



## Sustainable Agriculture Development Program in Changing the Mindset of Farmers in Cikurubuk Village

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### Abstract

Cikurubuk Village has invaluable wealth in the form of abundant water springs that are scattered throughout the village area, so that they become a source of life for the people in the Cikurubuk Village area and its surroundings. Based on existing data, Cikurubuk Village has 10 (ten) springs. Gradually farmers are able to change their mindset, so that they do not continue to depend on government subsidised fertilisers which are increasingly difficult to obtain and at high prices by repairing the soil ecosystem that was damaged by the use of synthetic fertilisers and pesticides used over the years. The method used is descriptive analytic, which is a method that focuses on awareness (descriptive) through situations and events that occur in the community related to the object of research, namely the behaviour of the village community when farming organic rice in an effort to local food security. Agricultural cultivation, making Cikurubuk village a role model for other farms that are able to reduce unemployment by producing one superior product developed from the innovation of patani rice from organic agricultural cultivation.

*Keywords: Agriculture; Development Program; Mindset of farmers.*

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### Introduction

Water is the source of life. All life on Earth begins with water. That's what science and technology scientists say. There are at least three theories about the origin of life starting from water. Firstly, life began in water. This theory believes that life arose from long and complex chemical reactions. This chemical chain is believed to start from water on land or sea water. Secondly, the role of water in life is expressed in the form that all living things come from liquids such as water. The essence of food, and food comes from plants that cannot live without water. Thirdly, that water is an essential element for creatures to live and maintain their survival. In addition, most of the body of living things consists of water.

In Islamic studies, the statement about the source of life starting from water is mentioned in the Quran surah Al-Anbiya verse 30: "And We made everything that lives come from water; so why do they not believe?" (al-Anbiya: 30). In addition to this verse, the Qur'an also mentions one of the fundamental benefits of water for the life of creatures on earth. In a concise wording, Allah says: "It is He who sends down water (rain) from the sky for you, some of which is a drink and some of which (nourishes) the plants, on which you graze your cattle. (an-Nahl: 10).

Furthermore, there are more than 200 verses in the Qur'an that directly mention the word (al-ma') meaning 'water' or other things related to water, such as rain, sea, rivers, springs, and so on. In a series of verses, the Qur'an also discusses the issue of water and its functions in nature, such as water as the life support of living things on earth, or water as a means of transportation, as Allah says in the Qur'an, Surah Ibrahim verse 32: "It is Allah who has created the heavens and the earth and sends down water (rain) from the sky, then with it He brings forth various fruits as sustenance for you; and He has subjected ships for you to sail on the seas by His will, and He has subjected rivers for you." (Ibrahim: 32).

The above statement underlines that water is a life symbol. Water can be interpreted as the main necessity of life in the world. When there is no water in a place, it is certain that there is no life there. Conversely, when water is abundant in an area. It is certain that the area is fertile. Plants grow well. The people who live in the area live comfortably. That is a glimpse of Cikurubuk Village, Buahdua Subdistrict, Sumedang Regency, which is one of the locations of the Integrated KKN for IKOPIN University students in coordination with LLDIKTI-4 West Java and Banten.

Geographically, Cikurubuk Village is located in the northern part of the Sumedang Regency Capital and is located at the foot of Mount Tampomas in the North, while the location of the Buahdua Sub-district Capital is in the Southwest bordering Tangkerta Sub-district. Because of its location at the foot of Mount Tampomas, it is not surprising that there are many springs in the Cikurubuk Village area. And if traced, the name Cikurubuk itself is the name of a hamlet that became the name of the village. The name Cikurubuk is related to the origin of the word Burukbuk, which represents the sound and condition of the water coming out of the springs that are found in this area. Cikurubuk Village, Buahdua Subdistrict, Sumedang Regency, is said to have taken its name from the word "Burukbuk", the sound and condition of the water coming out of the spring.

