Journal of Economics, Management, Entreprenuer, and Business

| ISSN (Online) 2797-1511 | ISSN (Print) 2797-1503 |

DOI: https://doi.org/10.52909/jemeb.v5i1.237

Analysis Of Green Agriculture Implementation Strategies Through Leadership And Human Resource Training Development At The Agriculture Office of Jombang Regency

Akhmad Jani Masyhudi[1], Bambang Raditya Purnomo[2]
[1] Dr. Soetomo University, Surabaya, Indonesia
[2] Dr. Soetomo University, Surabaya, Indonesia

Corresponding Author: yani310342@gmail.com[1]

Abstract: *Food is a strategic need for every nation, and in the future, food provision will become an increasingly vital necessity. Beyond merely ensuring food availability, the world is becoming more aware of the need for healthy food produced through environmentally friendly cultivation processes, known as green agriculture. To understand the implementation of the green farming concept in Jombang Regency, a qualitative study was conducted by examining the implementation strategies through leadership and human resource development. Jombang Regency has been implementing the green agriculture concept since 2008, experiencing fluctuations through various forms of green farming implementation, including: SRI (System of Rice Intensification) rice cultivation, Organic rice development, and BTS (Healthy Crop Cultivation) rice farming. Leadership at the Department of Agriculture has played a significant role, as well as local leadership at the level of farmer groups and village governments. Human resource development to support green agriculture implementation has been carried out in Jombang Regency through training programs, workshops, and field schools, targeting both farmers and agricultural officers. Green agriculture holds great potential for further development. To ensure the sustainability of its implementation, a legal and policy framework is needed to guarantee the long-term continuation of green agriculture practices.*

Keyword: Green agriculture, leadership, human resources training development

INTRODUCTION

Currently, food availability has become a concern for countries around the world. Each country is striving to secure its own food stocks, including those countries that have long been known as major food suppliers, especially rice. They have started to limit exports. This situation is strongly felt by Indonesia as one of the rice-importing countries to meet its food needs.

Of course, this must be supported by realizing Indonesia's food self-sufficiency. Not only food self-sufficiency but sustainable food self-sufficiency. Achieving sustainable food self-sufficiency is not easy. Indonesia once achieved food self-sufficiency during the New Order era, but that achievement has not occurred again until now. Realizing food self-sufficiency faces significant challenges. At least there are three challenges to achieving sustainable food self-sufficiency. First, climate change – the impact of climate change on the agricultural sector. Second, the declining fertility of the soil. And third, agricultural human resources. These are the three major challenges to realizing sustainable food self-sufficiency.

In response to these three issues, there is an agricultural cultivation concept known as Green Agriculture. Green agriculture is an approach to achieving sustainable food self-sufficiency. It refers to cultivation methods that prioritize the balance and sustainability of the agroecosystem through environmentally friendly farming practices (Febrian et al., 2022; Yusuf et al., 2023).

Malthis & Jackson (2020) in Purnomo (2024) explain that training is a process through which people achieve certain abilities to help achieve organizational goals. Furthermore, according to Anwar Prabu Mangkunegara (2018), the indicators of training are: Types of Training, Training Objectives, Training Material, Qualifications of Training Participants.

Additionally, according to Purnomo Bambang Radityo et al. (2018), another factor determining organizational performance success is leadership style. An organization will run well if the leader has expertise in their field, and each leader possesses different skills, such as technical, human, and conceptual skills. The contribution of leaders is a necessity in organizations to improve employee performance. The role of leadership style in creating good working conditions will lead to the optimal achievement of organizational goals.

Research Problem

1. How is the implementation of green agriculture in Jombang Regency?
2. How are the government policies of Jombang Regency in supporting the implementation of green agriculture?
3. How can leadership roles develop the implementation of green agriculture in Jombang Regency?
4. How is the human resource training development program in the implementation of green agriculture in Jombang Regency?
5. What are the potentials and strategies for developing green agriculture in Jombang Regency?

