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Village development performance catalyst based on village fund priorities in plant and animal food security in the Tomini Bay Area

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ABSTRACT

Introduction: Food security programs have become a strategic issue that consistently attracts the attention of various levels of government, including village governments, as regulated by the Minister of Village, Development of Disadvantaged Regions, and Transmigration of the Republic of Indonesia. Thus, this program will create sustainable food security, which is also a measure of the success of rural development. **Methods**: This research is a quantitative study. The data source in this research is primary data obtained through the distribution of questionnaires to the district government, villages, and farmers, by the sample calculation requirements of 213 farmers, as well as through interviews and field observations. The data analysis techniques used are descriptive analysis and Structural Equation Modeling (SEM) PLS. **Results**: (1) village development performance, resource management, collaboration, and creativity of the farmer-breeder community are on fairly good criteria (2) Resource management has a positive and significant effect on collaboration, resource management has a positive and significant effect on the creativity of farmer-breeders, resource management has a positive but insignificant effect on village development performance, collaboration has a positive and significant effect on village development performance, the creativity of farmer-breeders has a positive and significant effect on village development performance, resource management through collaboration has a positive and significant effect on village development performance, the creativity of farmer-breeders has a positive and significant effect on village development performance. **Conclusion**: collaboration and creativity of farmer-breeders are good mediating variables as they can enhance the influence of resource management on village development performance based on the priorities of village funds in plant and animal food security.

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INTRODUCTION

The Tomini Bay area has extraordinary natural potential related to agriculture and livestock (Hippy *et al.*, 2023: Hippy & Aisyah, 2023), and one of the districts located in this area is Boalemo Regency. The development of the agricultural and livestock sector in Boalemo Regency is very important because this can have an impact on reducing extreme poverty rates, the income of farmers and ranchers, community welfare, and even on the achievement of the Village SDGs which is increasingly optimal, which of course is a measure of village development performance. Village development performance is an achievement obtained by the government in certain fields (Noholo & Hippy, 2021), where one of the aspects of development is focused on food security. The government has included food security in the 2022-2024 National Development Agenda by prioritizing programs to increase the availability, access, and quality of food consumption. So performance in development focused on animal and vegetable food security must receive attention from the village government (Pawlak & Kołodziejczak, 2020).

Based on the Report from the Central Statistics Agency in 2023, Poverty data in Boalemo Regency during the 2021-2023 period shows a mixed picture. Although the percentage of poor people has consistently decreased, from 19.00% in 2021 to 18.74% in 2022, and down again to 18.38% in 2023, the absolute number of poor people (in thousands of people) is relatively stable, at 31.83 thousand in 2021, slightly increasing to 31.97 thousand in 2022, and slightly decreasing to 31.94 thousand in 2023. However, on the other hand, the level of depth and severity of poverty shows an increasing trend. The Poverty Depth Index (P1), which measures the average distance of poor people's expenditure from the Poverty Line, increased from 2.77 in 2021 to 3.41 in 2023. Likewise, the Poverty Severity Index (P2), which reflects inequality among the poor, increased from 0.64 in 2021 to 0.81 in 2023. The increase in these two indices

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indicates that although the percentage of poor people has decreased, the conditions of those who are still in poverty tend to be more severe and further from the Poverty Line, the nominal value of which continues to increase every year from IDR 450,724 in 2021 to IDR 525,007 in 2023 (BPS, 2023).

These findings, especially the increase in the Poverty Depth Index (P1) and Severity Index (P2), strengthen the assumption that the challenges of poverty in Boalemo Regency are still significant and tend to be concentrated in certain groups. This condition is most likely to occur in rural areas, where the majority of the population works as farmers and livestock breeders and the level of income inequality is still high (Oroh, 2015; Al Azis, 2022; Masruroh & Suprianik, 2023). Therefore, the role of the village government in the agricultural sector is very crucial, given the dependence of the majority of the population on this sector for their livelihoods. The village government has a central position to facilitate agricultural development at the local level, a role that is emphasized through various regulations from the Ministry of Villages, Development of Disadvantaged Regions, and Transmigration. The regulation encourages the use of Village Funds to realize food security independently, collaboratively, and sustainably, in line with the Village SDGs mandate, as stated in the Regulation of the Minister of Villages, Disadvantaged Regions and Transmigration Number 7 of 2023 and Number 13 of 2023 concerning Operational Guidelines for Focus on the Use of Village Funds in 2024.

The Village Fund is one of the policy instruments that has been introduced by the government to increase development in rural areas in Indonesia (Elmiana *et al.*, 2022; Agustina *et al.*, 2019). This Village Fund is given to villages with the main goal of improving the welfare of village communities, including farmers (Indra & Khoirunurrofik, 2022). Related to affordability in terms of increasing people's access to food, the government encourages the use of digitalization from the market and cooperation with SOEs to be able to distribute food from surplus areas to deficit areas. This economic problem is urgent to be resolved immediately considering that this problem is related to the decline in people's purchasing power which in turn will also have an impact on food consumption and health, but 93% of Indonesian farmers are poor, so the role of village governments in poverty alleviation through agricultural sector intervention is important (Hirawan & Verselita, 2020).

Village Funds play a very important role in empowering farmers, increasing agricultural productivity, and reducing economic inequality in rural areas (Damar *et al.*, 2021; Wahyuddin *et al.*, 2019). This not only provides benefits for farmers but also for the community as a whole and national food security. The effectiveness of the Village Fund in supporting farmers can also contribute to the overall development of the village. Increased farmer welfare will create a domino effect in encouraging better economic and social development in rural areas and contribute to a more optimal increase in farmers' exchange rates by set standards.