The expression the voice of water has happened and is real in Cikurubuk Village. The sound of water coming out of the spring that sounds "burukbuk" or in the ears of ethnic Sundanese can be heard "berekbek, berekbek". This is because Cikurubuk Village has invaluable wealth in the form of abundant water springs that are scattered throughout the village area, so that they become a source of life for the people in the Cikurubuk Village area and its surroundings. Based on existing data, Cikurubuk Village has 10 (ten) springs spread across the village area, namely: Mata Air Ciembutan, Mata Air Cijolang, Mata Air Solokan Letik, Mata Air Sawah Cijolang, Mata Air Ingkar, Mata A.

The expression the voice of water has happened and is real in Cikurubuk Village. The sound of water coming out of the springs that sounds "badbuk" or in Sundanese ethnic ears can be heard "berekbek, berekbek". This is because Cikurubuk Village has invaluable wealth in the form of abundant water springs that are scattered throughout the village area, so that they become a source of life for the people in the Cikurubuk Village area and its surroundings. Based on existing data, Cikurubuk Village has 10 (ten) springs spread across the village area, namely: Mata Air Ciembutan, Mata Air Cijolang, Mata Air Solokan Letik, Mata Air Sawah Cijolang, Mata Air Ingkar, Mata Air Cikurubuk, Mata Air Cijaha, Mata Air Ranca, Mata Air Ciakar, and Mata Air Cigempol. With such conditions, it is natural that Cikurubuk Village is a village that has considerable natural potential to be empowered in various sectors, including agriculture, fisheries, tourism and other community aspects.

As stated by Cikurubuk Village Head, M Fadar Junawar (2023), the Cikurubuk community's awareness of the need for healthier foodstuffs is growing. Moreover, the problem of subsidised fertiliser has been reduced, so farmers must continue to innovate in facing this challenge. In addition, it is proven that various organic food products are currently increasingly in demand by the community, even the demand is increasing day by day. Currently, Cikurubuk Village has reached one village one product, which is a model village for producing organic rice.

This article is a simple study of the general behaviour of the Cikurubuk Village community in farming. This is of course initially based on the tradition of farming, especially rice farming, which cannot be separated from the tradition of tatali karuhun in farming. Then evolutively but surely, there was a shift and transformation in agricultural land management based on the community's collective awareness of the need to "back to nature" in rice farming. From this process of agricultural land management, a small-scale farming system has developed towards the food independence of the

Cikurubuk community to achieve physical and mental prosperity. One of them, Cikurubuk village has succeeded in achieving one village one product, which is a producer of organic rice.

## Research Method

This programme is an integration of KKN-Terpadu activities of students of Universitas Koperasi Indonesia and several other private universities in West Java and Banten under the direct coordination of LLDIKTI4 and Community Service of Professors in LLDIKTI-4 West Java and Banten. This programme was implemented in Cikurubuk Village, Buahdua District, Sumedang Regency, West Java Province. Activities were carried out in months from the end of October to December 2023, starting from the preparation of proposals to the final report. Types and Sources of research data using primary data and secondary data. Primary data is data taken from the field through interviews and observations. Secondary data is data taken from other parties needed to support the analysis of the discussion. Secondary data in the form of written evidence, journals, research reports, and agencies related to this research. The method used is descriptive analytic, which is a method that focuses on awareness (descriptive) through situations and events that occur in the community related to the object of research, namely the behaviour of the village community when farming organic rice in an effort to local food security.

## Results & Discussion

Food is a human right, which can determine the quality of human resources and part of the national resilience. Food security of one nation is the pillar of national development. Food security depends through importation will threaten national resilience of the country (CFS, 2014). Food is a human right. Food also determines the quality of a nation's human resources and is a pillar of national security. Food security is the pillar of development of other sectors. The national and global commitment to realising food security is based on the strategic role of food security in: (i) fulfilling one of human rights; (ii) building the quality of human resources; and (iii) building pillars for national resilience. The role of fulfilling one of the human rights is stated in Law No. 7/1996 on Food, that the right of every person to obtain safe and nutritious food is the same principle as the right to obtain sufficient food and the human right to be free from hunger (Pakpahan in Azahari, 2008)

Adequate and quality food is a prerequisite for the development of human physical organs from the womb, which also affects the development of their intelligence according to their genetic potential. A generation that has a strong physical condition and high intelligence is needed to carry out development in an era of increasingly fierce competition. Such a generation requires adequate input of macro and micro nutrients in the process of physical and spiritual formation. Furthermore, food security is a pillar for the development of other sectors.

