


## FEASIBILITY ANALYSIS OF URBAN SMALLHOLDER RICE FARMING IN BANGKALA VILLAGE, MANGGALA DISTRICT, MAKASSAR CITY

### *Analisis Kelayakan Usahatani Padi Petani Urban di Kelurahan Bangkala Kecamatan Manggala Kota Makassar*

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### ABSTRACT

Every business that carried out is expected to be sustainable. Businesses in the agricultural sector can continue if they can provide benefits to the management. The sustainability of a business in the agricultural sector can be seen in social economics and ecological sustainability. Economic sustainability can be seen in terms of economic feasibility, for example, being able to generate profit or income. While social sustainability is indicated by the existence of cooperation and the ability to minimize completeness among stakeholders, especially among fellow farming actors, while an Ecological sustainability farming business occurs when there is an effort among farming actors to conserve land and apply organic farming. This study aims to determine the feasibility of urban rice farming in Bangkala Village, Manggala District, Makassar City. Respondentd were chosen purposively sampling technique. While the data was analyzed by using B/C ratio. The results of the analysis of the B/C ratio obtained were 0.72, meaning that rice farming for urban farmers in the Bangkala sub-district, Manggala District, from an economic point of view, was no longer feasible or not longer profitable. Therefore farmers have to look for other sources of income such as becoming construction workers, sellers, or starting a business, so the government needs to intervoene to provide training to build the skills needed by farmers.

**Keywords:** decent, farming, urban, village

## ABSTRAK

Setiap Usaha yang dilakukan diharapkan dapat berkelanjutan. Usaha dalam bidang pertanian dapat berkelanjutan apabila dapat memberikan manfaat kepada pengelolaanya. Keberlanjutan suatu usaha dalam bidang pertanian dapat dilihat dari keberlanjutan secara ekonomi, sosial dan ekologi. Keberlanjutan secara ekonomi dapat dilihat dari segi kelayakannya secara ekonomi misalnya dapat menghasilkan keuntungan atau pendapatan. Sedangkan keberlanjutan secara sosial diindikasikan dengan adanya kerjasama dan kemampuan meminimalisasi konflikt di antara stekholder terutama terhadap sesama pelaku usahatani, sementara suatu usahatani berlanjut secara ekologi apabila ada usaha diantara pelaku usahatani untuk melakukan konservasi lahan dan menerapkan pertanian organik. Penelitian ini bertujuan untuk mengetahui kelayakan usahatani padi sawah petani urban di Kelurahan Bangkala Kecamatan Manggala Kota Makassar. Penentuan responden dilakukan dengan menggunakan teknik purposive sampling sehingga diperoleh 29 Responden. Sedangkan alat analisis data untuk mengetahui kelayakan usahatani padi sawah pada petani urban di Kelurahan Bangkala adalah menggunakan rumus B/C ratio. Adapun hasil analisis B/C ratio yang diperoleh adalah 0,72 berarti usahatani padi petani urban di Kelurahan Bangkala Kecamatan Manggala dari segi ekonomi sudah tidak layak untuk diusahakan atau tidak menguntungkan lagi. Oleh karena itu petani harus mencari sumber pendapatan lain seperti menjadi buruh bangunan, penjual atau membuka usaha, sehingga diperlukan pemerintah turun tangan memberikan pelatihan-pelatihan untuk berkal keterampilan yang diperlukan oleh petani.

**Kata Kunci:** layak, usahatani, urban, desa

## INTRODUCTION

Lowland rice farming, especially in urban areas, is becoming increasingly worrying, and land ownership by farmers is decreasing (Yusuf et al., 2021). Because the large number of land conversions from agricultural land to non-agricultural land, so that the average land ownership per farmer is only around 0.5 ha. even less than 0.5 ha and many have lost their land (Manyamsari & Mujiburrahmad, 2014), even the average land ownership data per agricultural business household released by BPS in all districts/cities in West Java Province except Ciamis Regency is below 0.25 Ha (Dalimunthe & Kurnia, 2018). One cause of land conversion is increasing investment in the industrial sector, infrastructure, hotels, restaurants, and other buildings. In addition, many farmers are unable to work on agricultural land, so many sell their land; as a result, much agricultural land is diverted to non-agricultural activities, such as housing construction and fisheries tourism (Yusuf et al., 2021). As a result, farmers' land ownership is becoming increasingly narrow, which has an impact on business growth in the agricultural sector (Dalimunthe & Kurnia 2018). One

reason why farmers are unable to work on agricultural land is that many sell their land (Yusuf et al., 2021).