Several studies have shown that the agriculture and livestock sectors have a major contribution to increasing farmers' income (Imran *et al.*, 2025), social structure (Humalanggi *et al.*, 2025), welfare of rural communities (Qin *et al.*, 2020; Li *et al.*, 2022), food security (Manurung *et al.*, 2022; Marwanti *et al.*, 2025; Filawansyah *et al.*, 2024) and poverty reduction (Arham, 2020; Amankwah & Gwatidzo, 2024). The previous studies mostly used qualitative approaches and quantitative approaches with descriptive analysis and regression using primary and secondary data, so the novelty in this study lies in the use of the Mix Method approach of the Exploratory model with SEM-PLS analysis so that the structural model in village development performance is more complex and comprehensive in decision-making for the sustainability of plant and animal food security. Research that specifically discusses the effectiveness of agricultural and livestock development in improving village development performance in food security by allocating village funds based on the priority scale of the use of village land is still limited. This gap shows that although policies and programs have been designed, there are still not many studies that measure how the implementation of the strategy runs at the village level and its impact on the achievement of the village SDGs. Therefore, this research is important to fill this gap by exploring more effective approaches to managing the potential of agriculture and livestock to strengthen food security and improve the welfare of the community in Boalemo Regency.

Fathan *et al.*, (2024) argue that government policies will provide good benefits in increasing the success of development, including at the village government level. Although the village government has made efforts to improve the agriculture and livestock sector, there are still many problems faced on the ground, especially in villages in Boalemo Regency. Based on the results of initial observations, interviews, and observations on village development documents at the Boalemo Regency Community and Village Empowerment Office, it was found that one of the main problems is the imbalance between population growth and food production. The increasing demand for food is not always balanced by an increase in agricultural production. This can lead to food insecurity in some areas. Another problem faced is the lack of supporting infrastructure such as adequate irrigation, roads, and post-harvest facilities. Limited infrastructure makes access to markets difficult for farmers, ultimately affecting the marketing and prices of agricultural products. Then many farmers in Boalemo Regency have limited knowledge and skills in effective agricultural techniques. This can hinder the proper use of the Village Fund that has been allocated by the village government to strengthen the welfare of farmers and village food security. Farmers in Boalemo Regency need adequate access to seeds, fertilizers, pesticides, and modern agricultural technology (Saleh *et al.*, 2023), where not all

farmers have the same access to these resources, especially if village funds are not managed properly, namely, BUMDes still lack a role in various agricultural business needs even though the potential for BUMDes profits can be large in the agricultural sector.

Therefore, a development model is needed that can help village governments in allocating village funds appropriately, especially to support food security. Then the performance of village development based on the priority of village funds in food security must be optimized with good resource management that can be explored or optimized by collaboration between stakeholders with farmers and farmers' creativity in the agribusiness process.

The purpose of this research is to analyze the influence of resource management directly or indirectly (through mediation variables, namely collaboration and creativity of the farmer-breeder community) on village development performance based on the priority of village funds in plant and animal food security. As well as analyzing the influence of mediation variables, namely the collaboration and creativity of the farmer-breeder community on village development performance based on the priority of village funds in plant and animal food security.

METHODS

Research design

This study uses the mixed method approach of the Explanatory model with primary data types obtained through observation, interviews, and questionnaires as well as secondary data support. The Explanatory Mix Method is used. It can achieve research results that are more relevant, flexible, credible, and reliable because it is a model by prioritizes quantitative aspects which are then supported by qualitative aspects (Bracio & Szarucki, 2020; Purwanto *et al.*, 2021; Toyon, 2021; Bakhsh *et al.*, 2024). The time for conducting the research until the final report is planned for 3 months, namely from June to September 2024.

Data and data sources

The research data sources were obtained from primary data sources and secondary data sources.

1. Primary Data Sources: Primary data sources are data obtained from direct sources (Sugiyono, 2020), where primary data collection in research is carried out by distributing questionnaires and interviews to informants related to the research topic.
2. Secondary data sources: Secondary sources are research data obtained through official documents (Sugiyono, 2020), both the budget and realization of village funds, the budget for the agricultural sector in Boalemo Regency as well as various details of the programs of the Boalemo Regency Agriculture and Food Security Office and the Boalemo Regency PMD Office.

Data collection

In general, there are 3 types of data collection techniques, namely observation, interviews, and questionnaires. These three types of data collection are carried out so that the data obtained from the field is more credible, and relevant and can justify the actual situation for policy formulation in the field of agriculture and food security through the role of village governments. Data collection in this study began with research instruments such as questionnaires, interviews, and observations. For the questionnaire, before the distribution to the main respondents, instrument quality tests had previously been carried out on 30 farmer-breeders outside of the research sample. Then qualitative data through interview guidelines and observation guidelines, is used after quantitative data through questionnaires is collected, because in this study the Mix Method Sequential Explanatory is used which makes quantitative more important than qualitative aspects.

Population and sample

The population in this study is the leaders and employees of the Agriculture and Food Security Office, the leaders and employees of the Boalemo Regency PMD Office, the village government and village professional assistants as well as the farmer-breeder community (corn farmers and beef cattle breeders) in Baolemo Regency. For the village government, village communities and village professional assistants are focused on 3 sub-districts, namely Wonosari District, Paguyaman District, and Dulupi District. The total population is 452 people from 44 villages and stakeholders from OPD. Based on the Slovin formula with an error of 5% (Antoro, 2024; Mukti, 2025), the number of samples was 213 people.