Research Objective

1. To understand the implementation of green agriculture in Jombang Regency
2. To understand the direction of government policies in the implementation of green agriculture in Jombang Regency
3. To understand how leadership in Jombang Regency can guide the implementation of green agriculture
4. To understand the human resource training development programs in the implementation of green agriculture in Jombang Regency
5. To understand the potential and strategies for developing green agriculture in Jombang Regency

LITERATURE REVIEW

Sustainable Development

Cahyantini (2024) explains that green agriculture is an agricultural approach focused on sustainable and environmentally friendly practices to minimize negative environmental impacts and maximize resource use efficiency. Its goal is to produce safe, high-quality agricultural products while simultaneously maintaining ecosystem health. This aligns with current cultivation practices where farmers often overlook environmental safety aspects in their farming. The excessive use of fertilizers and pesticides, although increasing production, results in high costs and greater potential for pollution.

Corkill (2024) describes green agriculture as a holistic and sustainable approach to farming that minimizes negative impacts on ecosystems by prioritizing environmental health, resource efficiency, and biodiversity conservation.

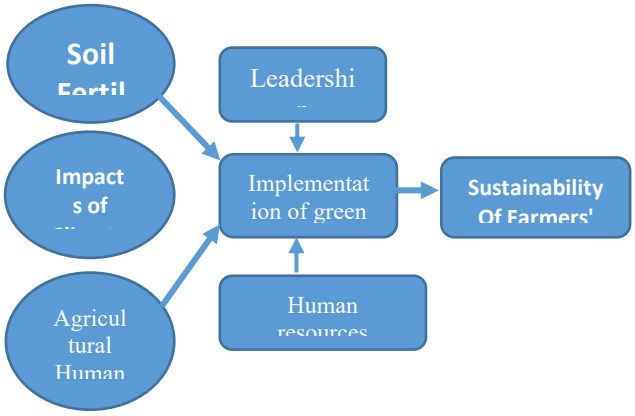
Leadership

Leadership is very important in an organization. Leadership is needed to manage organizational performance (Iriawan, 2020). Furthermore, according to M. Alhudhori (2017), an organization certainly needs an effective leader because leadership is strategic for achieving the organization's vision, mission, and goals. Leadership is the ability to influence people and systems to produce beneficial impacts for the organization (Wasahua, 2017). According to Rasyid, cited in Edyanto & Karsiman (2018), effective leadership can also support development.

Human Training and Development

Noe et al. (2020) state that human resource development (HRD) includes education, training, and coaching activities focused on improving both technical and managerial skills. This enables human resources to adapt to changes in the business environment.

CONCEPTUAL FRAMEWORK



METHOD

This study employs an explorative research design, which involves exploring the implementation of the Green Agriculture policy in Jombang Regency, both from the perspective of policy formulation and its field-level implementation.

In addition to exploring the established policies, this research also investigates the role of leadership in Jombang Regency, particularly through the role of regional government organizations (Organisasi Perangkat Daerah/OPD) within the Agriculture Office. Furthermore, the research explores leadership at the local level, including at the village level, farmer groups, and among prominent farmer figures. The research is conducted at the Agriculture Office of Jombang Regency, located at Jl. Soekarno Hatta No. 170, Jombang.

RESULTS AND DISCUSSION

In Jombang Regency, the implementation of green farming has been carried out through several models, including: SRI (System of Rice Intensification), Organic Farming, Healthy Crop Cultivation / Budidaya Tanaman Sehat (BTS), and other forms of sustainable agriculture.

SRI (System of Rice Intensification)

The System of Rice Intensification (SRI) is a rice cultivation method that focuses on integrated management of plants, soil, water, and nutrients to increase rice productivity, reduce seed and water usage, and minimize the use of chemical fertilizers and pesticides.

In Jombang Regency, SRI rice cultivation began in 2008, facilitated by the Department of Agriculture of Jombang Regency, and was implemented in Megaluh District, specifically in Sudimoro Village. The development of SRI cultivation in 2008 was supported by funding from the State Budget (APBN) through the Ministry of Agriculture.

