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Agricultural Development Model and Transformation in Gaum Village, Tasikmadu Subdistrict, Karanganyar Regency

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ABSTRACT

This community services activity aims to determine the potential and problems, structural transformation, institutional transformation, technology application, and suitable model regarding the agricultural development in Gaum Village, Tasikmadu Subdistrict, Karanganyar Regency. The methods used were face-to-face interviews with relevant resource persons, observation, and descriptive analysis for data processing. The results reveal that the potential in this village is its vast agricultural land, while the problems faced are crop pests and limited fertilizer with high prices. Structural transformation in the agriculture sector in this village is characterized by a shift from traditional practices with low productivity and even losses to modern practices with higher productivity, even though the commodity prices often fluctuate every year. Institutional transformation in this village tends not to undergo bureaucratic change despite the change of village head. The application of agricultural technology in this village is also not optimal, as the majority of farmers here still apply traditional methods to cultivate their agricultural land. The diffusion model is considered more appropriate to be applied for the agricultural development in Gaum Village. In this context, this model aims to increase agricultural productivity through dissemination of new technologies and knowledges.

1. Introduction

Gaum Village is one of the villages located in Tasikmadu Subdistrict, Karanganyar Regency, Central Java Province. In terms of topography, Gaum Village encompasses an area of approximately 361.385 ha. It borders Kalijirak Village to the north, Bejen Village to the south, Sumur Village to the west, and Gedong Village to the east. In general, Gaum Village has a typical typology of village, such as rice fields, fields, plantations, livestock, fishing, mining, crafts and small industries, medium and large industries, as well as services and trade industries. The majority of residents in Gaum Village earn a living as farmers. Based on its development level, Gaum Village is categorized as self-sufficient village, namely a village that is considered capable to fulfill its own needs.

Resilient agricultural development is characterized by a synergistic blend of three principles, namely comparative advantage, competitive advantage, and cooperative advantage. Comparative advantages mainly include the wealth of natural resources; competitive advantages mainly include the strength of science and technology; and cooperative advantages mainly include positive local culture and spiritual and religious elements. Based on [Book 1 Paradigm of Agricultural Development \(1997\)](#), these three principles are a unity in development that must receive significant attention. However, it is widely known that farmers in Indonesia as a whole still have not implemented these three principles. This is because the majority of them still adhere to agricultural dualism, namely small-scale farming and large-scale farming, where the proportion between these two is very different.

It is necessary for agricultural development to keep up with the times where consumers need a wide diversification of processed products from upstream to downstream (off-farm products). For this reason, the agricultural development model in any given area is expected to be continuously adjusted to the regional development policies, especially regarding certain areas that are still looking for a suitable model related to the expected agricultural development pattern. In addition, agricultural development must also interdependent and able to interact with the existing socio-economic facilities in the hope of helping to align the needs to achieve the desired goals of the agricultural development.

The accelerating factors of agricultural development are necessary because each of these factors is useful although not absolute. Agricultural development can still occur even if one or more of these factors do not exist. According to [Harahap et al. \(2020\)](#), these accelerating factors comprise education about development, production credit, activities by farmers, improvement and expansion of agricultural land, and national planning for agricultural development.

Therefore, based on that aforementioned background, it is necessary to conduct a community services activity to determine the potential and problems, structural transformation, institutional transformation, technology application, and suitable model regarding the agricultural development in Gaum Village, Tasikmadu Subdistrict, Karanganyar Regency.

2. Methods

This study used descriptive analytical method, which aimed to describe and review the research subjects in general based on real data or samples that had been collected for what they were without going through an analysis, before drawing the general conclusions. Data were collected through interview technique using a pre-prepared questionnaire. Interviews were conducted face-to-face with relevant resource persons. Other data were also collected through observation technique, namely by recording all information obtained during the study. Then, data analysis was conducted on both primary and secondary data. Primary data sources were the interview results from resource persons, in the form of question list and the answers, while secondary data sources were the written documents.

3. Results and discussion

3.1 Potential and problems

The potential in Gaum Village, Tasikmadu Subdistrict, Karanganyar Regency is its vast agricultural land. Water sources in this village are seasonal. The water need of the surrounding community can be met, but it needs resources from within the village. The majority of residents in this village work as farmers because this village has quite extensive agricultural land. As much as 80% of the revenue in this village comes from agriculture sector, while the other 20% comes from industry-related sectors.