Data analysis techniques

Descriptive statistical analysis is statistics used to analyze data by describing or describing the data that has been collected as it is without intending to make conclusions that apply to generality or generalization (Sutrisno *et al.*, 2020; Onuwa *et al.*, 2023). The calculation of the score can be obtained through the following calculations:

$$\%\ Score\ = \frac{Current\ Score}{Ideal\ Score}\ x100\%$$

So based on this scale range, an assessment was made (referring to Sugiyono, 2020) as seen in Table 1 below:

Table 1. Score Interpretation

No.	Percentage Score	Criterion
1	84.01% – 100.00%	Good
2	68.01% – 84.00%	Pretty Good
3	52.01% – 68.00%	Not Good
4	36.01% – 52.00%	Bad
5	20.01% – 36.00%	Very Bad

Source: Sugiyono, 2020

Structural Equation Modeling (SEM) analysis with the Partial Least Squares (PLS) method is a statistical technique used to analyze the relationship between variables in a model (Morais *et al.*, 2024). SEM-PLS analysis makes it possible to model the causal relationship between latent variables (which are not directly measured) and observational variables (which are directly measured) as well as to test hypotheses about the relationships between variables and to evaluate the feasibility of the model as a whole (Lee *et al.*, 2022; Komba *et al.*, 2025). The use of SEM-PLS analysis is in the opinion of Kurtaliqi *et al.*, (2024) that the Mix Method becomes more optimal with the use of SEM-PLS as the main analysis combined with qualitative methods.

The structural equation model in this study consists of 4 variables, namely the variable that is bound to Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security which consists of 3 indicators, namely (1) operational performance, (2) administrative performance and (3) strategic performance) (Alam, 2014; Kurniawan & Martadisastra, 2022). The independent variable is resource management which consists of 4 indicators, namely (1) natural resources, (2) human resource competence, (3) financial resources, and (4) infrastructure (Winarno, 2017). The first mediation variable is a collaboration which consists of 5 indicators, namely (1) integrated cooperation, (2) responsibility, (3) compromise, (4) communication, (5) coordination flexibility (Cao & Zhang, 2011; Firman *et al.*, 2023; Guerrero *et al.*, 2023). As well as the second mediation variable, namely the creativity of the farmer-breeder community consists of 5 indicators, namely (1) imaginative, (2) aesthetic, (3) flexible technology adoption, (4) integration, and (5) differentiation (Indrajita *et al.*, 2021).

RESULTS AND DISCUSSIONS

This study is a quantitative research by distributing questionnaires to 213 respondents who meet the standard for calculating research samples. Before distributing the questionnaire to 213 respondents, the previous questionnaire was tested on 30 people. The use rate of questionnaires is 100%, namely 213 distributed and returned and can be used as many as 213 questionnaires.

Descriptive analysis of research variables

a. Resource management variables

The results of the descriptive analysis for resource management variables are presented in Table 2 as follows:

Table 2. Descriptive results of resource management variables

No	Statement Score			Indicator Score	Criterion	
	Current	Ideal	%		Statement	Indicator
X-1	888	1,065	83.38%		Pretty Good	
X-2	907	1,065	85.16%	83.91%	Good	Pretty Good
X-3	886	1,065	83.19%		Pretty Good	
X-4	856	1,065	80.38%		Pretty Good	
X-5	872	1,065	81.88%	82.44%	Pretty Good	Pretty Good
X-6	906	1,065	85.07%		Pretty Good	
X-7	888	1,065	83.38%		Pretty Good	
X-8	877	1,065	82.35%	82.94%	Pretty Good	Pretty Good
X-9	885	1,065	83.10%		Pretty Good	
X-10	863	1,065	81.03%		Pretty Good	
X-11	908	1,065	85.26%	84.48%	Good	Good
X-12	928	1,065	87.14%		Good	
Total	10,664	12,780	83.44%		Pretty Good	

Source: Excel Data Processing, 2025

Based on the results in Table 2, it can be seen that overall the percentage of achievement score for resource management variables in the Tomini Bay Area, Boalemo Regency is 83.44%, which is in the "quite good" category. This shows that the management of natural resources, humans, finance, facilities, and infrastructure has been running effectively, although there are still several aspects that need to be improved. Resources are beginning to be used to support community development and welfare, especially in the agriculture and fisheries sectors which are local mainstays.

b. Collaboration variables

The results of the descriptive analysis for the collaboration variable can be presented in the following Table 3:

Table 3. Descriptive results of collaboration variables

No	Statement Score			Indicator Score	Criterion	
	Current	Ideal	%		Statement	Indicator
Z1-1	930	1,065	87.32%	84.01%	Good	Good
Z1-2	920	1,065	86.38%		Good	
Z1-3	834	1,065	78.31%		Pretty Good	
Z1-4	809	1,065	75.96%	78.92%	Pretty Good	Pretty good
Z1-5	872	1,065	81.88%		Pretty Good	
Z1-6	842	1,065	79.06%	83.15%	Pretty Good	Good
Z1-7	929	1,065	87.23%		Good	
Z1-8	943	1,065	88.54%	87.98%	Good	Good
Z1-9	931	1,065	87.42%		Good	
Z1-10	924	1,065	86.76%	86.07%	Good	Good
Z1-11	892	1,065	83.76%		Pretty Good	
Z1-12	934	1,065	87.70%		Good	
Total	10,760	12,780	84.19%		Good	

Source: Excel Data Processing, 2025

Based on Table 3, it can be seen that overall the percentage of achievement score for the collaboration variable in the Tomini Bay area, Boalemo Regency is 84.19%, which is in the "good" category. This shows that the synergy between various parties, such as local governments, communities, related agencies, and accompanying institutions, has been running effectively. This reflects strong coordination and productive cooperation in managing resources and advancing strategic sectors such as agriculture, fisheries, and tourism.

c. Variables of creativity of the farmer-breeder community

The results of the descriptive analysis for the variables of the creativity of the farmer-breeder community are presented in the following Table 4:

Table 4. Descriptive results of creativity variables of farmer-breeder community

No	Statement Score			Indicator Score	Criterion	
	Current	Ideal	%		Statement	Indicator
Z2.1	819	1,065	76.90%	76.67%	Pretty Good	Pretty Good
Z2.2	814	1,065	76.43%		Pretty Good	
Z2.3	865	1,065	81.22%	83.82%	Pretty Good	Pretty Good
Z2.4	891	1,065	83.66%		Pretty Good	
Z2.5	922	1,065	86.57%		Good	
Z2.6	878	1,065	82.44%	80.75%	Pretty Good	Pretty Good
Z2.7	829	1,065	77.84%		Pretty Good	
Z2.8	873	1,065	81.97%		Pretty Good	
Z2.9	856	1,065	80.38%	80.05%	Pretty Good	Pretty Good
Z2.10	849	1,065	79.72%		Pretty Good	
Z2.11	855	1,065	80.28%	79.58%	Pretty Good	Pretty Good
Z2.12	840	1,065	78.87%		Pretty Good	
Total	10,291	12,780	80.52%		Pretty Good	

