

The Contribution of Home Garden Utilization to Food Self-sufficiency and Household Economy in Baubau City

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ABSTRACT: This study aims to objectively analyze the utilization of home gardens to support the household food availability and income sustainability in Baubau City. Food security remains a significant issue that does not rely on the market supply only, but also on the ability of households to fulfil their own needs. This study was conducted in Baubau City, Southeast Sulawesi, using a quantitative descriptive method with a survey approach involving 20 respondents, consisted of 10 members of the Women Farmers Group and 10 Household or Community members who had independently and consistently developed home gardens to cultivate various type of vegetables over a one-year period. The results show most respondents are in their productive age around 41 to 50 years old and have a middle to high level of education. Most of them own a garden with areas ranging from 20 to 115 m², yet they are maintained to utilize it effectively to grow various type of vegetables. The contribution of home garden utilization to household income in total recorded at 9,66%, indicating that home garden is not just function as green spaces or housing support areas, but also hold a real economic potential in contributing to household income.

KEYWORDS: Home Garden Utilization, Food Security, Household Income

I. INTRODUCTION

National food security is a strategic issue that needs to address collectively, not only the responsibility of the government, but also requires an active participation of all segments of the society, starts from the smallest unit, the household. Food security strengthening in the household level is believed as a strong foundation to achieve a sustainable national food security.

The main issue of national food security is still around the threat of food insecurity in various regions. According to Saliem et al. (2001, cited in Ashari et al., 2012), food insecurity is a condition in which a region, society, or household faces limited food availability in a certain time, preventing them to meet the physiological standards necessary for growth and health. This condition can be chronically or situationally and worsened by emergency events such as natural or social disasters. One of the main causes of this insecurity is the conversion of agricultural to non-agricultural land, which significantly decrease the productive area and directly affects food production.

According to Law Number 18 of 2012 on Food (*Undang-Undang Nomor 18 Tahun 2012 tentang Pangan*), food is a basic human need guaranteed by the state. Food fulfillment is not only about quantity, but also quality and diversity. Article 60 (*Pasal 60*) of this law mandates the Central and Local Government to promote diversification on food consumption, based on local potential and wisdom to achieve a healthy, active and productive society. Following the Government Regulation Number 17 of 2015 on Food and Nutrition Security (*Peraturan Pemerintah Nomor 17 Tahun 2015 tentang Ketahanan Pangan dan Gizi*) issued to strengthen the implementation of the program.

One of the actual forms of the community participation in supporting food security is through the utilization of home gardens. A home garden, according to Solihin et al. (2016), is a plot of land around the house which has an economical, biophysical and sociocultural functions related to its residents. In the context of food security, home gardens act as a source of food supply as well as a developing medium for sustainable household scale agriculture.

The government, through the Food Security Agency of the Ministry of Agriculture, has launched the Sustainable Food Garden Program (*Pekarangan Pangan Lestari/P2L*) to encourage communities, particularly Women Farmers Group to meet their household needs of food by utilizing home gardens. This program has evolved and become part of the National Movement for

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Sustainable Household Food Area (*Gerakan Nasional Kawasan Rumah Pangan Lestari/KRPL*), which aims to improve the household income and welfare through agriculture-based initiatives.

Baubau City has participated in the implementation of this program since 2012. Through the Sustainable Food Garden Program (*Pekarangan Pangan Lestari/P2L*), Women Farmers Group in certain areas of Baubau have planted various type of vegetable such as mustard greens, spinach, water spinach, lettuce, tomatoes, chili peppers, scallions, and others using soil-based and hydroponic system. The utilization of home gardens has relevantly proven during the COVID-19 pandemic era, when public mobility was restricted, and food access was disrupted. Unfortunately, there has been limited academic research that specifically evaluating the impact of this program in Baubau until recently, either in terms of household food security or increased household income. Therefore, this study aims to analyze the extent of home gardens utilization to support household food security in Baubau, as well as the economic potential in contributing to sustainable household income.

II. METHODS

2.1 Research Location and Time

This study was conducted in Baubau City, Southeast Sulawesi, during August-September 2024. The time selection corresponds with the early planting and harvesting season, based on the types of food crops that being cultivated.