This condition is also highly correlated with farmer income because income between households will ultimately decrease (Nasir et al., 2015). The less land controlled, the lower the farmer's income; conversely, the larger the land controlled by farmers, the greater their income because land area determines the farmer's income level (Wiyanto et al., 2014). Most farmers who feel this condition are those who live around cities or in urban development areas or industrial areas, because their land is shrinking and they are more interested in selling their land to developers to meet their sometimes urgent needs (Nuhung, 2016). As a result, the area of yards increases, and agricultural land decreases owing to the conversion of agricultural land (Alfayanti et al., 2021).

If the conversion of agricultural land to non-agricultural land continues, it can be predicted that the condition of agricultural land in the future will experience serious problems because agricultural land will gradually shrink and eventually there will be nothing left. has a negative impact. Farmers can no longer continue their farming businesses. If this happens, it will increase unemployment, farmers will lose their jobs, farmers will not be able to meet the needs of life and their families, and farmers, as one of the food supply components, will not be able to carry out their functions so that on a wider scale, it will have a negative impact on the economy. This has an impact on national food availability, which can result in mass starvation. If this happens, there will be social unrest that can weaken a country's resilience. This should be of concern to all parties, especially the government, so that it is firm in enforcing land protection laws, especially for land that is still being produced in the context of protecting sustainable agricultural land (PLP2B) (Alimansyah et al., 2015).

The narrowing of agricultural land is not only happening in urban areas, but has spread to remote villages due to human development and needs, especially in the context of developing industry (Saputra & Suci, 2019) Because the need for natural resources is increasing the number of farmers. facing increasingly serious obstacles, especially in rural areas (Saputra et al., 2015). Farmers change the function of their land because of urgent economic needs, as well as agricultural land, the productivity of which is decreasing over time (Novikarumsari et al., 2020).

Under these conditions, the farmers in the Makassar city area, that usually called urban farmers, who still manage their rice farming as if they are competing with a land crisis. One group of farmers who still manage rice fields is farmers in Bangkala Village, Manggala District, with all the limited land they control. In theory, small land ownership will lead to reduced income, while the needs of farmers and their families increase, but in conditions like this, there

are still some people who live on the outskirts of Makassar city who still feel comfortable managing rice fields; therefore, it is very interesting to study their existence, especially regarding income and the feasibility or sustainability of their business. The limited land owned by urban farmers should cause farmers to stop managing their farming business because, theoretically, the less land owned by farmers, the less income they will have, while their daily needs will be reduced.

The aim of this study is to analyze the feasibility of urban rice farming in Bangkala Village, Manggala District, Makassar City. The feasibility of rice farming is related to production, revenue, and farmers' income. Income is a measure of profit and an important factor because the success of a business can be seen from the amount of income generated from fulfilling or not fulfilling living or household needs. The smaller the income, the more difficult it is to meet daily needs (Andriani, 2017). Each farmer has a different income because it is influenced by differences in the amount of costs incurred and differences in income obtained from farming activities. Income can be increased by minimizing the costs that must be sacrificed for farming activities (Andriani, 2017). If the farmer's income is larger compared to the costs incurred, it is very likely that the farming business can be continued. Conversely, if the farming income is less than the costs incurred, then it is very likely that the farming business cannot continue. Therefore, this research will analyze the sustainability of farming carried out by urban farming in the Bangkala sub-district, Manggala sub-district, and Makassar city.

## RESEARCH METHOD

This research lasted for three months, starting from December 2022 to February 2023, with a research location in Bangakala Village, Manggala District, Makassar City. The type of data obtained is in the form of quantitative and qualitative data. Quantitative data are in the form of variable costs, fixed costs, production, and income while qualitative data are in the form of age, level of education, and farming practices. The data collection technique used was guided interviews with interview questionnaire. The research variable studied was the feasibility of urban rice farming in Bangkala Village, Manggala District, Makassar City. The location selection was carried out purposively because in that location there were still farmers who survived cultivating the fields. The way to determine informants is by way of deliberately with the criteria of still running farming in urban locations. Data collection techniques with interviews. The data analysis technique used to determine the feasibility of rice farming is to use the B/C ratio formula, which compares the income with the costs used. This income equation can be written by Arida et al. (2015) as :

$$Pd = Pdon + Pdoff$$

Where:

Pd = Total household income of farmers (Rupiah)

Pdon = Income from farming (Rupiah)

Pdoff = Income from outside farming (Rupiah)

Meanwhile, according to Bertham et al. (2011); Sumantri & Maria (2005) income is total income minus total costs, which can be written mathematically as follows:

$$\pi = TR - TC$$

Where :

$\pi$  = Profit or profit from product sales

TR = Total Revenue is the total receipt of product sales

TC = Total Cost, namely the total costs incurred for production.