Source: Excel Data Processing, 2025

Based on Table 4, it can be seen that overall, the percentage of achievement scores for the creativity variable of the farmer-breeder community in the Tomini Bay Area, Boalemo Regency reaches 80.52%, which falls into the "quite good" category. This indicates that the local community has begun successfully applying innovative approaches in their agricultural and livestock practices, though there is still room for further optimization. Their ability to think creatively in addressing various challenges—such as climate change, land limitations, and resource constraints—illustrates an emerging adaptive mindset. This adaptability is crucial for ensuring sustainable agricultural and livestock development, enabling them to explore new methods, improve productivity, and strengthen resilience against shifting environmental and economic conditions. With continued efforts in knowledge enhancement, technological adoption,

and collaborative initiatives, the potential for maximizing creativity remains promising, paving the way for more progressive and efficient farming and breeding strategies.

d. Variables of village development performance based on village fund priorities in plant and animal food security

The results of the descriptive analysis for village development performance variables in plant and animal food security are presented in the following Table 5:

Table 5. Descriptive results of village development performance variables in plant and animal food security

No	Statement Score			Indicator Score	Criterion	
	Current	Ideal	%		Statement	Indicator
Y1	724	1,065	67.98%	68.00%	Not Good	Not Good
Y2	735	1,065	69.01%		Pretty Good	
Y3	714	1,065	67.04%		Not Good	
Y4	724	1,065	67.98%		Not Good	
Y5	706	1,065	66.29%	66.78%	Not Good	Not Good
Y6	740	1,065	69.48%		Pretty Good	
Y7	694	1,065	65.16%		Not Good	
Y8	705	1,065	66.20%		Not Good	
Y9	909	1,065	85.35%	84.74%	Good	Good
Y10	893	1,065	83.85%		Pretty Good	
Y11	888	1,065	83.38%		Pretty Good	
Y12	920	1,065	86.38%		Good	
Total	9,352	12,780	73.18%		Pretty Good	

Source: Excel Data Processing, 2025

Based on Table 5, it can be seen that overall the percentage of achievement scores for village development performance variables based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency is 73.18% which is in the "quite good" category. This shows that the implementation of programs funded from village fund allocations has shown a positive impact, because villages have taken strategic steps in managing food resources, both from the plant and animal sectors, which play an important role in creating local food security.

SEM-PLS analysis

a. R Square

The results of the analysis are presented in the form of the following Figure 1:

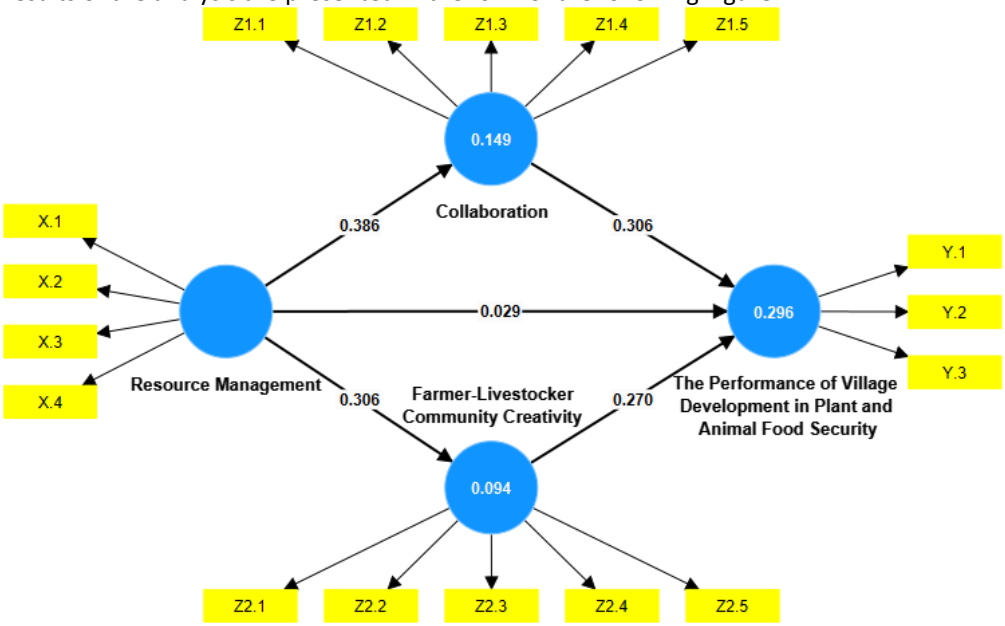

Figure 1. PLS Algorithm

Figure 1 presents the results of the path model analysis using the PLS algorithm, which shows the relationship between the independent construct (X), two mediator constructs (Z1 and Z2), and the dependent construct (Y), along with their respective indicators. The estimation results show that X has a positive effect on Z1 (0.386) and Z2 (0.306), then Z1 (0.306) and Z2 (0.270) have a positive effect on Y, with a very small direct effect of X on Y (0.029). The R-squared (R^2) value shows that 14.9% of the variance of Z1, 9.4% of the variance of Z2, and 29.6% of the variance of Y

can be explained by the predictor constructs in this model, indicating a more dominant indirect effect from X to Y through Z1 and Z2. Based on the image above, the overall R Square results can be described as follows:

Table 6. R Square results

No.	Variable	Variable Z	Variable Y		
			Immediately	Indirect	Total
1	Resource management -> Collaboration	0.386	0.029	0.118	0.230
2	Resource management -> Creativity of the farmer-breeder community	0.306		0.083	
3	Collaboration		0.306		
4	Creativity of the farmer-breeder community		0.270		
	Coefficient of Determination	0.149 (Z1) 0.094 (Z2)	0.296		

Source: PLS Processing, 2024

Based on the table 6, the results of the determination can be described as follows:

1) The effect of resource management on Collaboration

Overall, it can be interpreted that the R Square value is 0.149 which means that 14.90% of the influence of resource management on collaboration in the Tomini Bay Area, Boalemo Regency. While the remaining 85.10% was influenced by other variables outside the research model.

