectives can be examined through an inclusive development model, which indicates that Nagan Raya Regency needs to increase the participation of women farmers and young farmers as key actors in government pilot projects to achieve sustainable food security.

This, in turn, enhances the role of these two groups within the market value chain. Furthermore, it fosters economic equity and price stability. Therefore, an inclusive development model in rice farming governance is essential for enhancing the socioeconomic capital of those working as farmers (Gupta et al., 2015). The regeneration of young farmers is a global issue that needs to be addressed for sustainability, especially regarding local food security in the rice farming sector (Oktafiani et al., 2021). However, this dynamic problem must be overcome, because young farmers will become the regeneration for farmers who have entered an unproductive age (Anwarudin et al., 2020). In addition to the low number of young farmers, currently in Nagan Raya Regency, female farmers have limited participation. Women's involvement is also still limited, especially in decision-making and membership.

According to Liani et al. (2018) gender equality in the agricultural sector is defined as equality in access, participation, and utilization of benefits in the development of the rice farming sector. Therefore, developing communities of female and young farmers should be an important aspect of the rice farming sector, and the formation and development of these communities is the first step towards achieving local food security. This aligns with the

perspective of Gupta et al., (2015), who state that forming and developing communities are an important part of implementing inclusive development, with the communities in question being practice groups, epistemic groups, and social movements. By forming communities of women and young farmers, these groups can become practice groups in rice farming management to achieve sustainable local food security.

#### *4.1.2. Interactive Governance Transformation and Farmer Empowerment*

Interactive governance in farmer empowerment is crucial in implementing a policy model. The results of the research interviews show that through conditions that can integrate marginalized farmer groups such as women farmers and the low existence of young farmers in the rice farming sector, a transformation of interactive governance is needed in the process of realizing local food security in Nagan Raya Regency, especially in the involvement of women and young farmers. The transformation of interactive governance in achieving local food security can be examined through the theory of the inclusive development model, which represents an obligation that local governments must strive to fulfil in order to optimize collaboration, participation, and equitable access in agricultural governance (Gupta et al., 2015). This model enables groups of women farmers and young farmers to be actively involved in planning, production, and marketing processes.

Consequently, the implementation of government policies and programs can be effectively responded to by the community in accordance with expected outcomes. This approach also refers to the principles of human rights, equality, and participation, which constitute essential components of inclusive development in efforts to achieve sustainable local food security (Gupta et al., 2015). This interactive governance transformation can take the form of an inclusive coordination system involving various parties through cross-sectoral cooperation, including local government, the private sector, traditional agricultural institutions, farming communities, and academics, which has the potential to increase the participation of women and young farmers in the rice farming sector (Nathan, 2025).

In addition, this interactive governance transformation must be in line with inclusive empowerment programs for women and young farmers through the formation of women farmer groups that focus theoretically on non-formal education (Afmelia et al., 2025) and practices that begin with training (Arifin et al., 2025). Local governments also need agricultural governance transformation that focuses on promoting and developing the interests of young farmers through collaboration with universities and the introduction of agricultural technologies in line with modernization to support sustainable local food security (Wahyuni et al., 2024).

#### *4.1.3. Accuracy in the Use of Rice Farming Tools and Mechanisms*

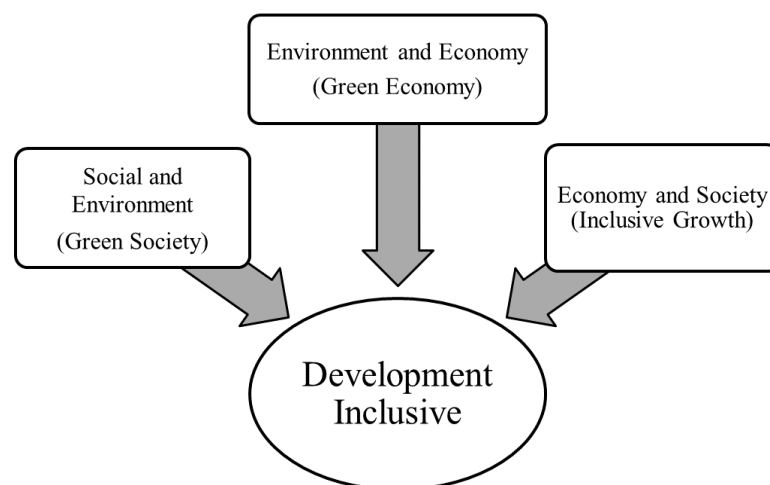
Local food security also depends on properly using rice farming tools and mechanisms. In line with Gupta, Nicky and Pouw (2015)'s research, an inclusive development model involving community development and interactive governance transformation also requires alignment with adopting appropriate governance instruments. The instruments include agricultural technology, procedures, collaborative synergies, and rice farming facilities and infrastructure instruments. At present, agricultural technology development is still limited in Nagan Raya Regency, with conventional governance systems and the use of traditional tools

