

Research Article



Farmer Empowerment in One Thousand Cattle Village Program: Reflection on Government Regulation Number 6 of 2013 on Sustainable Livestock Development

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Abstract | Decree of the Director General of Livestock and Animal Health Number 9632 of 2020 concerning Technical Guidelines on 1,000 Cattle Village Development Program and Activities for the 2020 Fiscal Year states one of the program's primary objectives is to increase the cow population in beneficiary locations. Efforts to support the program's sustainability can be carried out through farmer empowerment in accordance with the Government Regulation Number 6 of 2013. This research aims to examine the effect of farmer empowerment on sustainable livestock development in the One Thousand Cattle Village Program. The research variables consisted of farmer empowerment (X) and five dimensions of sustainable livestock development, including the ecological dimension (Y1), economic dimension (Y2), social and cultural dimension (Y3), institutional dimension (Y4), and technological dimension (Y5). Data were collected using surveys (interviews and questionnaires), observation, and Focus Group Discussion (FGD). The respondents were 36 beneficiary farmers of the One Thousand Cattle Village Program. The data were analyzed using simple linear regression. The results showed that the farmer empowerment positively and significantly affected the economic dimension with the equation $Y = 27.712 + 0.305X$ and the social and cultural dimension with the equation $Y = 13.531 + 0.310X$. It is concluded that it is necessary to increase the implementation of farmer empowerment regulated in the Government Regulation Number 6 of 2013 and evaluate all lines to support the One Thousand Cattle Village Program sustainability.

Keywords | One thousand cattle village program, Farmer empowerment, Sustainable livestock, Beef cattle, livestock, Animal husbandry

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INTRODUCTION

Beef production capacity in Indonesia is inseparable from import activities, both beef import and cattle import (Amam and Haryono, 2021a, b). Based on the data from the Central Bureau of Statistics in 2021, it is stated that there had been an increase in beef consumption, but it was inversely proportional to beef production in 2021 of

437,783.23 tons. This number decreased when compared to the beef production in 2020 of 453,418.44 tons, meaning that there was a decrease in beef production by 3.44%. The government formulated a policy to control the feeder beef import capacity following the mandate handed down by the President of the Republic of Indonesia concerning corporation-based agriculture or livestock development (Amam et al., 2020, 2021).

The Directorate General of Livestock and Animal Health, Ministry of Agriculture, in 2020 launched the One Thousand Cattle Village Program as the primary plan to accelerate the increase in the cattle population, ensuring animal protein sufficiency and increasing cattle production of the country's mainstay commodities. The one thousand cattle village program is implemented based on the Order of the Minister of Agriculture Number 129/KP.410/M/8/2020 on 19 August 2020 through the Directorate General of Livestock and Animal Health. The One Thousand Cattle Village Program was implemented by integrating the feeder cattle and breeding cattle development to develop farmer corporation-based livestock areas initiated by the Directorate General of Livestock and Animal Health as a pilot project implemented in five provinces, including East Java, East Nusa Tenggara, West Nusa Tenggara, Lampung, and South Sulawesi.

The One Thousand Cattle Village Program in East Java Province was implemented in Probolinggo Regency and Kediri Regency. Probolinggo regency was one of five regions in five provinces designated as the recipients of the one thousand cattle village program. The one thousand cattle village program in probolinggo regency was implemented in Lumbang District, including five farmer groups across five villages; Negororejo Village, Lumbang Village, Wonogoro Village, Purut Village, and Sapih Village. The farmer groups have met the criteria for the program recipients based on the technical guidelines, including having an organizational structure, administrative completeness, and a minimum of 10 members, and registered in the Agricultural Extension Management Information System (SIMLUHTAN). Lumbang District was designated as the location for the One Thousand Cattle Village Program because the topography and location criteria met the technical guidelines, having areas with livestock potential, running institutions, and abundant forage animal feed (Yulianto et al., 2020; Zahrosa et al., 2020). Technically, the five farmer groups received 200 beef cattle, each with 100 feeder cattle bulls for fattening and 100 feeder cattle heifers for breeding.

Ironically, this program seemed to surprise the members of the farmer group receiving the one thousand cattle village program because smallholder farmers who used to raise beef cattle on a household scale with a population of no more than 2 cattles or no more than 15 cattles when working in groups were required to raise 200 cattle with each population of 100 heifers and 100 bulls simultaneously. The smallholder farmers who managed beef cattle on a household scale had 1-2 cattle with limited resources. Therefore, it is important to empower the farmers to overcome this problem (Amam et al., 2019a, b).