2.2 Population and Research Sample

The population of this study includes all active members of Women Farmers Group involved in the P2L-KRPL program, or households that utilize their home gardens as agricultural land in Baubau City. Sampling was carried out using purposive sampling method with the following criteria:

1. Official members of Women Farmers Group who have previously received assistance and training in home gardens utilization and have remained consistently active for at least one year since receiving the initial support and training.
2. Household or community members who have independently implemented the home garden utilization activities for at least one year, with or without the assistance and/or training.

2.3 Types and Source of Data

The types of data used in this research are included qualitative and quantitative. Qualitative data is in the form of written or spoken words that is processed to explain phenomena, on the other hand the quantitative data is in the form of numerical or measurable data, which can be analyzed using mathematical techniques. The data source in this study comes from the primary data, which obtained directly from original sources or first-hand respondents. The primary data was specifically collected by the researcher to answer the research questions through field surveys, interviews and questionnaires distributed to respondents.

2.4 Method of Analysis

This study employed a qualitative and quantitative analysis method. Qualitative method was descriptively written to explain the diversity of home garden utilization by respondents using characteristic of respondents, home garden condition, types of crops, occupation, and other income, while quantitative method analyzed from questionnaires result distributed to respondents.

1. To analyze income, revenue, and the cost of home garden utilization, the following formulas are used:

a. $\Pi = TR - TC$ Calculating Profit:

b. $TR = Y \cdot P_y$ Calculating Revenue:

c. Calculating Cost:

$$TC = FC + VC$$

Details:

Π	= Profit
TR	= Total Revenue
Y	= Total Output (Production from home gardening)
P_y	= Price per unit of output
TC	= Total Cost
FC	= Fixed Cost
VC	= Variable Cost

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2. To analyze the contribution of home garden utilization, the following formula is used:

$$\text{Contribution (\%)} = \left(\frac{\text{Income from home gardening}}{\text{Total household income}} \right) \times 100$$

Table 1. Interpretation of Home Garden Utilization Contribution

Contribution Percentage	Criteria
0,00%-10%	Very Low
10,10%-20%	Low
20,10%-30%	Moderate
30,10%-40%	Fairly Good
40,10%-50%	Good
>50%	Very Good

III. RESULTS

3.1 Respondent Characteristics

Based on the research, most respondents were aged 41-50 years old, 12 people in total (60%), which is considered a productive and mature age group. Meanwhile, respondents around 31-40 and 51-60 years old groups each 3 people in total (15%), and 61-70 years old were only 2 people (10%). The age majority of respondents shows physical capacity, experience, and relatively available time to actively manage their home gardens.

In terms of education, most respondents hold a Bachelor's degree (S1) were 10 people in total (50%), followed by 7 people graduated from Senior High School (35%), 2 people graduated from Junior High School (10%), and only 1 person hold a Diploma's degree (5%). This relatively high education level shows that respondents have good access to information and good awareness of the importance of home garden utilization to support household food security.

Regarding land size, respondents that owned a home garden around 20-115 m² were about 17 people (85%), 116-211 m² were 2 people (10%), and only 1 person (5%) owned 404–500 m². No respondents owned a huge plot, it indicates that home garden utilization was practiced on relatively small plots, requiring efficient and creative strategy, such as verticulture (vertical gardening), polybag, or simple hydroponics system.

In the context of plant variety, there are various kind of vegetable cultivated by respondents, including mustard green, spinach, water spinach, long beans, cucumbers, chili peppers, lettuce, pok choy, celery, tomatoes, ridge gourd, eggplant, pumpkin, and spring onions. These plants were chosen for their rapid growth, ease of care, frequent consumption, and the potential to reduce dependency on market. Besides the support for daily food needs, respondents also sold their harvests to neighbors or in local markets as an additional source of income.

Out of all, the data shown that despite limited land size, combination of productive age, relatively high educational background, and choice of plants has made home garden utilization a tangible strategy in supporting household food security. With a sustainable management, home garden can be functioning as self-sufficient, healthy, and productive food sources for households.

3.2 Analysis of Home Garden Utilization

A. Cost of Home Garden Utilization

The breakdown of the costs incurred by respondents for one year are presented in Table 2.