being the benchmarks for the success of rice farming today. However, these conditions are not yet capable of supporting the realization of sustainable local food security.

Therefore, it is important to develop appropriate agricultural tools and mechanisms to transform and empower groups based on the principle of inclusiveness of women farmers and young farmers. There are several developments in the use of technology and mechanisms that can be used as solutions for agricultural development in Nagan Raya District, such as New Superior Varieties (VUB) of paddy rice (Asnita et al., 2023). Three function agricultural machinery innovations (Indrayanti et al., 2024; Lestari et al., 2019), precision agriculture technology (Tulungen, 2024), and the application of organic rice cultivation and organic compost (Danuwikarsa & Robana, 2016).

#### 4.2. Integration of Inclusive Policies in Socioeconomic and Environmental Aspects

The integration of inclusive policies in realizing an inclusive development model is the next step that needs to be developed to achieve sustainable local food security in Nagan Raya District. The integration of policies must be comprehensive in terms of social, economic, and environmental aspects of rice farming. According to (Gupta et al., 2015) inclusive development elaborates on the three aspects of socio-economics and the environment. This is because the renewal of this inclusive development model will achieve more comprehensive results, as shown in Figure 5 below.



**Figure 5.** Inclusive Development Achievements.

Through an inclusive development model, the goals of a Green Society, which encompasses social and environmental aspects, a Green Economy, which reflects environmental and economic aspects, and Inclusive Growth, which integrates economic and social aspects, can be achieved simultaneously. Based on research findings in Nagan Raya Regency, the environmental, social, and economic aspects have not yet been optimized. This situation is caused by a lack of inclusive coherence in achieving objectives across each aspect. An interview with the Head of Agricultural Extension in Kuala Subdistrict revealed that the limited participation of women farmers and young farmers reflects a low level of inclusivity in the social aspect. This situation leads to exclusive management of natural resources in the environmental aspect and hinders economic stability for women and the younger generation in

Nagan Raya Regency. Therefore, optimal policy integration is required to achieve local food security in Nagan Raya Regency.

The perspective of the inclusive development model proposed by Gupta et al. (2015), suboptimal policy governance must strengthen cross sector collaboration and enhance the participation of actors as local stakeholders in a more concrete and inclusive manner to improve the stability of local food security. In terms of the economy, the government should harmonize governance policy systems that can improve inclusive economic welfare through the establishment of empowerment programs and plant seed assistance (Hermawan et al., 2025) as well as strengthening the capacity of rice farming organizations in terms of government resources, agricultural extension workers, traditional institutions, and farming communities (Wicaksono & Ismayanti 2023).

In terms of social aspects, policy integration is needed that promotes inclusiveness in the form of participation of women farmers and young farmers in the decision-making system (Martauli et al., 2023), entrepreneurial education for young farmers, and the development of digital agricultural technology (Firdausia et al., 2023). The local government should prioritize policies on strengthening the management of water resources for rice fields (Ahmad & Tarman, 2024), prohibiting land use conversion (Ayunita et al., 2000), and utilizing quality seeds and fertilizers in the rice farming sector (Busthanul et al., 2023). Finally, from an environmental aspect, policy integration is also needed to apply inclusive development to achieve sustainable local food security in Nagan Raya Regency. This achievement supports the development of a food security system that is adaptive to climate change and promotes the economic welfare of agrarian communities.