Farmer empowerment, according to Government Regulation of the Republic of Indonesia Number 6 of 2013, is all

efforts made by the government, provincial governments, regency/city governments, and stakeholders in the field of livestock and animal health to improve self-sufficiency, provide convenience and business progress, and increase the competitiveness and farmer welfare. The targeted output is the realization of independent and prosperous farmers by providing them with assistance in accessing livestock production facilities and protection in determining the selling price (Amam et al., 2023a, b).

Empowerment is the capability to exercise the skills possessed by individual human resources, either in groups or individually, with the intention of fulfilling all needs independently based on the will (Tscharntke et al., 2022; Yu et al., 2021). Empowerment is a process, namely the capability used to carry out something or the capability to act in the form of reason, initiative, or strength to improve materially or spiritually in people's lives with the aim to bring the country to an advanced state. Broadly speaking, farmer empowerment has prerogative rights in accordance with Government Regulation Number 6 of 2013, so it is expected that the role of empowerment can support sustainable livestock development (Amam and Saputra, 2021; Setyawan and Amam, 2021).

Sustainable development has a role in maintaining the status of life (Aivazidou and Tsolakis, 2021; Purnhagen et al., 2021; Tscharntke et al., 2022). It has an attachment to human rights by realizing and enforcing the broadest possible range of access in lifestyle planning and the existence of a pillar of justice between generations in utilizing environmental, economic, and social resources (Cadzow and Binns, 2016; Dolinska and d'Aquino, 2016; Dominati et al., 2021). Sustainable development has a simple but interconnected concept (Jiao et al., 2019; Lähdesmäki et al., 2019). The development concept is considered to be sustainable if it fulfills three dimensions: economically efficient and feasible, socially justice, and ecologically sustainable (Rusdiana et al., 2023). The concept of sustainable development applies to all development sectors, one of which is the development of the livestock sector. The concept of sustainable livestock development has five dimensional perspectives, including the ecological dimension, economic dimension, social and cultural dimension, institutional dimension, and technological dimension (Ragsdale et al., 2018; Sell and Minot, 2018).

This research aims to examine the effect of farmer empowerment on sustainable livestock development based on the ecological, economic, social, cultural, institutional, and technological dimensions of the one thousand cattle village program. The novelty of this research is for study and evaluation of farmer empowerment of the one thousand village cattle program in accordance with Government Regulation Number 6 of 2013.

The research was conducted in May 2022 in Lumbang District, Probolinggo Regency. The first data collection was taken through Focus Group Discussion (FGD) by gathering the respondents or farmers in stables or farmer group offices by accommodating their answers, and the researcher was able to understand the respondents' or farmers' conditions. The next data collection was carried out by observing the five stables of the farmer groups, including the Genting Makmur Jaya Farmer Group located in Negororejo Village, Baru Muncul Farmer Group located in Lumbang Village, Margi Santoso III Farmer Group located in Purut Village, Makmur III Farmer Group located in Wonogoro Village, and Mukti Jaya I Farmer Group located in Sapih Village. The last data collection method was carried out through a survey by conducting interviews and filling out questionnaires with a Likert scale of +1 to +5.

The respondents in this research were 36 beef cattle farmers

in five farmer groups receiving the one thousand cattle village program in Lumbang District. The total active members of the five farmer groups became the respondents (total sampling) in order to obtain primary data. The respondents were determined intentionally or purposively with the criteria of being farmer group administrators and active farmer group members. These were the main criteria to be able to answer the questionnaire. It was because farmer group administrators and active farmer group members could determine the impact of running the one thousand cattle village program, providing valid primary data.

The main variables observed were farmer empowerment (X) as the independent variable and sustainable livestock development which consisted of five dimensions, including the ecological dimension (Y₁), economic dimension (Y₂), social and cultural dimension (Y₃), institutional dimension (Y₄), and technological dimension (Y₅) as the dependent variables. The research variables and indicators are presented in Table 1.

Table 1: Research variables and indicators.