The SRI cultivation in Sudimoro proved successful in increasing rice production. This aligns with the research conducted by Erwinata et al. (2013) on SRI rice farming in Sudimoro Village, Megaluh District, which showed that the average production level of SRI rice farming was higher than that of non-SRI farming. The average production for SRI farming was 8,321.92 kg/ha, while non-SRI farming was 6,828.16 kg/ha. The average income from SRI rice farming was Rp 14,382,554.64/ha, compared to Rp 11,403,523.81/ha for non-SRI.

Subsequently, the development of SRI in Jombang Regency continued sporadically, either by farmers who had previously received SRI training or by the Department of Agriculture through budget support. However, according to the Head of the Agricultural Extension UPT, there are currently no more farmers in Jombang Regency actively practicing SRI rice cultivation.

Organic Farming

In the Banjarsari Farmer Group (Poktan), located in Bareng Village, Bareng District, organic rice cultivation was developed. It began with an organic rice farming training conducted by a non-governmental organization (NGO) in 2013, where farmers were introduced to environmentally friendly rice cultivation.

Following this training, the Department of Agriculture of Jombang Regency provided further support for the development of organic rice cultivation in the Banjarsari Farmer Group. Under the leadership of Aspandi, a prominent farmer figure, the development of organic rice and its production in the Banjarsari group progressed well. However, with the adoption of organic rice farming, productivity declined.

The Department of Agriculture provided various forms of support, such as storage facilities, post-harvest equipment, and assistance in obtaining organic rice certification. As a result, in 2015, the organic rice cultivation of the Banjarsari Farmer Group received organic certification from the Lesos Organic Certification Agency.

This certification helped with the marketing of the group's organic rice under the branded packaging "Ringin Contong Rice," which was promoted as an icon of Jombang Regency. However, despite various marketing efforts, the sales volume of Ringin Contong organic rice did not increase significantly. At the same time, production could not be expanded due to decreased productivity and the fact that many participating farmers were of advanced age.

Due to the difficulty in expanding the market, organic rice production was unable to grow. By 2024, organic rice farming in the Banjarsari Farmer Group had ceased operations. The development of organic rice in Poktan Banjarsari lasted only 11 years.

Healthy Crop Cultivation / Budidaya Tanaman Sehat (BTS)

Healthy Crop Cultivation (Budidaya Tanaman Sehat / BTS) is a method of rice farming that emphasizes environmental sustainability and the use of biological materials in rice cultivation. Unlike organic farming, where the use of chemical substances is strictly prohibited, BTS still allows limited use of chemicals, under certain terms and conditions.

In 2024, a pilot project for the development of Healthy Crop Cultivation was conducted in several locations in Jombang Regency. This initiative was part of the institutional function of the Pest Control Teams (Regu Pengendali Hama / RPH), which serve as promoters of Healthy Crop Cultivation. In 2024, a total of 50 hectares were developed under BTS.

The trial results across various locations were satisfactory: production costs decreased, productivity increased, and the approach was ecologically better due to the use of local biological materials. The development of BTS in Jombang Regency was not solely supported by the Department of Agriculture, but also received support from private companies and village governments. This collaborative approach has allowed BTS development to progress more effectively and sustainably.

In 2025, Jombang Regency received support from the Provincial Government of East Java to expand BTS over an area of 25 hectares. The program has already completed two planting seasons, showing satisfying results. Farmers were able to adopt the method well due to its various benefits. Pesticides were replaced with biological agents, the use of herbicides for weed control was significantly reduced, rice production increased, and the quality of the rice improved. According to Ikhwan, head of the RPH Kendalsari in Sumobito District, rice produced from BTS farming lasts longer and doesn't spoil easily.

The Head of the Department of Agriculture stated that BTS will be replicated across all sub-districts, with one model village per sub-district designated for BTS development, each covering 1 hectare. Additionally, the head of the department emphasized that BTS should also be implemented on lands managed by the Agricultural Extension Centers in Jombang Regency

Government Policy Support

The Government of Jombang Regency strongly supports the development of green farming. Although the development of green farming in Jombang Regency has experienced ups and downs along the way, the support provided includes capacity building for farmers in the form of field schools, assistance with facilities and infrastructure, and guidance support. This support has been given during the cultivation of SRI rice, organic rice farming, and the development of Healthy Crop Cultivation (BTS). One form of support for the implementation of green farming is the establishment of the Integrated Laboratory at the Department of Agriculture.