Meanwhile, to calculate the costs incurred, the following formula is used:

$$TC = TFC + TVC$$

Where :

TFC = Total Fixed Cost

TVC = Total Variable Costs

Conceptually production costs consist of costs incurred by a company or individual to obtain sources or factors of production (inputs) to produce their products (outputs), while total costs are the sum of total fixed costs and total variable costs for various levels of output. While revenue is the result of money received by the company from the sale of goods and services it produces and profit is the difference that arises when the company's total revenue is greater than the total cost. To determine the feasibility of rice farming, the parameter used is the B/C ratio, if the B/C ratio > 1 means the farming is feasible, and if B/C = 1 it means no profit. loss, and if <1 means that the farming business is making a loss or not feasible (Wahyuni et al., 2012; Masitah et al., 2021).

## RESULT AND DISCUSSION

### General Description of Responden

Urban farmers in the Bangkala District, Manggala District, generally work as farmers, but apart from that there are some of them who work as laborers, fish sellers and security guards and some even sell, this is done to fill their time while waiting for the harvest. In general, after they have finished processing the rice fields until harvesting, urban farmers in Bangkala Subdistrict and Manggala District do additional work to increase their income to meet their living needs. This is in accordance with the findings of Jihan et al. (2021), with the increasing needs of farmers, farmers and their families look for jobs other than farming.

Urban farmers in Bangkala District are, on average, 57 years old, so at this age they are still considered productive, and they still have strong energy to manage their farming business. Age in farming is very influential in smoothing the business that will be run from the thought process to the running process (Thamrin et al., 2012). Meanwhile, their average level of education is very low; that is, on average, they have elementary school education, and some have never received education, even though education is very influential on every business they undertake, including farming (Herminingsih & Rokhani, 2014), because with adequate education, they can innovate in developing their farming business, such as using new technology in farming.

Meanwhile, the average land area controlled by urban farmers in Bangakala Village, Manggala District, is relatively narrow, namely 0.7 Ha. Therefore, the volume of plants that can be planted is less because in farming, the narrower the land, the more inefficient the business (Riyono & Juliansyah, 2018). Meanwhile, the average family-dependence is two people. To meet the needs of families who are dependent on farmers, they have to obtain jobs other than farming.

### **Analyzing of Cost Structure**

The data obtained in the study of urban farmer respondents in the Bangkala Village, Manggala District, Makassar City, as many as 29 people were in the form of variable cost data, fixed cost data, receipts and income. Based on the data obtained in the Table 1. it can be seen that the total operational costs used during one growing season from the 29 respondents who were the source of research data amounted to IDR 108,910,500 and if averaged per farmer the operational costs were IDR 3,755,534.483. Operational costs referred to include costs incurred to finance land preparation, planting, maintenance, purchase of fertilizers and poisons, harvesting costs and transportation costs. This type of financing is the same as operational costs from the results of research conducted by Silamat et al. (2014) that operational costs consist of seeds, fertilizers, insecticides, and labor costs, but different from the results of research conducted by Romdhon et al. (2018) that operational costs consist of promotion, marketing and equipment maintenance costs, the reason for the difference is because there are no costs for land preparation, planting, purchasing fertilizers, poisons and harvesting costs because the object of Romdhon et al. (2018) research is aspects of processing agricultural products. While the fixed costs in this study in the form of equipment depreciation do not exist because all farmers rent tractors, as well as land tax costs there are no because all respondents rent land from investors who have purchased the farmers' land.