Var- iable	Indicator	
X	The livestock business receives financial assistance or subsidies	X _{1,1}
	The livestock business receive venture capital assistance	X _{1,2}
	The livestock business receive counseling or socialization to improve knowledge in livestock business, for example, the selection of seeds, use of feed, livestock health, marketing, and others	X _{1,3}
	The livestock business receives counseling or socialization related to the use and utilization of technology in the livestock business such as education and training, and provision of appropriate technology	X _{1,4}
	The livestock business receives counseling or socialization related to information such as subsidies, livestock institutions, livestock development programs	X _{1,5}
	The livestock business receive livestock services such as providing superior seeds, rescuing productive females, and providing IB posts	X _{1,6}
	The livestock business receives livestock health services such as pregnancy checks, observation and identification of diseases, or livestock treatment	X _{1,7}
	The livestock business receives technical assistance such as assistance in using livestock equipment or machinery, control in the implementation of practical and environmentally friendly cultivation, as well as livestock production facilities to increase independence and competitiveness	X _{1,8}
	The livestock business is avoided from the imposition of a high-cost economy by providing the means of production, cultivation, post-harvest, marketing, and distribution of livestock	X _{1,9}
	The livestock business receives partnership guidance (cooperation) to increase the synergy between livestock business actors	X _{1,10}
	The livestock business is supported by a conducive business climate such as business certainty, ease of service, no action of unhealthy business competition, and handling of livestock health	X _{1,11}
	The livestock business receive support in the form of the improvement of entrepreneurship such as counseling, education and training, and facilitating the development of livestock institutions	X _{1,12}
	The livestock business utilizes domestic resources, for example seeds, feed, and labors	X _{1,13}
	The livestock business is in the livestock areas free of pathogens (pandemic), having available water and feed sources, availabel water infrastructure such as roads, bridges, and animal markets	X _{1,14}
	The livestock business was assisted with the promotion and marketing of livestock through the establishment of abattoirs, market development, price information, requiring modern markets to prioritize the marketing of domestic animal products	X _{1,15}
	The livestock business receives guarantees for protection of livestock prices such as fixing the selling price, providing facilities for selling breeding livestock throughout Indonesia	X _{1,16}

Table continued on next page.....

Var- iable	Indicator	
Y ₁	Getting involved in the provision of forage (grass) for livestock	Y _{1.1}
	Getting involved in the provision of protective plants	Y _{1.2}
	Getting involved in the land use	Y _{1.3}
	Getting involved in managing livestock waste	Y _{1.4}
	Getting involved in utilizing livestock manure	Y _{1.5}
	Getting involved in monitoring and paying attention to the slope level of the cage floor	Y _{1.6}
	Getting involved in monitoring and paying attention to the height level of the cage	Y _{1.7}
	Getting involved in monitoring and paying attention to the density level of the cage	Y _{1.8}
	Getting involved in providing clean water as a support for livestock business	Y _{1.9}
	Getting involved in monitoring and paying attention to the humidity level of the cage	Y _{1.10}
	Getting involved in monitoring and paying attention to the ideal temperature level of the cage	Y _{1.11}
Y ₂	Getting involved in the provision of livestock business production facilities	Y _{2.1}
	Getting involved in the trading system of livestock products and processed livestock products	Y _{2.2}
	Getting involved in determining the amount of subsidy for livestock production equipment	Y _{2.3}
	Getting involved in compiling production bids	Y _{2.4}
	Getting involved in the effort to spread the workforce	Y _{2.5}
	Getting involved in the livestock business ownership and sustainability	Y _{2.6}
	Getting involved in the livestock ownership and sustainability	Y _{2.7}
	Getting involved in the provision of business capital	Y _{2.8}
	Getting involved in the participation of Regional Original Income (PAD)	Y _{2.9}
	Getting involved in determining the wages of livestock workers	Y _{2.10}
	Getting involved in increasing the livestock business income	Y _{2.11}
Y ₃	Conducting part-time division for businesses in the livestock sector	Y _{3.1}
	Supporting family involvement in the livestock business	Y _{3.2}
	Supporting environmental management as a result caused by livestock business	Y _{3.3}
	Getting involved in the size of business actors in the livestock sector	Y _{3.4}
	Responding to objections from the community if it affects the environment (pollution) from livestock manure as a result of livestock business	Y _{3.5}
	Responding to market demand in livestock (main actors and business actors)	Y _{3.6}
	Developing household income through business in the livestock sector	Y _{3.7}
	Being competent in developing understanding and skills followed by experience in livestock business	Y _{3.8}
Y ₄	Actively getting involved in the livestock development/counseling program activities	Y _{4.1}
	Getting involved in encouraging the livestock development by the government	Y _{4.2}
	Getting involved in cooperating with community leaders to run livestock businesses	Y _{4.3}
	Actively getting involved in livestock institutions (livestock groups)	Y _{4.4}
	Getting involved in creating a livestock marketing network	Y _{4.5}
Y ₅	Getting involved in the environmental management	Y _{5.1}
	Getting involved in the ownership and control of communication tools to support livestock business	Y _{5.2}
	Getting involved in mastering the cage technology	Y _{5.3}
	Getting involved in mastering the livestock manure treatment technology	Y _{5.4}
	Actively getting involved in the livestock extension programs related to the use of technology	Y _{5.5}
	Getting involved in improving the quality of children's formal education	Y _{5.6}
	Getting involved in understanding the feed technology and animal feed processing	Y _{5.7}
	Getting involved in understanding the animal health	Y _{5.8}
	Getting involved in understanding the livestock reproduction (livestock mating)	Y _{5.9}
	Getting involved in understanding the livestock raising management	Y _{5.10}
	Getting involved in understanding the livestock product processing technology	Y _{5.11}
	Getting involved in the ownership and control of vehicles for livestock business activities	Y _{5.12}
Getting involved in ownership of livestock product processing machines	Y _{5.13}	