Despite considerable government support, the development of green farming in Jombang Regency has shown fluctuations. It will certainly be very interesting to observe the current development of green farming, from 2024 to 2025, which is still in the initial stage of strengthening the system. All activities are still in the development phase while learning from the previous implementation of green farming.

The Role of Leadership

An organization will operate effectively if its leaders possess competence in their field, and each leader has different types of skills—such as technical, human, and conceptual skills. The implementation of green farming is strongly influenced by the leadership approach within the Department of Agriculture. Whether it’s the development of SRI rice cultivation, organic rice

farming, or Healthy Crop Cultivation (BTS), each has been highly dependent on the leadership model adopted by the Department.

In addition to institutional leadership at the Department of Agriculture, the success of green farming in the field also heavily relies on local leadership, especially at the farmer group level. There needs to be local leaders—such as farmer group heads or respected farmer figures—who can serve as motivators and drivers at the grassroots level. After all, the department and its staff cannot be continuously present in the field to oversee green farming implementation. Therefore, local leadership plays a very significant role. These local leaders must be able to carry forward, lead, plan, implement, monitor, evaluate, and further develop the activities on the ground.

In the implementation of SRI activities in Sudimoro Village, Megaluh District, local leadership was embodied by Sunan, a farmer and also the village head of Sudimoro. For organic rice cultivation in the Banjarsari Farmer Group, local leadership was held by Aspandi, the group's leader. The development of BTS in Kendalsari Village was led by Ikhwan, the head of the Kendalsari Pest Control Team (RPH) and also the head of Kalimati hamlet.

Leadership at both the departmental and local levels plays a vital role in running agricultural programs, particularly green farming. Since green farming is not a mainstream cultivation method, leaders at both levels must possess a conceptual and technical understanding of green farming principles.

Human Training and Development

Human resource capacity building is crucial in the implementation of the green farming concept. This is due to the need for a comprehensive understanding of green farming—conceptually, technically in terms of implementation, and in terms of cultivation practices. Equally important is the implementation strategy. In fact, this last point—the strategy—is critically important. While concepts and technical practices can be taught and trained, implementation strategy requires more than just technical knowledge and skills, as it must deal with the social and cultural conditions within the community.

During the development of SRI and organic rice cultivation, efforts were made to improve the capacity of both farmers and field officers. These efforts aimed to provide both conceptual orientation and technical training. Human resource development was conducted in the form of training sessions, workshops, and field schools.

However, a fundamental issue in the field implementation of such programs is that new technologies often face sustainability challenges. For example, SRI, which began in 2008, is no longer practiced. Organic rice farming in the Banjarsari Farmer Group, which began in 2013, ceased operations in 2024. Currently, Healthy Crop Cultivation (BTS) is being developed, starting in 2024. Learning from previous experiences where programs were not sustained, the green farming concept in BTS must be thoroughly prepared.

The potentials and strategies for developing green agriculture

Green farming has great potential to be developed for several reasons, including: the deteriorating condition of agro-ecosystems and declining soil fertility, the increasing cost of farming, and the growing public awareness of healthy food products. In addition, one of the major global issues today is how to provide food through a sustainable, low-emission cultivation system—this represents a significant opportunity that can drive the advancement of the green farming concept.

In Jombang Regency, one of the current development priorities of the Regent of Jombang is to realize healthy food zones, which can serve as a strong foundation for implementing the green

farming concept. The key strategy for implementing and expanding green farming is to build broad collaboration—among local government agencies (OPD), village administrations, and the private sector. This has already been demonstrated in the implementation of Healthy Crop Cultivation (BTS), which involved collaboration with village governments and partnerships with private entities such as PT. MHI, Kliring Berjangka Indonesia, and the AFCO Group, as well as universities. To ensure the sustainability of the program, long-term policy support from the government is essential.