2) The influence of resource management on the creativity of the farmer-breeder community

Overall, it can be interpreted that the R Square value is 0.094 which means that 9.40% of the influence of resource management on the creativity of the farmer-breeder community in the Tomini Bay Area, Boalemo Regency. While the remaining 90.60% was influenced by other variables outside the research model.

3) The Influence of Resource Management, Collaboration, and Creativity of farmer-breeder Communities on Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security

Overall, it can be interpreted that the R Square value is 0.296 which means that 29.60% of the influence of resource management, collaboration, and creativity of the farmer-breeder community on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. While the remaining 70.40% was influenced by other variables outside the research model. The results for each variable were obtained that the most dominant variable had the most dominant influence on village development performance based on the priority of village funds in plant and animal food security, namely collaboration of 30.60%, then the variable of the creativity of the farmer-breeder community was 27.00% and the lowest was the resource management variable of 2.90%.

b. Hypothesis test results

The results of hypothesis testing in the form of structural equations can be presented in the following figure 2:

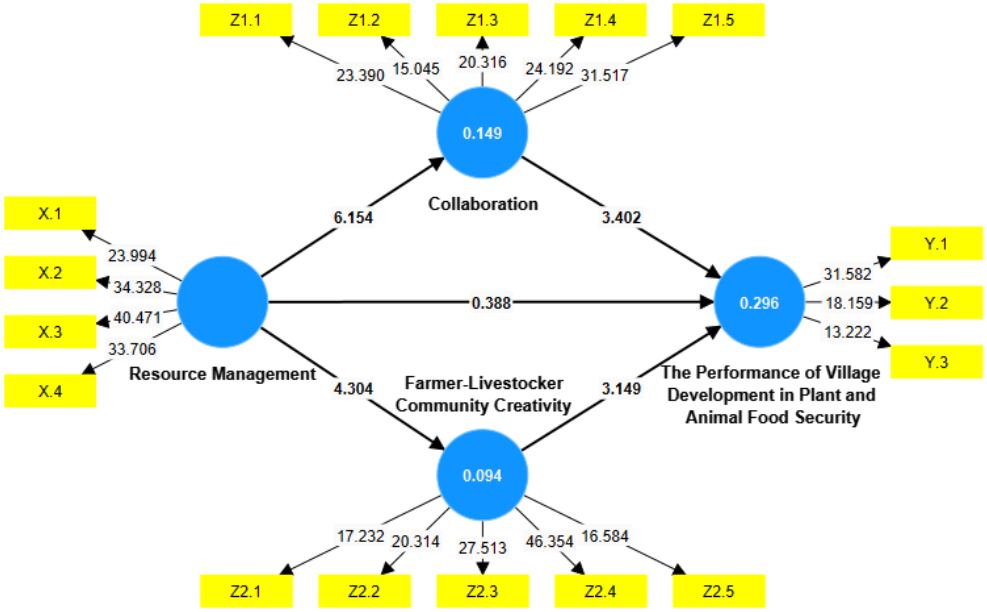

Figure 2. Hypothesis testing results

Figure 2 displays the results of statistical significance tests for a previously estimated PLS-SEM model, usually using a bootstrapping procedure. The numbers on the arrows between constructs (blue circles) now represent t-statistics (or sometimes p-values, but large values like this are generally t-statistics). Based on the high t-statistics (usually > 1.96 or > 2.58 depending on the level of significance), the paths from the independent construct X to the mediators Z1 (t=6.154) and Z2 (t=4.304) are statistically significant. Similarly, the paths from the mediator Z1 to the dependent construct Y (t=3.402) and from Z2 to Y (t=3.149) are also significant. In contrast, the direct path from X to Y has a very low t-statistic (t=0.388), indicating that this direct effect is statistically "insignificant". In addition, the high t-statistic values on the arrows between the constructs and their indicators (yellow boxes, e.g. 23.994, 34.328, 15.045, etc.) indicate that all indicators are valid and significant measures of their respective latent constructs. The R-squared values (0.149, 0.094, 0.296) remain the same, indicating the proportion of variance explained.

1) Direct influence

The results of hypothesis testing for direct influence can be presented in the following table:

Table 7. Results of testing the direct influence hypothesis

No.	Exogenous	Endogenous	Hypothesis	t-Value (p-Value)	Results
1	Resource management	Collaboration	Positive influence and significant	6.154 (0.000)	H1 Accepted
2	Resource management	Creativity of the farmer-breeder community	Positive influence and significant	4.304 (0.000)	H2 Accepted
3	Resource management	Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security	Positive influence insignificant	0.388 (0.698)	H3 Rejected
4	Collaboration	Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security	Positive influence insignificant	3.402 (0.001)	H4 Accepted
5	Creativity of the farmer-breeder community	Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security	Positive influence and significant	3.149 (0.002)	H5 Accepted

Source: PLS Processing, 2024

Based on Table 7 regarding the direct influence hypothesis testing, the analysis results can be described as follows:

a) The effect of resource management on collaboration

The t-statistical value of the influence of resource management on collaboration was obtained as a result of 4.304 with a probability value (P-value) of 0.000. If the P-value is smaller than the probability value of 0.05 (0.000<0.05), then Ha1 is accepted, which means that resource management has a positive and significant effect on collaboration in the Tomini Bay Area, Boalemo Regency.