Source: (Amam and Soetriono, 2022).

The collected data were tabulated and processed using Microsoft Excel 2013 and SPSS 26.0. Data analysis or parsing was carried out using a simple linear regression analysis method with the consideration that the Y variables were not correlated with each other. Simple linear regression is a regression model to describe the interaction between the independent variable (independent; predictor; X) and the dependent variables (dependent; response; Y). The effect of the farmer empowerment can be mathematically found on the variable Y with the following formula:

$$Y = \frac{\sum_{j=1}^n Y_{ij}}{Y} \times 100\%$$

$$Y = \sum^k \sum^n Y_{ij} \times 100\%$$

Explanation: Y_{ij} = the weight of the I indicator score in the j respondent; Y_i = I data ($i = 1, 2, 3, \dots, n$); Y = the weight of each variable; j = number of research respondents (1, 2, 3, ..., n) (Amam and Soetrisno, 2022).

RESULTS AND DISCUSSION

OVERVIEW OF LOCATIONS OF ONE THOUSAND CATTLE VILLAGE PROGRAM

Geographically, Lumbang District is one of the 24 districts located in Probolinggo Regency, East Java Province. It has an area of 9,271 Ha and is located in the western part of Probolinggo Regency. It is topographically an undulating, hilly to mountainous plateau at an altitude of ± 1000 masl because it is part of the same area as Mount Bromo. Most of the area in Lumbang Subdistrict is plantation and forest. Besides, the climate in Lumbang Sub-district is influenced by the climate of the surrounding mountains, so the weather tends to be cool and humid.

Most of the people in Lumbang Sub-district worked as farmers who raise livestock, so from the geographical, topographical, environmental and social location, Lumbang District was chosen as the location for the one thousand cattle village program. The program was run by five farmer groups, including Genting Makmur Jaya farmer group located in Negororejo village, baru muncul farmer group located in Lumbang village, Margi Santoso III farmer group located in Purut Village, Makmur III Farmer Group located in Wonogoro Village, and Mukti Jaya I Farmer Group located in Sapih Village which had passed the qualifications and were registered with Agricultural Extension Information System (SIMLUHTAN) of the Ministry of Agriculture. The respondents' profile at the research location is shown in Table 2.

The effect of farmer empowerment on sustainable livestock development based on government regulation number 6

of 2013 in the one thousand cattle village program on the ecological dimension is shown in Table 3. Based on the simple linear regression analysis, the farmer empowerment had a positive effect on the ecological dimension of 0.164 through the equation $Y = 35.624 + 0.164X$. The next result was through a significance value with a probability value of 0.05, where the farmer empowerment did not have a significant effect on the ecological dimension shown at a significance value of 0.091, meaning higher (>) than 0.05. The farmer empowerment had a significant effect on the ecological dimension with a statistical t-value of 1.738, higher (>) than the t-table of 1.688. Based on the results of the simple linear regression analysis, the ecological dimension had no significant positive effect. This condition was indicated by the adequate provision of forage for livestock but lacking in the utilization of livestock manure.

Table 2: Respondents' profile.

Age (year)	Per-cent-age (%)	Education	Per-centage (%)	Expe-rience (year)	Per-centage (%)
8-23	8.33	Not School	8.33	2-5	19.44
24-39	27.78	Elementary School	47.22	6-10	22.22
40-55	44.44	First High School	22.22	>10	58.33
56-74	19.44	Second High School	19.44		
		Bachelor Degree	2.78		
	100		100		100

Table 3: Ecological dimension analysis results.

