

## Financial Literacy Counseling for Farming Households Toward Climate Change Resilience in Waru Village, Parung District

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### ABSTRACT

Climate change is a real threat to the long-term viability of farms and the economic stability of farming families, especially in rural Indonesia. This makes farmers even more vulnerable because they can't plan their finances flexibly when they don't know how much they'll make from their harvest. The goal of this community service project is to help farming families become more financially literate. It took place on October 30, 2025, in Waru Village, Parung District, Bogor Regency, and involved 30 members of the PKK of Waru Village. The extension materials taught people how to manage their household income and expenses, keep simple financial records, plan their finances for the seasons, and get to know formal financial institutions. A questionnaire was used to evaluate participants' financial knowledge and access to financial institutions. The results show that 76.6% of participants knew about banks, 60% had savings accounts, and 73.3% knew about more than one type of bank. After the extension, comprehension levels were over 80% of the target set. These results show that using contextual and participatory lecture methods as a first step to help rural farming communities address climate change challenges is an effective way to improve their financial literacy.

**Keyword :** *financial literacy, farming households, climate change, extension, financial inclusion*

### 1. INTRODUCTION

Climate change is one of the biggest problems and has a direct impact on the global food production system. The IPCC AR6 report Bezner Kerr et al. (2023) finds that human-caused warming has significantly slowed agricultural productivity growth, especially in low- and middle-latitude regions that are the main food sources for developing countries. Wheeler & von Braun (2013) show that climate change makes food less secure in three main ways: it reduces availability, lowers household income, and makes it harder to access healthy food. These conditions directly make smallholder farming households that don't

have enough money to protect themselves more vulnerable.

Over time, Indonesia's climate risks are getting more complicated. Naylor et al. (2007) predict that the likelihood of a 30 day monsoon delay in Java, which is a historical threshold that has led to a drop in rice production, could increase dramatically from 9 to 18 percent under current conditions to 30 to 40 percent by 2050. Arifah et al. (2022) corroborate this finding with empirical evidence indicating that rice farmers in downstream irrigation networks are particularly susceptible during droughts induced by climate change, due to escalating water access limitations. World Bank (2021) says that about 93% of Indonesia's agricultural

producers are small family businesses. These are the people most affected by climate change but with the least access to adaptive financial services.

In light of these climate challenges, financial literacy has emerged as an essential skill that dictates the survival of farming households. Lusardi & Mitchell (2014) characterize financial literacy as the capacity to comprehend fundamental financial principles, such as the time value of money, risk diversification, and inflation, that empower individuals to make economically rational choices. They empirically establish that low financial literacy is significantly associated with inadequate savings, ineffective financial planning, and heightened susceptibility to economic shocks. OECD (2023) broadens this definition by emphasizing that financial literacy encompasses a blend of knowledge, attitudes, and financial behaviors essential to achieving long term financial well being, an aspect particularly pertinent to farmers who face seasonal income fluctuations and the risk of crop failure.

Indonesian farmers still don't know enough about money. The Otoritas Jasa Keuangan (2022) in the 2022 National Survey on Financial Literacy and Inclusion (SNLIK) said that the national financial literacy index was 49.68%. They also said that farmers were among the 10 priority groups that needed the most help with financial literacy. Safitri (2021) found that only 47.2% of farmers in South Sumatra had adequate financial literacy, while 24.5% were classified as having low literacy. Yuwono et al. (2018) conducted a study on farmer groups in Java and found that less than 6% of farmers consistently planned their household expenditures. Most farmers depend on or expect to depend on crop yields as their only source of income, so when climate change causes harvest failures, they have no money to fall back on.

Waru Village, located in Parung District, Bogor Regency, is a farming area

where most residents earn their livelihoods by growing crops. Field observations indicate that farming households in this village have not yet implemented optimal financial management practices, as crop revenues are used directly for daily necessities without systematic record keeping. Because they do not track their finances, farming families are unable to plan for economic risks that arise from changes in weather or crop prices. In this context, this community service project was intended as a counseling and education intervention to improve the financial management knowledge of farming families. This initiative was part of a broader effort to increase adaptability to the risks of climate change.

## 2. THEORETICAL FOUNDATION

Financial literacy is considered a vital aspect of human capital, equipping individuals to make informed financial decisions. According to Lusardi and Mitchell (2014), this concept is assessed through three core questions that evaluate understanding of compound interest, inflation, and risk diversification which is commonly referred to as the "Big Three" in financial literacy research. The OECD (2022) expands this by outlining a measurement framework consisting of three elements: financial knowledge (grasp of financial concepts), financial behavior (tendency toward responsible financial actions), and financial attitudes (orientation towards short-term versus long-term resource management). This tripartite framework highlights that effective financial education must address not only knowledge, but also behavioral change and attitudinal shifts.