It is considered strategic because no country can develop its economy without first solving its food problem. Specifically for Indonesia, the food sector is also the sector that determines the welfare of the majority of the population working on-farm in rural areas consisting of narrow landed farmers and farm labourers who are mostly poor people. Food also determines the welfare of poor urban consumers who spend a large portion of their income on consumption. Considering this, food self-sufficiency is an absolute requirement for national resilience. One of the strategic steps to maintain national resilience is through efforts to realise food self-sufficiency. Local food is food consumed by local communities according to local potential and wisdom.

Local food as a solution to fulfil food needs in the inflationary period. Local food development is an effort to strengthen food diversity with various alternative foods. Food security is a condition of fulfilling food needs for households which is reflected in the availability of sufficient food, both in quantity and quality, safe, equitable and affordable. Food self-sufficiency is "the ability to provide one's own food with indicators: (i) not including imports in the food supply planning process, (ii) endeavouring to utilise the available domestic potential, and (iii) importing only in cases where the domestic food supply suffers from disasters resulting in production failure" (Rachmat, 2011).

The characteristics of realising food self-sufficiency according to (Elizabeth, 2011) are as follows. (i) increasing domestic food production based on local resources to provide energy of at least 2,200 kcal/capita/day, and protein energy of at least 57 g/capita/day; (ii) increasing the land-man ratio through the establishment of perennial land (irrigated and dry) of at least 15 million ha each; (iii) increasing the ability to manage food reserves; (iv) increasing the reach of distribution networks and food for producers and consumers; and (v) increasing the government's ability to anticipate, and deal early and responsive to food and nutrition insecurity problems. Another point is raised by FAO (2022) which states that the condition of food security should fulfil four components, namely (i) adequate availability of food; (ii) stability of food availability without fluctuations from season to

season or from year to year, (iii) accessibility/affordability to food, and (iv) quality and safety of the materials used.

Organic farming was born due to consumer protests about the large amount of toxic chemical residues in agricultural products (health/social). There is public awareness about environmentally friendly farming, as well as the interest of producers to do business in organic agricultural products. The reason is because it is healthier than conventional products. Therefore, organic farming is an integration of environmental, economic and social/health factors. Since 2016, with the implementation of the free market for the ASEAN Economic Community (AEC). Where ASEAN countries' products will freely enter the Indonesian market. Including organic products, because organic standards for ASEAN have been made ASEAN Standard Organic Agriculture - ASOA (2021).

In the local context of Cikurubuk Village, the village government is optimistic about making Cikurubuk Village an organic farming village. Organic farming or more precisely referred to as organic farming is simply defined as the attitude or behaviour of farmers in implementing an environmentally friendly farming system. By utilising natural materials and not using chemicals, synthetics and genetically modified products. Thus, what is emphasised in the organic farming system is not the end product but the production process related to the attitude of farmers to produce agricultural products. Therefore, in certification activities, what is certified is the process, not the end product. From the process, so that farmers cannot bring the harvest. The produce is brought to the laboratory to be checked for organics. There is no need to conduct lab tests on soil, water or other pesticide chemicals. Unless there is suspicion from the organic certification body (LSO).