Model	Coefficients ^a			t	Sig.
	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta		
(Constant)	35.624	4.364		8.163	.000
PP	.164	.094	.286	1.738	.091

a = Dependent Variable: Ecological Dimension; PP = Farmer Empowerment; t-table = 1.688

REFLECTION ON THE ECOLOGICAL DIMENSION

The reflection on farmer empowerment in the one thousand cattle village program is shown in Figure 1. The effect of the farmer empowerment on the ecological dimension had the highest value $Y_{1.1}$ of 10.79%, on the role of the farmer group members in the land use for providing forage. The field condition showed that the land area o used for Forage Animal Feed (HPT) was 1 Ha. The importance of considering the balance of feed carrying capacity was the availability of forage, waste from the agricultural industry, land suitability, and human resources. The land use was a determining factor for success in farming and livestock businesses since the main livelihood of the farmer group members who received the one thousand cattle cattle program in Lumbang District was a farmer who raised

livestock (Qiu et al., 2021; Schader et al., 2021; Wagner et al., 2021).

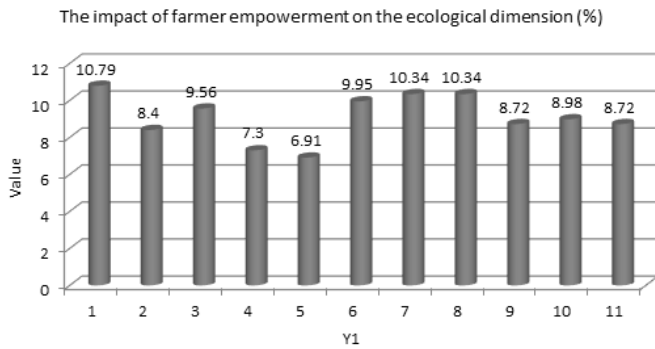


Figure 1: Reflection on Government Regulation Number 6 of 2013 on ecological dimension.

The lowest value on the ecological dimension was Y1.5 of 6.91% on the role of the farmer group members in contributing to the utilization of livestock manure. Based on the field condition, it was found that most of farmer group members who were the One Thousand Cattle Village Program recipients knew the benefits of livestock manure into biogas and organic fertilizer (Ahuja et al., 2020; Feng and Zhao, 2020). However, due to the lack of assistance, they did not know how to operate the biogas installations that had been built, so they became neglected (Aivazidou and Tsolakakis, 2021; Arb et al., 2020). Assistance and training programs for the utilization of livestock manure into biogas must be constantly conducted so that it has a positive impact on the community, environment, and health, and as one of the efforts to achieve energy independence and food security in an integrated and sustainable strategy for empowering farmers (Aghasafari et al., 2020; Bandanaa et al., 2021).

REFLECTION ON THE ECONOMIC DIMENSION

The effect of farmer empowerment on sustainable livestock development based on Government Regulation Number 6 of 2013 in the one thousand cattle village program on the economic dimension is shown in Table 4. Based on the simple linear regression analysis, it was found that farmer empowerment had a positive effect on the economic dimension of 0.305 through the equation $Y = 27.712 + 0.305X$. The next result was through a significance value with a probability value of 0.05, where farmer empowerment had a significant effect on the economic dimension, shown at a significance value of 0.002, meaning lower (<) than 0.05. The farmer empowerment had a significant effect on the economic dimension with a statistical t-value of 3.442, higher (>) than t-table of 1.688. Based on the the simple linear regression analysis results, the economic dimension had a significant positive effect. This condition was indicated by the effect of income from raising livestock in the one thousand cattle village program in the economic dimension.

The impact of farmer empowerment on the economic dimension (%)

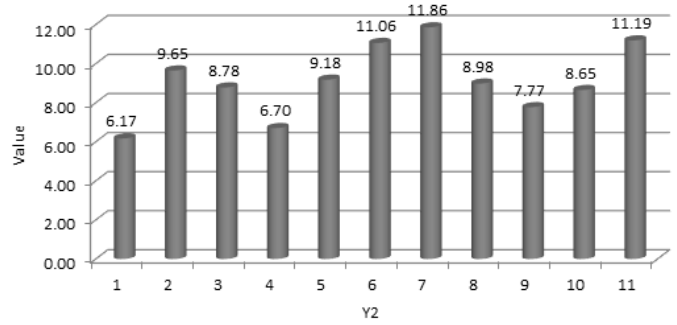


Figure 2: Reflection on Government Regulation Number 6 of 2013 on economic dimension.