b) The influence of resource management on the creativity of the farmer-breeder community

The t-statistical value of the influence of resource management on the creativity of the farmer-breeder community was obtained as 6.154 with a probability value (P-value) of 0.000. The P-value is smaller than the probability value of 0.05 (0.000<0.05), then Ha1 is accepted, which means that resource management has a positive and significant effect on the creativity of the farmer-breeder community in the Tomini Bay Area, Boalemo Regency.

c) The effect of resource management on village development performance based on village fund priorities in plant and animal food security

The t-statistical value of the influence of resource management on the creativity of the farmer-breeder community was obtained as 0.388 with a probability value (P-value) of 0.698. The P-value is greater than the probability value of 0.05 (0.698 > 0.05), so Ha3 is rejected which means that resource management has a positive and insignificant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency.

d) The effect of collaboration on village development performance based on village fund priorities in plant and animal food security

The t-statistic value of the influence of collaboration on the creativity of the farmer-breeder community was obtained as a result of 3.402 with a probability value (P-value) of 0.001. The P-value is smaller than the probability value of 0.05 (0.001 < 0.05), so Ha4 is accepted, which means that collaboration has a positive and significant effect on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency.

e) The Influence of creativity of farmer-breeder communities on village development performance based on village fund priorities in plant and animal food security

The t-statistical value of the influence of the creativity of the farmer-breeder community on the creativity of the farmer-breeder community was obtained as a result of 3.149 with a probability value (P-value) of 0.001. The P-value is less than the probability value of 0.05 (0.001<0.05), then Ha5 is accepted, which means that the creativity of the farmer-breeder community has a positive and significant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency.

2) Indirect Influence

The results of hypothesis testing for indirect influence can be presented in the following table:

Table 8. Results of testing the indirect influence hypothesis

No.	Exogenous	Mediation	Endogenous	t-Value (p-Value)	Results
1	Resource management	Collaboration	Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security	2.944 (0.003)	H6 Accepted
2	Resource management	Creativity of the farmer-breeder community	Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security	2.657 (0.008)	H7 Accepted

Source: PLS Processing, 2024

Based on Table 8 regarding the testing of the indirect influence hypothesis, the analysis results can be described as follows:

a) The Influence of resource management through collaboration on village development performance based on village fund priorities in plant and animal food security

The t-statistic value of the indirect influence of resource management variables was 2.944 with a probability value (P-value) of 0.003. The P-value is smaller than the probability value of 0.05 (0.003<0.05), then Ha6 is accepted, which means that resource management through collaboration has a positive and significant effect on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency.

b) The Influence of resource management through the creativity of the farmer-breeder community on village development performance based on village fund priorities in plant and animal food security

The t-statistic value of the indirect influence of resource management variables was 2.657 with a probability value (P-value) of 0.008. The P-value is smaller than the probability value of 0.05 (0.008<0.05), so Ha7 is accepted, which means that resource management through the creativity of the farmer-breeder community has a positive and significant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency.

Descriptive analysis results

The performance of village development that focuses on plant and animal food security is greatly influenced by the appropriate allocation of village funds. Priorities in the development of the agricultural and livestock sectors through village funds can increase food production, strengthen local economies, and ensure the availability of sufficient food for the community (Hilmawan *et al.*, 2023; Sidik & Habibi, 2024; Alkadafi *et al.*, 2025). For example, the use of funds for the procurement of agricultural facilities and infrastructure, such as irrigation, agricultural tools, and counseling to farmers, can increase crop yields. In addition, mentoring and training farmers to implement good animal-rearing practices will increase livestock productivity. The good performance in this sector can also be seen from the increase in the income of farmers and breeders, as well as the achievement of better food security so that villages become more independent and sustainable. This is in line with the statement of Indraningsih *et al.*, (2021) that village funds, which are not only for infrastructure development, in the future must be allocated for community economic empowerment, namely skills training in the fields of agriculture, livestock, and fisheries according to the potential of the village, so that it can support sustainable agricultural development in rural areas.

The results of the descriptive analysis found that the performance of village development in the Tomini Bay Area, Boalemo Regency showed quite good results in various variables related to food security, resource management, collaboration, and creativity of the farmer-breeder community. The implementation of programs funded from village fund allocations has had a positive impact on managing food resources, both plant and animal, although there are still challenges in optimizing funds, improving technology, and human resource capacity. Resource management has also been effective, supporting community welfare, especially in the agriculture and fisheries sectors, although there are still obstacles such as limited infrastructure and training needs. The synergy between the government, the

community, and related institutions has created productive cooperation to achieve common goals, while the farmer-livestock community has begun to implement innovation even though it has not been maximized. With the right support, there is great potential to increase creativity and sustainability of development, which can ultimately strengthen food security and local economic welfare. So villages in Boalemo Regency are starting to be able to implement most of the programs with adequate results, but there is still room to improve the efficiency and effectiveness of food security programs, to achieve more optimal village development performance.

Effective resource management is a key factor in maximizing village development performance based on the priority of village funds for food security. The management of natural resources, such as soil and water, must be carried out sustainably to support agricultural and livestock activities. In addition, the optimization of human resources through skills training and knowledge of good agricultural and livestock techniques will improve the quality of production products (Mukhtar *et al.*, 2023). Then the management of natural resources, humans, finances, as well as facilities and infrastructure has been running effectively, although there are still several aspects that need to be improved. Resources began to be used to support the development and welfare of the community, especially in the agriculture and fisheries sectors which are the mainstay of the locals. However, there are several obstacles such as limited infrastructure or lack of training for the workforce that can hinder the optimization of resource utilization. Financial management has also been quite good in supporting various programs, but transparency and accountability still need to be improved. Overall, although the results are positive, there are still opportunities to improve coordination, management, and use of resources to have a more significant impact on sustainable development in the Tomini Bay area, Boalemo Regency.