From village data available in Cikurubuk Village, 15 hectares of paddy fields have been certified as organic rice owned by farmer groups in Cikurubuk Village and in the future will be developed to 100 hectares. Gradually, the food self-sufficiency programme and the application of organic rice cultivation agriculture have been carried out as follows (Results of Observation and review of Cikurubuk Village documents): (1) Implementation of the Sustainable Development Goal (SDGs) programme initiated by the UN World body in the environmental, social and economic fields. On a micro level, the Cikurubuk village community, guided by the village head and all village officials, is undertaking a sustainable development program through agricultural cultivation, especially the planting and post-harvesting of organic rice; (2) Based on the spirit of gotong royong, the Cikurubuk village community works hand in hand to strengthen each other and create independence by maximising the potential of natural resources (SDA) and the potential of human resources (HR) in Cikurubuk Village to continue to take part. (3) The Cikurubuk Village community voluntarily and on the principle of togetherness work together to strengthen each other and create a village economy.

Activities carried out to revive various productive activities that support each other, through joint family businesses. (4) With the guidance of the Sumedang Regency Agriculture Office and other community leaders, the Cikurubuk community is trying to develop and create a variety of organic products from agriculture, plantations and livestock using environmentally friendly fertiliser and processed feed products; (5) Gradually, the local community is motivated and given business opportunities for the community and also strengthens food security independently; (6) Gradually, food independence and other productive businesses initiated by village officials can encourage the Cikurubuk community to be able to create their own business opportunities and reduce unemployment. They are given an injection of enthusiasm to work hard and struggle hard to achieve happiness physically and mentally through the productive business of organic rice farming.

## Discuss

The results of an interview with the Cikurubuk Village Head, M Fadar Junawar (2023), can be summarised as follows. Along with the spirit of progress and lifelong learning typical of rural communities, the Cikurubuk community's awareness of the need for healthier foodstuffs is growing. Moreover, the issue of subsidised fertiliser is increasingly being reduced, so farmers must continue to innovate in facing this challenge. In addition, it is proven that various organic food products are currently increasingly in demand by the public, even the demand is increasing day by day.

Based on a brief review, observations, and interviews with several community leaders, the expected programme outputs of the organic rice cultivation programme in Cikurubuk Village are (i) being able to provide agricultural products that are safe for consumption and do not cause environmental pollution; (ii) making Cikurubuk Village the centre of organic agriculture in Sumedang Regency and even in West Java; (iii) being able to create skilled farmers; (iv) not relying on chemical fertilisers from the government, and (v) being able to repair agricultural ecosystems that are increasingly damaged by exposure to synthetic or chemical materials such as pesticides.

Based on field observations and interviews with Cikurubuk village officials, the following business plan for the development of organic agricultural cultivation can be proposed. First, Organic fertiliser production. The main activities include: (i) fertiliser making is done with various types of organic materials that are easily available in the Cikurubuk area; (ii) sorting out good quality and appropriate materials in making organic fertiliser; (iii) after getting the right material, then directly on the manufacture of fertiliser on a large scale. Second, pre-harvest implementation. The main activities include (i) preparing the farmland. This includes clearing the land of weeds, loosening the land with a tractor, and improving the drainage system; (ii) preparation of rice seeds. This is done to ensure that the rice seeds to be planted are of good quality and free from pests and diseases; (iii) planting rice seeds. This is done by making holes about 2-3 cm into the soil with a distance of about 20-30 cm between holes, then inserting rice seeds into the holes; (iv) Plant maintenance.

Rice plants need sufficient care to grow well. This includes irrigation and fertilisation arrangements, (v) fertilisation is done with organic fertiliser after planting for 1 week. Third, post-harvest implementation. Post-harvest implementation of organic rice is very important to ensure the quality and safety of the rice produced. Some things that need to be considered in the post-harvest implementation of organic rice include: (i) rice picking: Choose the right time to pick the rice so that it is not too wet or too dry, as both conditions can affect the quality of the rice. Organic rice should be harvested according to traditional harvesting techniques by hand or using an environmentally friendly rice transplanter; (ii) drying: Freshly harvested organic paddy must be dried before it becomes rice. Ensure that the rice is exposed to sufficient sunlight so that it is neither too dry nor too moist; (iii) cleaning: After the drying process, separate the grain from the husk and do other cleaning such as sorting out damaged or defective grains; (iv) milling: Once separated, organic rice needs to be milled using an organic rice mill. Ensure that the grinding machine used is clean and sterile so as not to contaminate the organic rice; and (v) storage: Store organic rice in a clean and dry container away from water and insects. Also ensure that the organic rice is stored in a clean and dry container away from water and insects.