Table 2. Cost Breakdown of Home Garden Utilization

No.	Description	Amount (IDR)
1.	Fixed Costs: Equipment depreciation	Rp 14.760.000
2.	Variable Costs: Production facilities	Rp 26.050.000
	Total Costs	Rp 40.810.000

Source: primary data, 2025

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Based on Table 2, the cost breakdown illustrates the total annual expenses incurred by respondents in utilizing their home gardens. The costs are categorized into two components, fixed costs and variable costs. Fixed costs remain constant regardless of the level of production. In this case, fixed costs component is from the equipment depreciation from tools used in home gardening activities, such as hoes, soil shovels, zealots, hydroponic installations, and TDS meter. The total of fixed costs recorded for one-year amounts to Rp 14.760.000. Meanwhile, variable costs refer to expenses that fluctuate depending on the intensity of production activities. In the context of home garden utilization, variable costs include agricultural inputs, such as seeds, fertilizers, growing media, and other supporting materials. The total of variable costs recorded for one-year amounts to Rp 26.050.000.

Therefore, the total costs of home garden utilization for one-year amounts to Rp 40.810.000. This information serves as the base for calculating the income from home garden utilization activities in supporting household income.

B. Income from Home Garden Utilization

The net income generated from home garden utilization activities is obtained by deducting the amount of revenue with total cost from the sale of garden produce. The revenue itself is calculated by the amount of production converted in rupiah. For further details of the income gained by the respondents are presented in Table 3.

Table 3. Income Breakdown from Home Garden Utilization

No.	Description	Amount (IDR)
1.	Revenue	Rp 136.797.000
2.	Total Cost	Rp 40.810.000
3.	Net Income	Rp 95.987.000
4.	Average Income	Rp 4.799.350

Source: primary data, 2025

Based on Table 3, the total revenue from the sale of home garden products from respondents reached Rp 136.797.000. From this revenue, the total cost reached Rp 40.810.000, consisted of fixed costs (equipment depreciation) and variable costs (production facilities). After deducting the total production cost, the net income or profit was Rp 95.987.000, with an average income of Rp 4.799.350 per household. This indicates that other than supporting food needs, the utilization of home garden also provides significant economic values for household, particularly by increasing household income and reducing dependency on the market.

C. Contribution of Income from Home Garden Utilization

Contribution refers to the amount given from one activity or occupation to household income. In addition to reducing household expenses for daily vegetable needs, home garden utilization also serves as a source of additional income through the sale of harvests. The calculation of the contribution of home garden utilization to income gained by respondents are presented in Table 4.

Table 4. Contribution of Income from Home Garden Utilization

No.	Non-Garden Income (IDR)	Income from Home Garden Utilization (IDR)	Total Income (IDR)
1.	Rp 897.600.000	Rp 95.987.000	Rp 993.587.000
.	Contribution	9.66%	

Source: primary data, 2025

The table above shows a comparison between household income gained by respondents from non-garden sources and home garden sources. The total for non-garden income including household main earnings such as salaries, other businesses, or regular jobs amounts to Rp 897.600.000, while income generated from home garden activities amounts to Rp 95.987.000. Therefore, the total household income combining all sources reaches Rp 993.587.000.

In terms of proportion, the contribution of home garden utilization to the total household income is 9.66%, which can be considerate as very low. It is understandable, as most respondents still utilize their gardens mainly as hobby rather than fully optimized it. However, even the contribution is relatively small, it demonstrates that home garden utilization does provide a good additional income. This fact also proves that home garden is not only function as a green space or housing support area, but also having a real economic potential in supporting household income.

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A contribution of nearly 10% also reflects that with proper, intensive and sustainable management, home gardens can serve as a household strategy to strengthen the economic resilience and reducing expenses, particularly in food needs.

IV. CONCLUSIONS

Based on the research conducted with 20 respondents regarding the analysis of home garden utilization, it can be concluded that:

1. The utilization of home gardens within households plays an important role in supporting household food security, although the scale is relatively small due to limited land size, household able to cultivate various types of horticultural crops, especially vegetables such as mustard greens, spinach, water spinach, long beans, cucumbers, chili peppers, lettuce and others. These crops were chosen for their ease of planting, quick harvest time, and high relevance to daily consumption.
2. From the economic perspectives, the contribution of home garden utilization to total household income is relatively low, in total only 9.66%. It indicates that home gardens are mainly used for daily consumption needs rather than serving as main source of income. Nonetheless, the existing contribution reflects that the home gardens utilization holds a potential source of household additional income if managed sustainably and intensively.
3. The utilization of home gardens has proven to offer not only food and nutrition for household, but also serves as an alternative strategy to reduce household expenses and enhance sustainable food self-sufficiency.

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