Cooperation between the village government, farmers, and related institutions is also needed to ensure that programs funded by village funds can be implemented properly (Otte *et al.*, 2012; Bisri *et al.*, 2023). There is strong coordination and productive cooperation in managing resources and advancing strategic sectors such as agriculture, fisheries, and tourism. This category indicates that various stakeholders have successfully worked together to achieve common goals, both through planning and implementation of development programs. Each party's responsibility is well executed, and the ability to compromise and communicate openly has supported the creation of innovative solutions. Despite the positive results, closer and more sustainable collaboration is still needed to meet future challenges and encourage more inclusive and sustainable development in Tomini Bay, Boalemo Regency.

Farmers are starting to think creatively about overcoming various challenges, such as climate change, land limitations, and available resources. The use of information technology to collect and analyze agricultural data will help in better and more efficient decision-making so that all resources can be utilized optimally to achieve the desired food security. People have tried to adopt new technologies, although their application and utilization still need to be improved. Initiatives in creating locally-based solutions, both in managing agricultural and livestock products, have been seen, but further development is needed to achieve optimal outcomes (Khan *et al.*, 2021; Alabdali *et al.*, 2023). The community has great potential to increase creativity, especially through better training support, access to information, and technology, which can ultimately strengthen local food security and improve the economic welfare of the farmer-breeder community in the Tomini Bay Area, Boalemo Regency.

SEM-PLS analysis

a. Direct influence

i). The influence of resource management on collaboration

Resource management has a positive and significant effect on collaboration in the Tomini Bay Area, Boalemo Regency. The positive and significant influence of good resource management on collaboration in the Tomini Bay Area, Boalemo Regency shows that when resources are managed efficiently, stronger synergies will be created between various stakeholders, including the government, communities, and non-governmental institutions. Good resource management creates clarity in the division of duties and responsibilities so that each party can work more effectively. With better communication and a deeper understanding of common goals, collaboration becomes more purposeful and productive. This not only strengthens cooperation in addressing local issues but also creates a positive working climate, where all parties feel involved. As a result, good collaboration will encourage the success of development programs that aim to improve people's welfare, especially in the agricultural and food security sectors (Jalari & Devarajulu, 2017; Hatab *et al.*, 2019).

ii). The Influence of Resource Management on the Creativity of the farmer-breeder Community

Resource management has a positive and significant effect on the creativity of the farmer-breeder community in the Tomini Bay Area, Boalemo Regency. The positive and significant influence in this context shows that good resource management, be it in terms of natural resource management, human, or financial, will create a supportive environment for the farmer-breeder community to innovate more. When resources are managed effectively, people have better access to technology, information, and training that can improve their skills. In addition, good resource

management also increases farmers' confidence to experiment with new agricultural and livestock practices (Saleh *et al.*, 2024; Xiao *et al.*, 2024). This not only encourages the emergence of creative ideas but also improves people's ability to face existing challenges, such as climate change or market fluctuations. As a result, the creativity of the farmer-breeder community can develop optimally, having a positive impact on food security and local economic welfare.

iii). The influence of resource management on village development performance

Resource management has a positive and insignificant effect on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. This insignificant positive influence suggests that although resource management has the potential to improve village development performance, its implementation is not yet fully optimal. This can happen due to various factors, such as lack of coordination between related parties, limitations in the use of village funds, or maybe also due to a lack of technical skills in managing existing resources. Despite efforts to optimize the use of village funds in plant and animal food security, the expected results have not been fully achieved. In other words, good resource management may not have a significant direct impact on village development performance. This shows that there is a need to increase community involvement and training in resource management so that the impact of resource management can be felt more in the performance of village development.

Resource management is the least influential factor of 2.90% on village development performance based on the priority of village funds in plant and animal food security. Effective resource management, including the management of village funds, labor, and local assets, is an important factor in supporting village development performance. However, in this context, its effect on plant and animal food security is relatively low. This may be due to a lack of capacity or knowledge in managing resources optimally. Research by Rosnawintang & Nur (2023) shows that the effectiveness of village fund management is influenced by careful planning, transparent implementation, and high accountability and responsibility. In addition, a study by Zainuddin (2013) emphasizes the importance of local resource management in achieving beef self-sufficiency, which is part of animal food security.

iv). The effect of collaboration on village development performance

Collaboration has a positive and significant effect on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. This positive and significant influence indicates that when collaboration between various stakeholders, such as the government, communities, and non-governmental organizations, becomes more effective, village development performance will also increase. Good collaboration allows for the sharing of resources, information, and experiences, which are essential for achieving sustainable development goals. When all parties work together with commitment and responsibility, programs funded through village funds can be better implemented. It also creates a sense of mutual trust between stakeholders, which can encourage community participation in various development initiatives. As a result, planned plant-based and animal food security projects will be more successful and can provide greater benefits to the community while improving the overall welfare of the Tomini Bay Area.

Collaboration is the most influential factor of 30.30% on village development performance based on village fund priorities in plant and animal food security. Effective collaboration between village governments, communities, and other stakeholders plays a crucial role in improving village development performance, especially in the food security sector. Through collaboration, various parties can bring together resources, knowledge, and skills to achieve common goals. A study by Lioutas *et al.* (2021) emphasizes that village digitalization can facilitate collaboration between the government, the private sector, and communities to realize food security. In addition, research by Mantravadi & Srai (2023) shows that technology integration and collaboration between stakeholders can improve the efficiency and effectiveness of food security programs at the village level.

v). The Influence of the Creativity of the farmer-breeder Community on village development performance

The creativity of the farmer-breeder community has a positive and significant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. This positive and significant influence confirms that the increase in the creativity of the farmer-breeder community contributes to the progress of village development financed by village funds. When farmer-breeder communities innovate in agricultural and livestock practices, they not only create better quality products but also create more efficient and sustainable methods of resource management (Saleh *et al.*, 2024). This creativity can take the form of adopting new technologies, developing superior varieties, or applying better maintenance techniques (Yahyan & Siregar, 2019; Abdul-Majid *et al.*, 2024; Bekee *et al.*, 2024). When creativity increases, people are better able to face challenges and adapt to changes in market or environmental conditions. This will result in more diverse and quality food products, which in turn improves the performance of village development in terms of food security. Thus, investment in increasing community creativity can provide far-reaching benefits, not only for farmers but also for rural communities.