#### *4.3. Strengthening Inclusive Participation in Sustainable Local Food Security*

Local food security is a fundamental condition experienced by everyone without exception, including the social, physical, and economic capacity to obtain nutritious, high-quality food (Belyaeva et al., 2022). An interview with the Chair of the Farmers' Group in Nagan Raya revealed that achieving sustainable local food security in the rice farming sector requires a series of steps to strengthen participation in order to foster inclusive human resource development, including the involvement of women farmers and young farmers. These efforts support the realization of an inclusive development model that can be applied in rice farming governance. An inclusive development model in rice farming governance is a stakeholder participation approach. In this model, women farmers and young farmers must be supported through targeted government control and service systems (Gupta et al., 2015). Through strengthened participation, inclusive social, environmental, and economic policies can be comprehensively achieved in the rice farming sector. Therefore, several alternative strategies to strengthen participation can be recommended to local governments to support sustainable local food security in Nagan Raya Regency.

Based on research findings, the current conditions in Nagan Raya Regency indicate that capital and market availability in the rice farming sector remain limited, despite the sector's high potential. This aligns with the low level of agricultural capital farming communities possess, such as seed availability, fertilizers, water sources, and pesticides, among others. This situation has led to a decline in the interest and presence of young farmers. According to Prastiyanto et al. (2022), farmer regeneration is a key focus in achieving sustainable local food

security. Therefore, it is necessary to develop markets and capital to meet farmers' needs in Nagan Raya Regency.

This can be done through village and regional cooperative systems. In addition to increasing the participation of young farmers, the development of cooperative-based markets and capital, as well as the provision of training and insurance for farmers (Nofitasari, 2024) can also increase the participation and role of women farmers. This capital is intended for women farmer groups to strengthen their role in the social environment of the community through membership in cooperatives (Sulaiman et al., 2019). In addition, strategies to strengthen inclusive participation can also be carried out through advocacy and education on rice farming technology (Wuli, 2025). According to Ali et al., (2022), the younger generation today plays a crucial role in improving the quality of the agricultural sector. Therefore, strengthening participation is urgently needed through optimal advocacy and education related to rice farming technology, such as the development of agricultural media platform technology (Pello & Djunina, 2024), education on agrarian law and agribusiness management (Sugito et al., 2025).

## 5. CONCLUSION

Inclusive agricultural development in Nagan Raya must optimize the role of women farmers' and young farmers' organizations so that they can play a more active role in fostering interest and capacity as sustainable socioeconomic assets. However, this model should not be limited to the formation of cooperatives; it must also create space for participation in agricultural governance. Therefore, an inclusive development model must integrate strong policies aligned with comprehensive operational indicators within a sustainable local food system. The integration of inclusive policy values in an interactive and transformative manner, through the collaborative roles of women farmers and young farmers working in synergy with modern agricultural technology, can utilize the principles and solidarity of local resources to enhance sustainable food productivity. The implementation of this inclusive agricultural model in Nagan Raya Regency can strengthen the capacity of local farmers as key actors within an inclusive agricultural system.

Through an inclusive development model, the goals of a green society (*focusing on social and environmental aspects*), a green economy (*environmental and economic aspects*), and inclusive growth (*economic and social aspects*) can be achieved simultaneously through inclusive development. In addition, participation needs to be increased through strengthening participation in advocacy and education related to rice farming technology, agricultural media platforms, agrarian law education, and agribusiness management. Contribution to gender-inclusive agricultural development: increasing access and participation, particularly for women's groups and young farmers, in open public spaces regarding decision-making and policy advocacy; ensuring equal access to public information in the agricultural sector; and involving women and young farmers in the agricultural business chain to support family economic independence and local food security as a manifestation of the regional food index in accordance with applicable regulations. Recommendations for future research include an inclusive development model prioritized by marginalized farmer groups in poverty alleviation. Additionally, strengthening an integrative and participatory social control model for women farmers to improve family economies in Nagan Raya, thereby creating integrated policy synergies to realize inclusive partnerships.

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