Table 1. Facility and infrastructure in Gaum Village, Tasikmadu Subdistrict.

No.	Facility and Infrastructure	Description
1.	Village office	permanent
2.	Health Infrastructures	
a.	Community health center (<i>Puskesmas</i>)	exist
b.	Village health center (<i>Poskesdes</i>)	1 building
c.	Community-based health effort (UKBM): Integrated service center (<i>Posyandu</i>), Village maternity center (<i>Polindes</i>)	9 buildings
3.	Educational Infrastructures	
a.	Village library	1 building
b.	Early childhood education (<i>PAUD</i>) school building	-
c.	Kindergarten school building	4 buildings
d.	Elementary school building	2 buildings
e.	Junior high school building	-
f.	Senior high school building	1 building
g.	University building	-
4.	Worship infrastructures	
a.	Mosque	16 buildings
b.	Small mosque (<i>Musala</i>)	3 buildings
c.	Church	-
d.	Hindu temple	-
e.	Buddhist temple	-
f.	Confucian temple	-
5.	General Infrastructures	
a.	Sports	4 buildings
b.	Art/culture	2 buildings
c.	Meeting hall	6 buildings
d.	Village well	1,650 buildings
e.	Village market	1 building
f.	Others	-

Table 2. Livelihoods of residents in Gaum Village, Tasikmadu Subdistrict.

No.	Livelihood	Number of People
1.	Employee	
a.	Civil servant	64
b.	Army/police	17
c.	Private	955
2.	Self-employed/merchant	145

3.	Farmer	605
4.	Handyman	194
5.	Farm laborer	620
6.	Retired	240
7.	Fisherman	-
8.	Breeder	15
9.	Service	68
10.	Craftmen	13
11.	Art worker	5
12.	Others	128
13.	Not working/unemployed	2

On the other hand, this village also has been faced several problems. Agricultural problems that commonly occur in this village include high fertilizer prices, difficulties in acquiring fertilizer subsidies, and problems with crop pests. The high prices of fertilizer mean that farmers have to reconsider about acquiring them, which can affect crop productivity. Pests that attack crops can also cause crop failure, causing farmers to suffer a great deal of losses. To overcome the high prices of fertilizer, the village government has been subsidized fertilizer regularly to improve the farmers' productivity again. Pests attacking crops can be dealt with by periodically spraying pesticides until they vanished. This year, agricultural yields in Gaum Village have been considered favorable, as good pest management has proven to reduce the intensity of pests attacking crops.

3.2 Structural transformation in Gaum Village

All development strategies generally lead to structural change. Economic history has been shown a shift in the structure and economic system of a country from a traditional agrarian system with low productivity to a modern industrial system with high productivity. The agriculture sector in the transformation process has a contribution to national production, although the contribution of this sector will relatively decrease compared to other sectors that will increasingly play a more prominent role. Along with this, employment rate in the agriculture sector will relatively decrease compared to that of other sectors, which will increase. The nature of production in all sectors worldwide will shift to become more industrialized.

Agriculture sector in Gaum Village has undergone the most striking transformation compared to that of other sectors. For generations, the economic activity of Gaum Village mainly consists of farming. Almost 80% of the resident in this village work as farmers. Structural transformation in the agriculture sector in Gaum Village is characterized by a shift from the traditional practices with low productivity and even losses to the modern practices with higher productivity, even though the commodity prices often fluctuate every year. The fluctuating growth inequality in the agriculture sector is caused by several factors, namely erratic weather, agricultural pests that trigger crop failure, and the low use of agricultural technology in Gaum Village. Nonetheless, the orientation of traditional agriculture in Gaum Village has also shifted to produce more diverse agricultural products, such as orchids and oyster mushrooms, which have even been able to be sold commercially.