CONCLUSION

1. Green agriculture in Jombang Regency is implemented through three major activities: SRI rice cultivation, organic rice farming, and BTS (Healthy Crop Cultivation).
2. The Jombang Regency Government plays a significant role in supporting the implementation of green agriculture through policies, human resource capacity development, and provision of infrastructure and facilities.
3. Leadership, particularly from heads of local government agencies (OPDs) and local leadership at the farmer and village government levels, plays a crucial role in implementing green agriculture.
4. Human resource capacity building in the implementation of green agriculture in Jombang Regency is carried out for both farmers and agricultural officers through training, workshops, and field schools.
5. Green agriculture has great potential for development, driven by growing public and global awareness of healthy food and low-emission cultivation processes.

REFERENCES

Armstrong, M. (2016). Armstrong’s Handbook of Performance Management: An Evidence-Based Guide to Delivering High Performance. Kogan Page.

Cahyantini (2024). Efforts to Improve Farmers' Economy Through the Implementation of Branding.

Dessler, G. (2017). Human Resource Management (15th ed.). Pearson.

FAO. (2020). The State of Food and Agriculture: Overcoming Water Challenges in Agriculture.

Febrian, W. D., Ardista, R., Kutoyo, M. S., Suryana, Y., Febrina, W., Kusnadi, K., Suryawan, R. F., Purba, T. Y. B., Turi, L. O., Sudiarti, S., Libriantono, B., Perwitasari, E. P., & Irwanto, I. (2022). Manajemen Sumber Daya Manusia. In S. S. Atmodjo (Ed.), Eureka Media Aksara. Eureka Media Aksara.

Pretty, J. (2008). Agricultural Sustainability: Concepts, Principles, and Evidence. Philosophical Transactions of the Royal Society B: Biological Sciences, 363(1491), 447–465.

Green Agriculture in Batu City, Journal of Islamic Economic and Business Studies, Universitas Merdeka, Malang.

Jones, P., Comfort, D., & Hillier, D. (2012). Corporate Social Responsibility and the UK’s Top Ten Retailers. International Journal of Retail & Distribution Management, 35(6), 423–436.

Limpo et al. (2022). Revisiting the Success of Rice Self-Sufficiency from the New Order Era. IPB Press, Bogor.

Mathis, R. L., & Jackson, J. H. (2019). Human Resource Management: Essential Perspectives (8th ed.). Cengage Learning.

Megasari Dita, Sodiq Moch. (2023). Review: Climate Change Impact on Plant Pests. National Seminar of LPPM UMMAT, Universitas Muhammadiyah Mataram.

Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2020). Fundamentals of Human Resource Management (8th ed.). McGraw-Hill Education.

Pertiwi, Nurlita. (2024). Implementation of Sustainable Development in Indonesia. Pustaka Ramadhan, Bandung.

Turner, T. & Nguyen, H. (2020). Strengthening Community-Based Training for Sustainable Agriculture: The Role of Local Insights. Journal of Agriculture and Food Research, 1, 100–109.

Tilman, D., Balzer, C., Hill, J., & Befort, B. L. (2011). Global Food Demand and the Sustainable Intensification of Agriculture. Proceedings of the National Academy of Sciences, 108(50), 20260–20264.

Thepilus Nauw Kelvin, Purnomo Bambang Radityo, Prijambodo Gendy. (2024). The Effect of Job Training, Compensation, and Work Environment on the Performance of Production Employees at PT Titilas Jaya Mojokerto. Dr. Soetomo University, Surabaya.

Yusuf, M., Febrian, W. D., Sinta, A. K., Juminawati, S., Kutoyo, M. S., Simbolon, E., Jumawan, J., Widjaja, A., Zen, A., Rajab, M., Supardi, S., Soesilo, Y., Nuraeni, N., Susanto, P. C., Prayoga, R., Tahir, A. M. S., Irzani, I., Suryawan, R. F. S., Pratikno, Y., & Safariningsih, R. T. H. (2023). Manajemen (Teori & Aplikasi). In S. S. Atmodjo (Ed.), Eureka Media Aksara. Eureka Media Aksara.