Low financial literacy has more serious effects in agriculture than in other areas. Safitri (2021) shows that the farmers' financial literacy index is most affected by their financial attitude. This

means that education programs that only teach people about money without helping them develop positive financial attitudes, such as saving for the future and maintaining an emergency fund, won't work in the long run. Soekarni et al. (2024), in their study of smallholder farmers in the Bogor and West Java regions, emphasize the need for cross-institutional collaboration among financial service providers, the OJK, and local governments to sustainably enhance farmers' financial literacy.

Yang et al. (2022) established an empirical link among financial literacy, climate change, and the resilience of farming households by examining the financial vulnerability of agricultural families in China in the context of climate change. They discovered that temperature anomalies, altered precipitation patterns, and extreme weather events directly affect financial vulnerability by diminishing livelihood capital and exacerbating credit constraints. Their suggestions include teaching farmers about financial risk, expanding agricultural insurance, and giving scientific advice on how to adapt production. The success of these tools depends on how well the farmers understand money. The World Bank (2021) also stresses that smallholder farmers in Indonesia need to diversify their sources of income and have flexible access to money as important parts of a climate resilience strategy.

Women are important when it comes to making financial decisions for the family, but they also face a significant knowledge gap. Lusardi & Mitchell (2008) found that women consistently achieve lower scores in financial literacy than men, especially in understanding compound interest and investment diversification. Koomson et al. (2021) experimentally illustrate that financial literacy programs integrated with women's empowerment components yield significantly greater effects on household consumption than financial education

programs lacking a gender perspective. These findings are pertinent, considering that the majority of participants in this community service activity are women, specifically homemakers and small business operators in Waru Village.

Extension services that empower communities have been shown to increase the economic capacity of rural areas. Mardikanto & Soebianto (2017) argue that extension, as a method of empowerment, seeks to enhance community knowledge, skills, and awareness, enabling communities to autonomously manage their potential. Kaiser & Menkhoff (2017), via a meta-analysis of 126 studies on financial education programs, illustrate that these interventions yield substantial effects on financial literacy (effect size 0.26) and on financial behavior (effect size 0.09), emphasizing that effectiveness hinges on program intensity and timely execution.

### 3. METHODOLOGY

This community service activity uses an educational-participatory approach that includes lectures, discussions, and evaluations. The lecture method was chosen because it works well as a first step in teaching basic ideas to a large enough group in a way that is appropriate for the situation and time-limited (Mardikanto & Soebianto, 2017). On Saturday, October 30, 2025, 30 people from the PKK group of Waru Village took part in the activity in Waru Village, Parung District, Bogor Regency.

There were three steps in the implementation process. First, in the preparation stage, the partner had to give permission, field studies had to be conducted to identify the most important issues, and extension materials had to be developed that were specific to the socio-economic conditions of the Waru Village community. The extension materials were meant to cover seven main topics: (a)

basic ideas about financial literacy and why managing money is important for farming families; (b) how seasonal income works and the financial risks that come with climate change; (c) how to keep track of simple income and expenses; (d) how to be financially ready, including how to manage savings and an emergency fund; (e) real-life examples of how to manage money; (f) a discussion of real financial problems that participants face; and (g) a questionnaire to test understanding.

Second, in the implementation stage, materials were delivered through a PowerPoint presentation that included specific case studies on how to teach farming families about money. M. Arizal, M.S.E, a lecturer at the Faculty of Economics and Business at UPN Veteran Jakarta, helped with the materials. After the lecture, there was a question-and-answer and open discussion session where people shared their experiences managing household finances. This made the materials more relevant and easier to understand.

Third, a post-activity questionnaire was used to evaluate the activity. It measured three things: (1) how much people knew about basic financial literacy, (2) how easy it was for them to get to and connect with formal financial institutions, and (3) how well they understood the different types of financial institutions. More than 80% of participants had to demonstrate that they understood the material well and could name more than one type of financial institution for the project to be considered a success. A descriptive-quantitative analysis of the questionnaire data was performed to delineate participants' profiles and assess program outcomes (Sugiyono, 2019).

#### 4. RESULTS AND DISCUSSION

Thirty people with different backgrounds participated in the financial

literacy counseling activity in Waru Village. Table 1 shows a summary of the answers to the questionnaire, which show the participants' profiles and their starting level of financial literacy. According to Table 1, most of the people who answered are women (70%). This shows that women are the main people who manage money in rural areas. This finding strengthens establish literature that underscores women's pivotal role in household financial decision-making, simultaneously highlighting the necessity for gender-responsive financial literacy initiatives (Koomson et al., 2021; Lusardi & Mitchell, 2008). Bucher-Koenen et al. (2017) assert that while women predominantly function as financial decision-makers within households, they consistently demonstrate inferior financial literacy, a shortcoming that requires improvement through targeted educational initiatives.