3.3 Institutional transformation in Gaum Village

Institutional transformation in Gaum Village tends not to undergo bureaucratic change despite the change of village head. This is because the existing institutions in a village commonly depend on the institutions of the regency where the village is included. These village institutions may include the village government, integrated service center (*posyandu*), or youth organization (*karang taruna*). If there is a change in the institutional bureaucracy of a village, the change itself is usually not significant

or drastic. This is because village institutions are generally directed or centralized based on the institutions of the regency. Village institutions will only undergo a transformation if there is a specific instruction or order from the regency. For example, a village government may faces a reduction in the task of addressing poverty, as the responsibility for this matter is transferred to the social affairs office. This kind of bureaucratic change usually aims to strengthen the monitoring system.

Table 3. Institutions in Gaum Village, Tasikmadu Subdistrict.

No.	Institution	Number
1.	Village Community Empowerment Institution (<i>LPMD</i>)	
a.	Number of administrator	10 persons
b.	Number of member	10 persons
c.	Number of activity per month	1 activity
d.	Amount of funds managed	IDR 5,000,000
2.	Family Empowerment and Well-Being Movement Team (<i>TP PKK</i>)	
a.	Number of administrator	23 persons
b.	Number of member	15 persons
c.	Number of activity per month	1 activity
d.	Number of administration books managed	6 pieces
e.	Amount of funds managed	IDR 10,000,000
3.	Village-Owned Enterprise (<i>BUMDes</i>)	
a.	Number of <i>BUMDes</i>	-
b.	Type of <i>BUMDes</i>	-
c.	Amount of authorized capital owned of <i>BUMDes</i>	-
d.	Amount of funds managed by <i>BUMDes</i>	-
4.	Youth Organization (<i>Karang Taruna</i>)	
a.	Number of activity	1 activity
b.	Number of administrator	3 persons
c.	Number of member	15 persons
5.	Neighborhood Association (<i>RT</i>)/Hamlet (<i>RW</i>)	
a.	Number of neighborhood association	11 institutions
b.	Number of hamlet	55 institutions
c.	Amount of assistance (funds) received by hamlet in a month	IDR 2,500,000
d.	Amount of assistance (funds) received by neighborhood association in a month	IDR 2,500,000
6.	Other community institutions	1institution

Institutional transformation in financial institutions in Gaum Village practically does not exist. This is because Gaum Village officially does not have a financial institution. Cooperative, which is a typical financial institution in Indonesian villages, also apparently does not exist here. Financial institutions, such as cooperatives, only exist outside the village government. In running the savings and loan practices, the agriculture sector in Gaum Village does not relies on a cooperative as an intermediary. Instead, the farmers here conduct financial management (savings and loan practices) through a farmer group association (*Gapoktan*). *Gapoktan* in Gaum Village conducts financial management, then the funds are distributed among its members. With this role, *Gapoktan* can be considered a substitute for cooperative for farmers in Gaum Village.

The institutional development in Gaum Village indicates that the method implemented is cultural. This is because the institution grows naturally, namely it was mainly established due to the common interests among several parties, after which an organizational structure was formulated. The savings

and loan practices in Gaum Village *Gapoktan* were established due to a common interest, which were then structurized to form a financial institution.

3.4 Agricultural technology application in Gaum Village

The application of agricultural technology in Gaum Village is still considered not optimal. The majority of farmers in Gaum Village still often use traditional methods to cultivate their agricultural land. For example, the harvesting process in this village still quite heavily relies on human labor. The transfer of agricultural technology that can be seen in Gaum Village is the use of machines, such as tractor, in land plowing process. The current harvesting process, in addition to uses human labor, also uses rice grain thresher machines (*tleser*). Land irrigation in Gaum Village also utilizes irrigation machines so that the process can run more efficiently. This technology transfer is considered capable to increase the productivity of farmers because the use of such tools can save their time in conducting agricultural activities.

3.5 Agricultural development model in Gaum Village

In the context of agricultural development, diffusion can be implemented in various forms, such as the spread of new farming methods, the technique to create new varieties, the introduction of advanced farming technology, and the suggestion for appropriate farm management. If applied appropriately, the diffusion model can positively influence farmers' mindset to shift their agricultural practices from traditional ones to modern ones.

The diffusion model in Gaum Village can be seen from the transition in the operation of agricultural land. The agriculture sector in Gaum Village is a type of livelihood sector that has existed for a long time. This means it can be said that the agricultural land here is owned by the majority of farmers here for several generations. Agricultural land in Gaum Village is still operated traditionally, such as indicated by the use of animal power (buffalo) in the land plowing and the use of human labor in the harvest season. However, several farmers here have been seen to apply technological transformation in conducting their farming activity, such as by using tractor machines in land plowing, with the main aim to accelerate the agricultural productivity and reduce the production costs at the same time.