The reflection on farmer empowerment in the one thousand cattle village program is shown in Figure 2. The highest value in the economic dimension was Y2.7 of 11.86% on the role of the farmer group members who were the one thousand cattle village program recipients still needed livestock ownership. This condition was marked by the high percentage and the reality in the field, which showed that the farmer group members were highly concerned about and felt that they had a sense of belonging to the one thousand village cattle program livestock. Their easy accessibility to get livestock was one of the factors for the farmer group members to still own livestock (Arunrat et al., 2021; Galloway et al., 2021).

Table 4: Economic dimension analysis results.

Model	Coefficients ^a			T	Sig.
	Unstandardized coefficients	Standardized coefficients			
	B	Std. Error	Beta		
(Constant)	27.712	4.102		6.756	.000
PP	.305	.088	.508	3.442	.002

a = Dependent Variable: Economic Dimension; PP = Farmer Empowerment; t-table = 1.688

The lowest value in the economic dimension was Y2.1 of 6.17% on the role of the farmer group members in providing the livestock business production facilities. This condition was reflected by the five farmer groups experiencing difficulties in providing production facilities, namely feed for daily livestock production needs. It was because the one thousand cattle village program is required to provide feed of 6 tons of elephant grass per day. The provision actors distribute and provide livestock production facilities through seeds, feed, medicines, credit, and fuel. In contrast, livestock business production facilities are distributed by individuals, private companies, government agencies, and cooperatives synergizing and working together to maintain the sustainability of the provision of livestock business production facilities. The easy farmers' accessibility in the plan to provide the livestock business production facilities

can support the sustainable development of livestock activities (Boone et al., 2019; Dalle et al., 2021).

REFLECTION ON THE SOCIAL AND CULTURAL DIMENSION

The effect of farmer empowerment on sustainable livestock development based on the Government Regulation Number 6 of 2013 in the one thousand cattle village program on the social and cultural dimensions is shown in Table 5. Based on the simple linear regression analysis, the farmer empowerment had a positive effect on the social and cultural dimension of 0.310 through the equation $Y = 13.531 + 0.310X$. The next result was through a significance value with a probability value of 0.05 where the farmer empowerment had a significant effect on the social and cultural dimension as shown at a significance value of 0.000, which means lower (<) than 0.05. Farmer empowerment had a significant effect on the social and cultural dimension with a statistic t-value of 4.212, higher (>) than the t-table of 1.688. This condition was shown by the totality of the farmer group members in allocating time for livestock raising activities in the one thousand cattle village program.

Table 5: Social and cultural dimension analysis results.

Model	Coefficients ^a			T	Sig.
	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta		
(Constant)	13.531	3.410		3.968	.000
PP	.310	.074	.586	4.212	.000

a = Dependent Variable: Social dan Cultural Dimension; PP = Farmer Empowerment; t-table = 1.688

The reflection on farmer empowerment in the One Thousand Cattle Village Program is shown in Figure 3. The effect of farmer empowerment on the social and cultural dimension had the highest value Y3.1 of 17.37% in conducting the part-time division for activities in the livestock sector. This condition indicated that the majority of farmer group members still spent their time working on the livestock activities in the one thousand cattle village program for 7 hours from 09.00 – 16.00. Livestock raising activities were used to spend leisure time and increase household income. Livestock-raising activities were used to spend leisure time and increase household income. Each individual utilized leisure time to work and not work; if the individual preferred to work, he could earn a wage to increase the household income (Gerling et al., 2019; Han et al., 2021).

The lowest score in the social and cultural dimension was Y3.5 of 5.86% on the response of protest from the community when the environment is affected (pollution) by

livestock manure as a result of the one thousand cattle village program. In the field, there were no protests against the one thousand cattle village program made by the community. The main factor that influenced people’s perception of the existence of the one thousand cattle village program was the knowledge level of the community about the surrounding environment, where the community could assess, view, and respond to the environment, such as sound and healthy water, air, and soil as a result of livestock business activities (Khairulbahri, 2021; Schader et al., 2021).