Fourth, marketing. Some activities include (i) opening an online store or website to sell organic rice and providing clear information about the advantages of organic rice over regular rice; (ii) selling products directly to restaurants, hotels, or supermarkets that serve organic food; (iii) attending special events such as agricultural fairs and events related to organic products to introduce organic rice; (iv) using social media as the main marketing tool to reach potential consumers, and (v) collaborating with local farmers to market their organic rice together. The following illustrates the budget plan for organic rice cultivation.

In the framework towards food self-sufficiency, in general, the implementation method of the organic rice cultivation programme in Cikurubuk village can be stated as follows. (1) Increasing organic rice production by encouraging farmers to switch to more environmentally friendly organic cultivation methods; (2) Maintaining product quality: The organic rice programme also aims to maintain the quality of the products produced. Measures such as pest and disease control using organic methods and selection of suitable rice varieties will help improve the quality of the rice produced; (3) Expanding the market: Another goal is to expand the market for organic rice with the aim of increasing added value for farmers and encouraging consumers to use organic rice as a healthier alternative. This can be achieved through proper promotion and marketing; (4) Reducing negative impacts on the environment: The production of organic rice will naturally reduce the use of synthetic fertilisers and chemical pesticides, thereby reducing negative environmental impacts. The goal of the programme is to reduce environmental impact and improve the balance of the ecosystem; (5) Improving farmers' welfare: The organic rice programme also aims to improve farmers' welfare by providing the necessary training and assistance, as well as opening wider market access for their produce.

Meanwhile, in the framework of preparing facilities and infrastructure for the development of organic rice cultivation, Cikurubuk Village officials in collaboration with the community and the Sumedang Regency Agriculture Office, carried out two main activities. The first is optimising the organic rice cultivation land in Cilumping Hamlet RT 04 RW 06, about 30 hectares of land is used for organic rice cultivation. Second, gradually procuring agricultural equipment and machinery, such as tractors and pest spraying machines.



## Business Analysis of Organic Rice Programme

Business Analysis per Farmer Group in Cikurubuk Village, can be briefly stated as follows; (1) 1 farmer group manages 5 -15 hectares of land and a total of 30 hectares of land; (2) Every 1 hectare produces 4 tonnes; (3) Harvest period, every 4 months; (4) Assumption for the selling price of rice per 1 kg is Rp20.000 - Rp25,000; (5) The amount of organic fertiliser and pesticide production; (6) The sales value of 4 tonnes x 30 hectares = 120 tonnes = 120,000 kg x Rp20,000 = Rp2,400,000,000 (Source: Cikurubuk Village Data, 2023)

## Conclusions

With the sustainable agricultural development programme, including organic rice cultivation, farmers are gradually changing their mindset, so that they do not continue to depend on government-subsidised fertilisers, which are increasingly difficult to obtain and at high prices. Gradually, the pattern of agriculture through organic rice cultivation can improve the soil ecosystem that was damaged by the use of synthetic fertilisers and pesticides used for years. In addition to the food self-sufficiency programme, it can trigger the enthusiasm of farmers and help mobilise human resources, especially in Cikurubuk Village. With the introduction of agricultural cultivation, especially organic rice, making Cikurubuk village a role model for other farms that can reduce unemployment by producing one superior product developed from the innovation of patani rice from organic agricultural cultivation.

The development of organic farming as a sustainable business development in helping the economy of the villagers, they began to get used to critical thinking and alternative thinking through experience in organic rice cultivation. The economy of rural communities is increasingly productive, and at the same time collective thinking is growing through joint efforts that benefit all villagers, such as by developing village-owned enterprises, or rebuilding the Village Unit Cooperation, which is now felt to be mathy.

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