Therefore, it is considered more appropriate to apply the diffusion model for the agricultural development in Gaum Village. In the context of agricultural development, this model aims to increase agricultural productivity through dissemination of new technologies and knowledges.

4. Conclusions

The results of this community services activity reveal that the potential in Gaum Village, Tasikmadu Subdistrict, Karanganyar Regency is its vast agricultural land. Agricultural problems commonly faced by the farmers include high fertilizer prices, difficulty in acquiring fertilizer subsidies, and crop pests. The high prices of fertilizer mean that farmers have to reconsider about acquiring them, which can affect crop productivity. Structural transformation in the agriculture sector in Gaum Village is characterized by a shift from traditional practices with low productivity and even losses to modern practices with higher productivity but also with risk related to fluctuating commodity prices every year. Institutional transformation in Gaum Village tends not to undergo bureaucratic change despite the change of village head. The application of agricultural technology in Gaum Village is still not optimal, as the majority of farmers here still often use traditional methods to cultivate their agricultural land. The diffusion model is considered more appropriate to be applied for the agricultural development in Gaum Village. In this context, this model aims to increase agricultural productivity through dissemination of new technologies and knowledges.

5. References

- Bawono, I. R. (2019). *Optimalisasi potensi desa di Indonesia*. Gramedia Widiasarana Indonesia.
- Harahap, G., Fatmawati, H., & Pane, E. (2020). Model pembangunan pertanian pola interaksi dan interdependensi dalam memanfaatkan fasilitas pelayanan sosial ekonomi di Kabupaten Serdang Bedagai. *Jurnal Agriuma*, 2(1), 50–59.
- Hiktaop, K., & Meilvidiri, W. (2021). Identifikasi sistem perencanaan strategi pengelolaan kinerja berbasis *balance scorecard*. *Jurnal Ilmu Ekonomi & Sosial*, 12(1), 41–59.
- Hukom, A. (2021). Pengembangan usaha mikro melalui pemanfaatan buah semangka di Desa Henda, Kecamatan Jabiren Raya, Kabupaten Pulang Pisau, Kalimantan Tengah. *Pengabdian Kampus: Jurnal Informasi Kegiatan Pengabdian Pada Masyarakat*, 8(2), 58–62.
- Kharisma, B., Wardhana, A., & Nur, Y. H. (2022). Transformasi struktural dan ketimpangan antarkabupaten/kota di Jawa Barat. *E-Jurnal Ekonomi dan Bisnis Universitas Udayana*, 11(1), 71–86.
- Mustarin, A., Arifyansah, R., & Rais, M. (2019). Penerapan media pembelajaran *Adobe Flash Cs6* dalam meningkatkan hasil belajar siswa kelas X Atph pada mata pelajaran alat dan mesin pertanian di SMKN 4 Jeneponto. *Jurnal Pendidikan Teknologi Pertanian*, 5(1), 1–8.
- Nasution, N. T. R., Hapsari, T. D., & Kuntadi, E. B. (2018). Kajian penerapan teknologi pertanian organik pada usahatani padi di Desa Rowosari Kecamatan Sumberjambe Kabupaten Jember. *Jurnal Ekonomi Pertanian dan Agribisnis*, 2(3), 234–243.
- Pramaria, A. (2022). Strategi percepatan pertumbuhan dan transformasi struktural kabupaten dan kota (studi kasus Provinsi Nusa Tenggara Barat). *Jurnal Sosial Ekonomi dan Humaniora*, 8(3), 355–364.
- Suparto, S. (2018). Model *contract farming* dalam rangka pembangunan pertanian Jawa Barat. *Jurnal Pengabdian Kepada Masyarakat*, 2(10), 853–857.
- Tondang, G. A., & Aslami, N. (2022). Peran kepemimpinan dan penerapan manajemen perubahan dalam peningkatan daya saing organisasi di Universitas Islam Negeri Sumatera Utara. *Jurnal Manajemen Akuntansi (JUMSI)*, 2(4), 608–617.