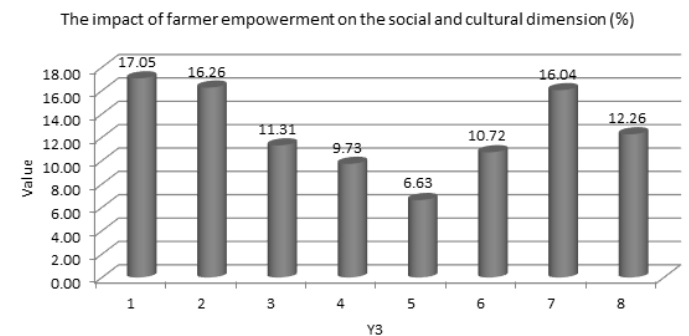


Figure 3: Reflection on Government Regulation Number 6 of 2013 on social and cultural dimension.

REFLECTION ON THE INSTITUTIONAL DIMENSION

The effect of farmer empowerment on sustainable livestock development based on the Government Regulation Number 6 of 2013 in the one thousand cattle village program on the institutional dimension is shown in Table 6. Based on the simple linear regression analysis, the farmer empowerment had a positive effect on the institutional dimension of 0.029 through the equation $Y = 18.435 + 0.029X$. The next result was through a significance value with a probability value of 0.05, where the farmer empowerment did not affect the institutional dimension as shown at a significance value of 0.598, which means higher (<) than 0.05. The farmer empowerment had no effect on the institutional dimension with a statistic t-value of 0.532, lower (<) than the t table of 1.688. It means that farmer empowerment had no significant positive effect on the institutional dimension. This condition was shown by the active farmer group members’ participation, but but the lack of mastery in the livestock marketing network.

Table 6: Institutional dimension analysis results.

Model	Coefficients ^a			T	Sig.
	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta		
(Constant)	18.435	2.543		7.250	.000
PP	.029	.055	.091	.532	.598

a = Dependent Variable: Institutional Dimension; PP = Farmer Empowerment; t-table = 1.688

The reflection on farmer empowerment in the one thousand cattle village program is shown in Figure 4. The effect of farmer empowerment on the institutional dimension having the highest value was Y4.4 of 24.75% on the farmer group members' active role in the livestock institutions (livestock groups). This condition indicated that the farmer group members who wanted to join the one thousand cattle village program should join and play an active role in the livestock institutions (livestock groups) that had been appointed and regulated by the government and stakeholders to run the program. The farmers who joined the livestock institutions could have access to relations with government agencies, financial institutions, marketing agencies, village officials, and livestock health officers. Besides, the farmers who joined the institutions could also discuss strategies to minimize risks in the cultivation process, develop livestock activities, and increase accessibility to resources. In addition, the existence of farmer institutions could be used as a forum for the livestock development (Purnhagen et al., 2021; Qiu et al., 2021).

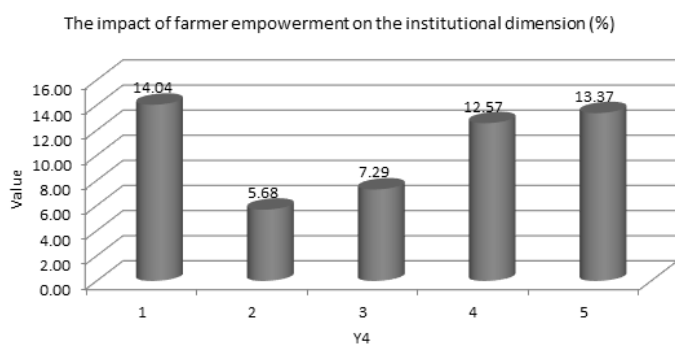


Figure 4: Reflection on Government Regulation Number 6 of 2013 on institutional dimension.

The lowest value on the institutional dimension was Y4.5 of 13.78% on the role of getting involved in creating and owning a livestock marketing network. This condition was indicated by the farmer group members who had livestock marketing networks, one of which was the farmer group administrator assigned the primary function as marketers within the farmer groups, and they also made a report on sales results to the cooperative. Furthermore, if the farmer groups need to purchase cattle, they can buy it through the cooperative. Building a marketing network not only provided an effect on economy, but also could provide a sustainable emotional connection between the two parties if it could be managed properly (Wagner et al., 2021; Yu et al., 2021).