Table 1. Cost, Receipt and Income Data for Each Farmer

No Respondent	Total Cost (IDR)	Revenu (IDR)	Income (IDR)
1.	8,500,000	17,875,000	9,375,000
2.	2,925,000	7,962,500	5,037,500
3.	5,875,000	6,662,500	787,500
4.	2,020,000	4,875,000	2,855,000
5.	3,800,000	19,500,000	15,700,000
6.	3,890,000	7,800,000	3,910,000
7.	4,065,000	6,825,000	2,760,000
8.	1,990,000	6,825,000	4,835,000
9.	1,990,000	5,687,500	3,697,500
10.	5,311,250	11,733,750	6,422,500
11.	7,381,250	11,103,750	3,722,500
12.	7,025,000	9,450,000	2,425,000
13.	4,931,000	5,512,500	581,500
14.	1,166,250	1,181,250	15,000
15.	6,405,000	13,230,000	6,825,000
16.	1,674,500	1,575,000	- 99,500
17.	1,825,000	1,575,000	- 250,000
18.	2,585,000	3,150,000	565,000
19.	1,737,500	1,575,000	- 162,500
20.	4,945,000	6,300,000	1,355,000
21.	5,135,000	6,300,000	1,165,000
22.	1,610,000	2,362,500	752,500
23.	3,370,000	5,512,500	2,142,500
24.	2,015,000	1,575,000	- 440,000
25.	2,713,750	5,118,750	2,405,000
26.	1,965,000	1,575,000	- 390,000
27.	4,845,000	9,450,000	4,605,000
28.	5,282,500	3,937,500	- 1,345,000
29.	1,932,500	2,362,500	430,000
Total	108,910,500	188,592,500	79,682,000
Average	3,755,534	6,503,190	2.747.655,17

Source: Primary Data Research, 2023

The provisions for land leases between farmers and landowners are that for every 10 sacks of grain produced by farmers from their farming results, farmers issue 3 sacks to landowners so the profit sharing pattern is 7:3. With the provision that all farming operational costs are borne by farmers. This system is somewhat more profitable for farmers because they get a 70% share from the

owner who only gets 30%. When compared with the results of research on profit sharing between landowners and farmers using the contract system by Marsudi (2011), namely 64.21% for farmers and 35.79% for landowners, the slightly higher 5.79% obtained by landowners is because landowners still incur operational costs in the form of renting equipment such as tractors, whereas in this study all operational costs were borne by sharecroppers, so it is only natural that farmers' profit sharing is greater, namely 70% while landowners get 30% profit sharing. The data obtained in full can be seen in the following Table 1.

The amount of farmers' income after sharing with the land owner is the net amount of unhusked rice obtained by the farmers, which is 12,259 sacks multiplied by the price per kilo of dry unhulled rice, which is IDR 6,500 per kilo, the average weight in sacks is 25 kg. So that the total revenue obtained from 29 farmers is IDR 188,592,500 or the average income per farmer is IDR 6,503,189.655 per planting season. Farmer acceptance in this study when compared to the results of research by Kernalis et al., (2019) on farming in the Jangkat District, Merangin Regency, namely IDR 10,749,401/ha/farmer, farmer acceptance in this study was much smaller, namely 4,246,211 at odds. This may be due to the difference of land management methods and the condition of the land in cities which tend to be less fertile compared to land in villages. However, the costs used in the research by Kernalis et al., (2019) are higher, namely IDR 8,098,506/ha. So that the average profit of paddy rice farming is IDR 2,650,895/ha. When compared with the profits obtained by farmers in this study, it was greater, namely IDR 2,747,665.17/ha/farmer. This is because the operational costs of farmers in Bangkala Village can be reduced so that income increases by reducing the use of chemical fertilizers by applying balanced fertilizers, namely besides using chemical fertilizers they also use organic fertilizers and trying to reduce wages by working together or mutual cooperation between family and relatives. If this profit is averaged over one growing season cycle which lasts for 3 months, the income per farmer is only IDR 915,888. When compared with the living needs of farmers and their families living in cities, where almost all of their daily needs are obtained through financial transactions, it is certain that they cannot meet their daily needs, because the higher the income of farmers, the more farmer families can meet their needs. their lives (Aulina et al., 2021). To anticipate meeting the daily needs of urban farmers in the Bangkala Village, they work outside of farming, such as being construction workers and laborers, motorcycle taxi drivers.



### Analyzing of Efficiency

The data obtained in this research came from 29 urban farmers in Bangkala Village, Manggala District, Makassar City. After analysis cost, revenue, and income data, as well as the B/C ratio, were obtained. Complete details can be seen in the following Table 2.