The creativity of the farmer-breeder Community Collaboration is the second factor that affects village development performance based on the priority of village funds in plant and animal food security of 27.00%. The creativity of the farming community and ranchers in developing and implementing local innovations contributes significantly to increasing the productivity and sustainability of the agriculture and livestock sectors. These innovations can be in the form of the application of new cultivation techniques, product diversification, or the use of appropriate technology. Research by Nakandala & Lau (2019) reveals that innovations in agribusiness supply chains, driven by farmer creativity, can increase efficiency and income. In addition, Omotayo *et al.* (2016) highlight the importance of training and capacity building for farmers to encourage creativity and innovation in agricultural practices.

b. Indirect Influence

The collaboration and creativity of the farmer-breeder community have an important role in increasing the benefits of resource management in village development. The formation of a solid farmer group or community of farmers allows members to share knowledge, experience, and resources so that they can support each other in efforts to increase food production. Creativity in creating innovative agricultural and livestock methods, such as agroecological techniques or processing local products into value-added goods, can increase people's incomes. In addition, the active participation of the community in government programs funded by village funds will open access to the necessary training and technical assistance. With a collaborative and innovative spirit, farmer-breeder communities can optimize resource utilization, strengthen food security, and improve village development performance.

The results of the indirect influence analysis found that resource management through collaboration has a positive and significant effect on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. The positive and significant influence shows that collaboration can be a good intervention because it can increase the influence of resource management on village development performance based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. So that effective collaboration between various parties, including the government, community institutions, and farmers, can increase the effectiveness of existing resource management (Indraningsih *et al.*, 2021; Ren & Cui, 2024). When all stakeholders come together and support each other, they can create synergies that strengthen the use of village funds. In this context, collaboration functions as a good mediation, which can increase the influence of resource management on village development performance. With collaboration, information and knowledge can be better shared, problems can be solved collectively, and resources can be allocated more efficiently. As a result, Village Development Performance Based on Village Fund Priorities in Plant and Animal Food Security can increase significantly, making collaboration the key to optimizing the results of village funds.

Resource management through the creativity of the farmer-breeder community has a positive and significant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. The positive and significant influence shows that the creativity of the farmer-breeder community can be a good intervention because it can increase the influence of resource management on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. Resource management through the creativity of the farmer-breeder community has a positive and significant effect on the performance of village development based on the priority of village funds in plant and animal food security in the Tomini Bay Area, Boalemo Regency. This positive and significant influence shows that the creativity shown by the farmer-breeder community plays an effective role as an intervening in increasing the influence of resource management on village development performance. When farmer communities are empowered to innovate and create new solutions in agricultural and livestock management, they can not only increase production yields but also optimize the use of existing resources (Nugroho *et al.*, 2024). This creativity can include the adoption of new technologies, the development of value-added local products, and more sustainable agricultural practices(Ramdani, 2023; Pan *et al.*, 2024). Thus, the creativity of the farmer-breeder community can create a greater impact on the performance of village development, helping to ensure better food security and improve community welfare

This result is in line with the statement from Ernawati *et al.* (2021) that the fund distribution program in the field of farming and agriculture is a program that greatly helps the family economy, but in carrying out this farming and agriculture program is still not optimal in terms of management, so the government must also spend village funds to make road access to farming and agricultural locations, With that, the community also intervenes or works together in making roads to farming and agricultural locations. Optimizing program management through effective management of communication, human resources, financial resources, and implementation attitudes will help create a supportive environment for the successful implementation of empowerment programs. With a holistic and coordinated approach to all these aspects, empowerment programs will be able to achieve a significant impact in improving farmers' welfare and agricultural development.

All of these factors can interact through management mediation, which plays a crucial role in coordinating, directing, and facilitating the overall implementation of the program. Afzal *et al.*, (2023) said that the problems faced by farmers include limited agricultural land, fertilizer prices that are considered too expensive, and the main thing is pest disturbances on agricultural land. The solution expected by farmers is training on new planting methods and pest eradication from related agencies. With effective management, the positive influence of these factors can be synergistically combined to achieve maximum effectiveness in the horticultural crop farmer empowerment program. Good management involves careful and purposeful planning. With careful planning, an empowerment program can be clearly defined, including the goals, strategies, and steps needed to achieve it. This will help avoid wasting resources and ensure that empowerment efforts are focused on the real needs of horticultural farmers.

CONCLUSION

This study concludes that the priority of village funds allocated for plant and animal food security serves as an important catalyst for village development performance in the Tomini Bay Area, Boalemo Regency, but its effectiveness is highly mediated by process factors. PLS-SEM analysis shows that resource management has a positive and significant effect on increasing collaboration between stakeholders and encouraging the creativity of farmer-livestock communities. Furthermore, both collaboration and creativity of farmer-livestock communities are proven to have a positive and significant effect on village development performance that focuses on food security. Interestingly, the direct effect of resource management on village development performance was found to have a positive but statistically "insignificant" effect. This is reinforced by the results of the indirect effect analysis, which confirms that collaboration and creativity of farmer-livestock communities significantly mediate the relationship between resource management and village development performance. In other words, the positive impact of resource management (supported by village funds) on village development performance is realized through strengthening local cooperation and innovation. This model explains 29.6% of the variance in village development performance, with collaboration being the most dominant predictor factor, followed by community creativity, while the direct effect of resource management is the weakest. Therefore, it can be concluded that the successful use of village funds for food security does not only depend on the availability and management of resources but crucially depends on the ability to build strong collaborative synergies and facilitate community creativity at the village level.

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