Table 1. Summary Responses

No.	Variable	Response Category	Count (Persons)	Percentage (%)
1	Gender	Male	9	30
		Female	21	70
2	Age	< 25 years	3	10
		25-40 years	12	40
		41-55 years	12	40
		> 55 years	3	10
3	Primary Occupation	Homemaker	15	50
		Farmer	6	20
		Trader	3	10
		MSME Owner	6	20
4	Access to Financial Institutions	Has a bank account	18	60
		Does not have	12	40
5	Knowledge of Financial Institutions	Aware	23	76.6
		Unaware	7	23.4
6	Types of Financial Institutions	Knows more than 1 type	22	73.3
		Only 1 or unaware	8	26.7

Based on Table 1, 80 percent of respondents are between 25 and 55, which is the age range for productive people. This age range indicates that the participants have sufficient cognitive ability to understand financial literacy materials and use them over time. The breakdown of occupations shows that there are many types of people: homemakers (50%), farmers (20%), MSME owners (20%), and traders (10%). This diversity reflects the village's economic reality, which is based on livelihood

diversification. Most households combine farming with small businesses, so financial literacy is an important skill for everyone.

The questionnaire results show that people have a good understanding of their access to financial institutions, but still need improvement. About 60% of respondents already have bank savings accounts, and 40% have not yet used formal financial institutions. This finding aligns with Erlando et al. (2020), which indicates that low-income and rural communities in Indonesia still encounter obstacles to accessing formal financial services, despite their physical availability. Demirgüç-Kunt et al. (2022) corroborate the analogous trend observed in the Global Findex Database 2021, indicating a substantial disparity in account ownership between urban and rural populations in developing nations, particularly affecting low-income women in the agricultural sector, who represent the most underserved demographic.

Regarding knowledge of financial institutions, 76.6% of participants reported knowing about them, and 73.3% reported knowing about more than one type. These results exceed the program's goal of 80% for the comprehension indicator. Despite this, there is still a big difference between knowing about financial institutions and using them. For example, more than three-quarters of respondents are aware of financial institutions, but only 60% have savings accounts. This gap aligns with Grohmann et al. (2018), who identify a positive correlation between enhanced financial literacy and financial inclusion, while also emphasizing the importance of structural determinants such as proximity to service offices,

administrative prerequisites, and transaction costs.

Evaluation after the activity shows that more than 80% of participants understood the financial literacy materials, which was the program's goal. The fact that people actively participated and responded during the lecture, question-and-answer, and discussion sessions shows that the materials were highly relevant to the real problems that farming families in Waru Village face. Several participants shared real-life stories about how hard it is to manage money during the planting season, when expenses are high, but income hasn't come in yet. This showed that there is a real need for knowledge about how to keep simple financial records and plan for seasonal cash flow.



**Figure 1.** Presentation of Materials

This session also introduced financial tools especially useful for farmers, such as Rice Farm Insurance (Asuransi Usaha Tani Padi/AUTP). Fadhliani et al. (2019) and Mutaqin & Usami (2019) show that the AUTP program, which is funded by the government (80% of the IDR 36,000/ha premium), should be affordable, but not enough farmers are signing up because they don't understand it or because the program isn't getting enough attention. Silaban et al. (2022) affirm that farmers involved in AUTP who receive sufficient socialization generally report greater farm income than those who do not participate.

These results bolster the assertion that outreach regarding financial instruments tailored for farmers is an essential element of a holistic financial literacy initiative for agricultural households.

**Figure 2.** Community Service Activity



of FEB UPN Veteran Jakarta Lecturers

In terms of methodology, the effectiveness of the lecture method in this program aligns with the meta-analysis conducted by Kaiser & Menkhoff (2017) which indicates that financial education programs yield significant improvements in financial literacy, especially when supplemented with contextual examples, participatory discussions, and formative evaluations. In a comparable study in Cianjur, West Java, a socio-economic context akin to Waru Village, Qudsi & Nurhayati (2023) assert that basic financial literacy training enhances financial literacy and awareness among rural communities; however, permanent changes in financial behavior necessitate more intensive follow-up programs.

## 5. CONCLUSION

The community service project that taught farming families in Waru Village, Parung District, Bogor Regency, to be more resilient to climate change through financial literacy counseling was a success, with results better than expected. The questionnaire results show that 76.6% of participants were aware of financial institutions, 60% already had savings

accounts, and 73.3% knew about more than one type of financial institution. After counseling, more than 80% of participants understood what they had learned. These results corroborate the effectiveness of contextual, participatory lecture methodologies tailored to the attributes of the target demographic as a preliminary intervention to improve financial literacy in rural farming communities.

Despite this, there is still a gap between knowing about and using formal financial institutions. This shows that a single counseling session is not enough to fully change financial behavior.

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