Table 2. B/C Ratio Analysis Results

No.	The Analyzed Part	Analysis Results
1.	Total Cost	3,755,534 (IDR)
2.	Revenue	6,503,190 (IDR)
3.	Income	2,747,655 (IDR)
4.	B/C	0.7

Source: Primary Data Research, 2023

Based on the results of the analysis using the B/C ratio by comparing income with total costs, the B/C ratio value is less than one ( $<1$ ), namely, 0.7. The results of this analysis indicate that urban lowland rice farming in Bangakala Village, Manggala District, Makassar City is neither feasible nor profitable for farmers. Economically, if farmers spend one Rupiah, they earn an income of less than one Rupiah. Although partially, there are respondents who show the results of the B/C ratio analysis to be greater than one ( $>1$ ), namely 4.1 and 2.4, which means that spending one Rupiah will get an income of more than one Rupiah, because the two respondents worked on quite an area, namely 2 ha each. Meanwhile, on average, the results of the respondents' analysis show that the B/C ratio analysis results are less than one ( $<1$ ); thus, in general, urban farmers' farming in Bangakala Village, Manggala District, and Makassar City is not worth running. One reason is that the average landholding area of urban farmers is less than 0.5 ha. This condition is the same as that founded by Manyamsari & Mujiburrahmad (2014) that the area of land controlled by farmers affects income; the greater the area of land controlled, the greater the income earned, and vice versa.

The results of the analysis show that urban rice farmers in Bangkala Village, Manggal District, and Makassar City are no longer fit to continue farming because the land they work on has shrunk due to land conversion from agricultural land to non-agricultural land. This is caused by the development of human needs, such as property land and shops (Yusuf et al., 2021). This condition is in line with the results of Syukur et al. (2020), which show that agricultural land in urban areas is decreasing due to land conversion. Urban rice farming in Bangakala Village, however, is no longer profitable. Urban farmers continue to run farming businesses and increase their income to meet their living needs. Farmers try other jobs as additional work (Aprildahani et al., 2017).

## **Implication To Urban Smallholder Rice Farming**

One job that can be done to increase the income of urban farmers is as a construction worker, motorbike or taxi driver, and selling vegetables and fish. Another strategy that can be implemented by urban farmers in the Bangkala sub-district, Manggala District, Makassar City is to try to change the farming system from horizontal to vertical by using hydroponic planting techniques as a solution so that they can survive as farmers, because the hydroponic system can minimize land use (Akhsan et al., 2023). The hydroponic planting system is a future planting system in response to increasingly narrow land conditions, especially for urban farmers, because it can save land use. The hydroponic system can even use the attic of the house as land for growing crops with the hydroponic system and can even use the yard of the house to become agricultural land, which has added value to the hydroponic cultivation system (Putra et al., 2019). Hydroponic systems can replace increasingly narrow rice fields as a medium for growing rice. Therefore, even though it is not feasible for urban farmers to grow crops because of limited land, urban farmers can still meet their needs, and even their income can increase if they can manage the hydroponic cultivation system well because this system does not recognize planting seasons, so that in one year, they can carry out several production cycles. (Rini et al., 2022). The hydroponic plant system can make farming feasible or profitable, that businesses with a hydroponic system are feasible to run. Therefore, the government and universities can facilitate farmers in the form of training and other assistance needed by farmers to start hydroponic-based farming, so that urban farmers can contribute to providing minimal food to meet family food needs. In addition, to increase farmers' income so that the B/C ratio value can be more than 1 so that their farming can be economically sustainable, farmers can use an intercropping system, such as planting rice while planting kale between rice plants or mina rice, namely, cultivating rice while spreading it. Tilapia fish seeds can even combine intercropping with rice crops so that farmers can harvest two types of plants at the same time, and they can harvest fish so that urban farmers can maximize the productivity of limited land.

## **CONCLUSION AND SUGGESTION**

### **Conclusion**

Based on the research results, show that the reduction in agricultural land due to the large amount of land being converted to non-agricultural land results in the management of Urban Farmers' agricultural land becoming unfit and resulting in the fulfillment of farmers' needs and welfare not being met and even resulting in weak national food security. So steps are needed by various parties to help urban farmers obtain other sources of income besides farming.

### Suggestion

This research still needs to be continued to examine the creations of urban farmers in meeting their subsistence needs under economically unsustainable farming conditions. One of the problems faced in collecting data is that farmers do not have written data; they rely only on memory, so good data validation is needed. Urban farmers in Bangkala sub-district, Manggala sub-district should adopt a new system for managing farming.

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