REFLECTION ON THE TECHNOLOGICAL DIMENSION

The effect of farmer empowerment on sustainable livestock development based on the Government Regulation Number 6 of 2013 in the one thousand cattle village program on the institutional dimension is shown in Table

7. Based on the simple linear regression analysis, farmer empowerment had a positive effect on the technological dimension of 0.271 through the equation $Y = 33.026 + 0.271X$. The next result was through a significance value with a probability value of 0.05, where the farmer empowerment did not affect the institutional dimension, as shown at a significance value of 0.078, which means higher (<) than 0.05. The farmer empowerment affected the technological dimension with a statistical t-value of 1.819, higher (>) than the t-table of 1.688. It means farmer empowerment had no significant positive effect on the technological dimension. This condition was indicated by a large number of counseling about livestock technology, but it was not followed by sustainable implementation (Amam et al., 2021).

Table 7: Technological dimension analysis results.

Model	Coefficients ^a			T	Sig.
	Unstandardized coefficients	Standardized coefficients			
	B	Std. Error	Beta		
(Constant)	33.026	6.895		4.790	.000
PP	.271	.149	.298	1.819	.078

a = Dependent Variable: Technological Dimension; PP = Farmer Empowerment; t-table = 1.688

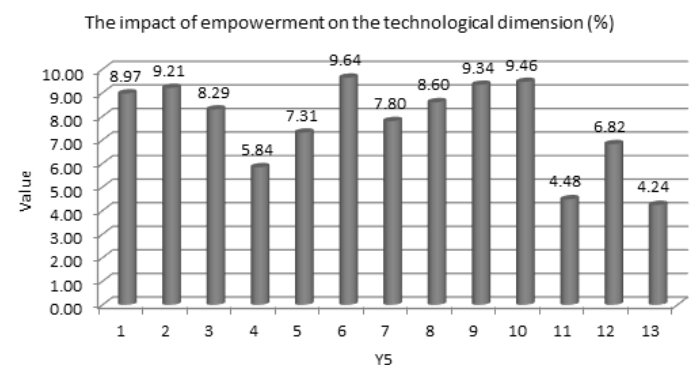


Figure 5: Reflection on Government Regulation Number 6 of 2013 on technological dimension.

The reflection on the farmer empowerment in the one thousand cattle village program is shown in Figure 5. The effect of the farmer empowerment on the institutional dimension having the highest value was Y5.6 of 9.64% on the role of the farmer group members in improving the quality of children's formal education. This condition was shown by their high awareness on the importance of the best formal education for children. Most of their children attended formal school in the elementary schools and Islamic boarding schools. The awareness of the importance of education that emerged from various parties had a positive impact, especially on families, a place where children obtain their first education and parents provide a direction related to formal education. Formal education has various features, including long-term goals and

oriented towards the possession of diplomas and oriented towards future (Soejono et al., 2021a, b).

The lowest value on the technology dimension was Y5.13 of 4.24% on the role of the farmer group members in the ownership of livestock product processing machines. This condition indicated that the farmer group members did not have the ownership of livestock product processing machines, such as meat grinders for meatballs and machines for packaging processed livestock products. The ownership of machinery for processing livestock products could also burden the members if they are not provided with training and mentoring to improve their knowledge and interest related to the machine. The mastery or ownership of the machine facilitates the processed food producers to produce (Harsita et al., 2022; Harsita and Amam, 2019) and sell healthy processed foods that are safe for consumption since it is vital to consider and monitor food safety (Fadli et al., 2022; Ramadhan et al., 2022; Yaqin et al., 2022).

CONCLUSIONS AND RECOMMENDATIONS

Based on the findings, it can be concluded that farmer empowerment had a positive effect on the livestock development in five dimensions, including the ecological, economic, social and cultural, institutional, and technological dimension. The empowerment efforts from the five most influential dimensions were the economic dimension and social and cultural dimension. It is necessary to improve the implementation of farmer empowerment regulated in the Government Regulation Number 6 of 2013 and evaluate all lines, supporting the one thousand cattle village program sustainability, including the role of the government, animal health workers, stakeholders in the livestock sector, and financial institutions in capital loan.

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NOVELTY STATEMENT

The novelty of this research is for study and evaluation of farmer empowerment of the one thousand village cat-

tle program in accordance with Government Regulation Number 6 of 2013 in Indonesia.

AUTHOR'S CONTRIBUTION

RR: Head of research project, writing-review and editing, and investigation. AA: Conceptualizations, methodology, formal analysis, validation, writing-original draft, writing-review and editing. MWJ: Writing-review and editing, investigation, and sample collection. DY: Writing-review and editing, sample collection, software, and formal analysis. All authors have read, reviewed, and approved the final manuscript.

CONFLICT OF INTEREST

The authors have declared no conflict of interest.

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